Agenda of Board Work Session

The Board of Directors
Conestoga Valley School District

A Board Work Session of the Board of Directors of Conestoga Valley School District will be held Monday, October 12, 2026, beginning at 7:00 PM District Administration Board Room , 502 Mt. Sidney Rd., Lancaster, PA 17602. Format: Robert's Rules of Order

1. **CALL TO ORDER**
Speaker(s): Board President

1.A. Welcome
Speaker(s): Board President

Description: This is our first, of two meetings per month, in which we receive most of the informational presentations as well as discuss and deliberate future decisions. There are also action/voting items required on timely issues or to meet time-constrained deadlines.
Our meetings observe all legal requirements and our district policies to the best of our ability and understanding. Our detailed agendas and related public documents are posted on the district website for public access.

1.B. Pledge to the Flag
Speaker(s): Board President

1.C. Attendance
Speaker(s): Board Secretary

1.D. Approval of Agenda
Speaker(s): Board President

2. **COMMENTARY ON DISTRICT ACTIVITY**

2.A. Superintendent's Comments
Speaker(s): Superintendent

2.B. Board Comments

3. **PRESENTATIONS**

3.A. K-12 Curriculum Updates (New Course Approvals)

Description:
Dr. Galbraith, Dr. Koser, and Dr. Mann will present curriculum courses for board review and approval. To allow for school board and community review, administration is seeking approval of courses at the November 16, 2026 School Board meeting.

4. **PUBLIC / PROFESSIONAL / STAFF INPUT**

4.A. Public Comments

Description:
Residents of CVSD are invited to comment on any item on the agenda of concern. Please give your name, the subject you wish to address, and the group you represent, if any. Comments are requested to be kept to three minutes. Specific guidelines are under Policy 903 Public Participation at Board Meetings.

5. **ACTION / DISCUSSION ITEMS**

5.A. Finance Update

Speaker(s): Adele Huntzinger, CFOO

Description: Adele Huntzinger, CFOO, will present the fiscal impact of the 2025-2026 school year and include an update on budgetary reserves, fund balance commitment and assignment. This item will be approved as part of the consent agenda on October 19, 2026.

5.B. Review of Proposal for Intensive Instructional Coaching Institute - Virtual

Description:
Dr. Koser will discuss the proposal to approve funding for nine staff members to participate in the Intensive Instructional Coaching Institute - Virtual provided by the Instructional Coaching Group. The proposal will be added to the consent agenda on October 19, 2026 for approval.

5.C. Discussion of Policy Approval Timeline

Description: Philip Benigno, Board Member, requested the Policy Approval timeline be reviewed.

6. **REVIEW TENATIVE BOARD AGENDA**

7. **PUBLIC COMMENTS**

Description: Residents of CVSD are invited to comment on any item on the agenda of concern. Please give your name, the subject you wish to address, and the group you represent, if any. Comments are requested to be kept to three minutes. Specific guidelines are under Policy 903 Public Participation at Board Meetings.

8. **BOARD MATTERS: INITIATIVES AND ANNOUNCEMENTS**

Description: Description: <u>Upcoming Events:</u>
Thursday, October 15 - Brownstown International Night @ 6-7:30 pm
Wednesday, October 21 - Community Bonfire @ HS @ 6:30 - 9 pm
Friday, October 23 - Homecoming Football game @ 7 pm
Sunday, October 25 - HS Music Department Fall Concert @ 3 pm

9. **ADJOURNMENT TO EXECUTIVE SESSION**

Description: Review the Board Self Evaluation results.

This agenda is tentative until the Board approves it at the start of the meeting.

CHARACTER COMMUNITY COMMITMENT







Conestoga Valley
SCHOOL DISTRICT

Curriculum Approvals

October 12, 2026

CVSD Mission, Vision, & Values

Our Vision

Setting the standard for learning innovation to meet the needs of all students, our community, and global society.

Our Mission

Empowering all students to pursue their goals, strive for personal excellence, and contribute to their communities through access to innovative and rigorous learning opportunities and unwavering support.

Shared Values

Character

- We believe in creating a safe and respectful learning environment where everyone belongs.
- We believe in promoting and modeling the CV character traits.
- We believe there is value in the diversity of backgrounds, experiences, and perspectives of all members of our learning organization.

Community

- We believe in sustaining strong school-family relationships.
- We believe in investing in mutually-beneficial community partnerships.

Commitment

- We are committed to being a learning organization that focuses on the continual growth and development of all students, staff, and stakeholders.
- We are committed to delivering a learner-centered education that values voice and choice and emphasizes the development of

CV Comprehensive Plan



Goal 2:
Learner Wellbeing
Achievement, &
Belonging

Learner Wellbeing, Achievement, & Belonging By 2027, CVSD will reduce the grades 3-8 opportunity gap between the ALL student group and our three identified subgroups (English Learners, Economically Disadvantaged, and Hispanic) by 10 percentage points in ELA and Mathematics as measured by the PSSA.	CV Instructional Model 1. CVSD will update K-12 English, Math, Science, and Social Studies curriculum to align to the current state standards and the Profile of a CV Learner competencies. Through the curriculum revisions, the district will ensure all students have access to strong Tier 1 instruction through a guaranteed and viable curriculum. Tier 1 learning is differentiated and scaffolded to ensure access for all students, including students with disabilities and English Language Learners.

CV Instructional Model - Proposed Revisions



Positive School Climate

Rigorous & Engaging Learning Experiences

➔ *Standards-Based Curriculum*

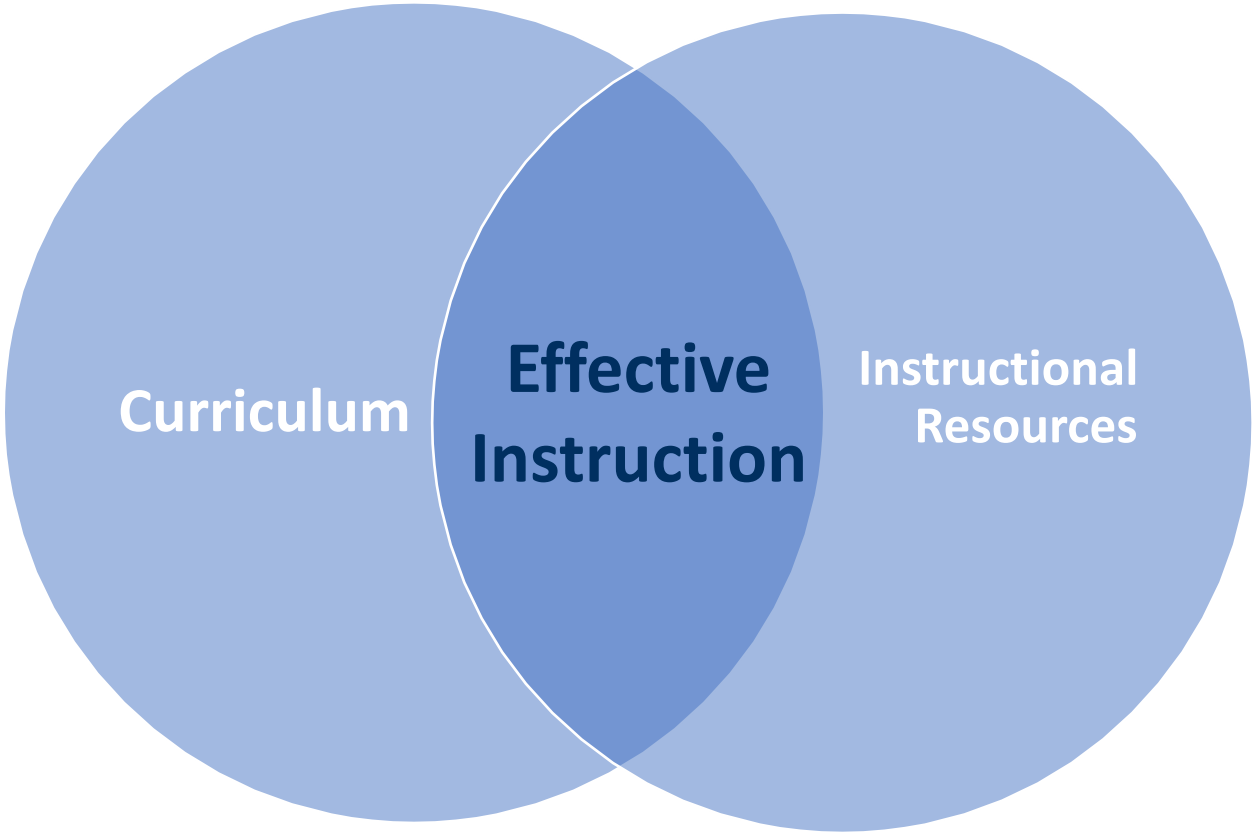
Learner-Driven Design

Modern Learning Curriculum Overview

What is curriculum?

- Modern Learning Curriculum Project
- Understanding by Design Framework
- State Standards
- Assessments

Not a textbook!



- Stepping Stones
- Fundations
- IXL
- Actively Learn

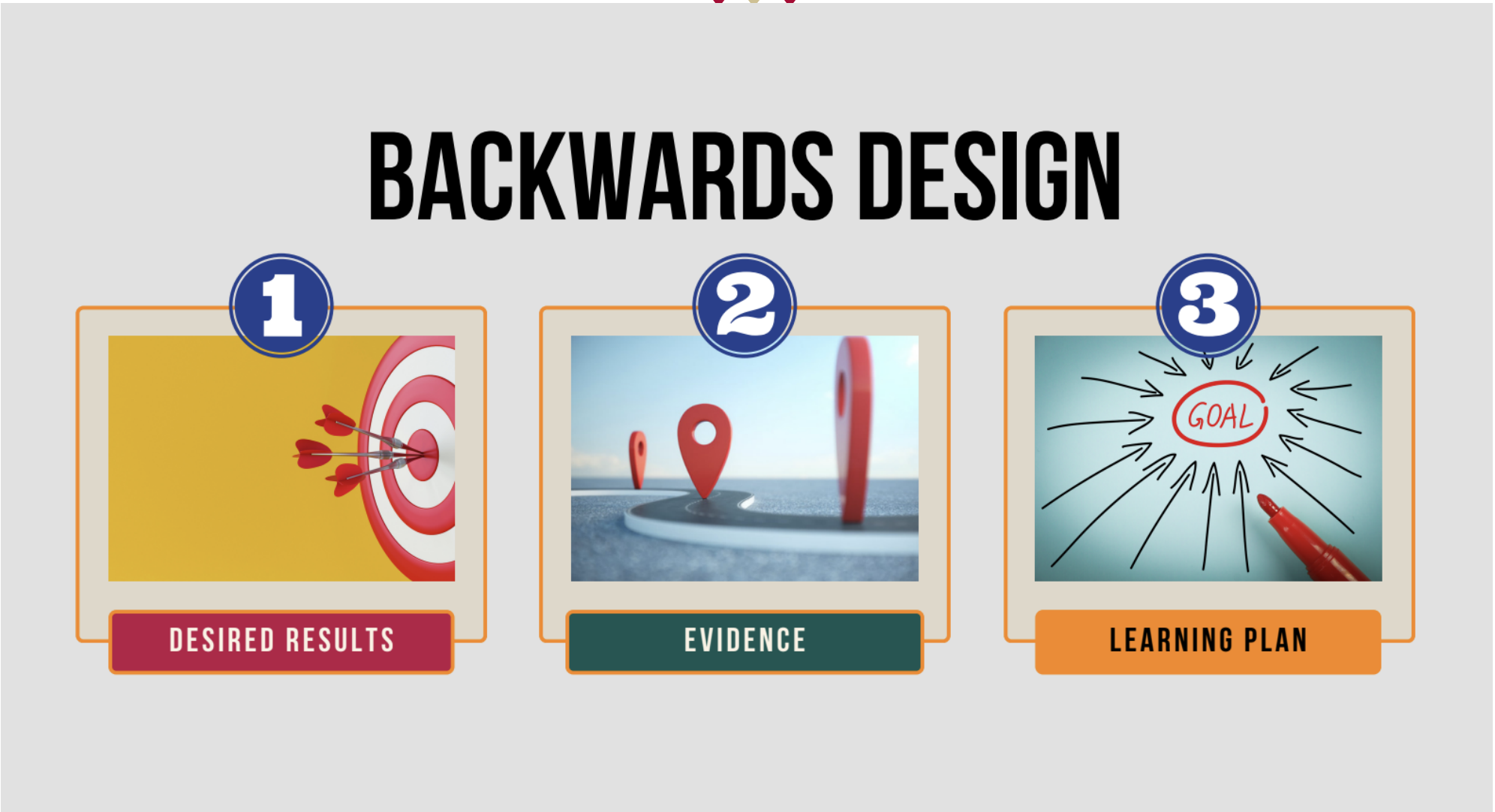
Modern Learning Curriculum Overview



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Understanding by Design



What does Board Policy say about curriculum?

105: Curriculum	106: Guides for Planned Instruction	107: Adoption of Planned Instruction
• Continuous basis • Designed for students to achieve the state standards • Curriculum – series of planned instruction (see 107) • Board adopts a curriculum plan which includes required subjects	• Developed by Superintendent/Admin Team based on board approved curriculum • Staff participation in development • System of administrative review to ensure guides are being followed by teaching staff	• Objectives, Content, Materials, Activities, Assessment • Defined by PA Dept of Education • **All planned courses approved by board** • Revisions may be approved based on major changes/shifts in course

Other relevant policies: 102, 108, 109, 110, 111

Phase I: ELA & Math (Fall 2024)

English Language Arts

(Board Approved 11/18/2024)

- ✓ Kindergarten ELA
- ✓ 1st Grade ELA
- ✓ 2nd Grade ELA
- ✓ 3rd Grade ELA
- ✓ 4th Grade ELA
- ✓ 5th Grade ELA
- ✓ 6th Grade ELA
- ✓ 7th Grade ELA
- ✓ 8th Grade ELA
- ✓ HS English I

Mathematics

(Board Approved 10/21/2024)

- ✓ Kindergarten Math
- ✓ 1st Grade Math
- ✓ 2nd Grade Math
- ✓ 3rd Grade Math
- ✓ 4th Grade Math
- ✓ 5th Grade Math
- ✓ 6th Grade Math
- ✓ 7th Grade Math
- ✓ 8th Grade Math
- ✓ HS Algebra I

Phase II: Social Studies

Board Approved:

November 10, 2025

Department	Course Name	Grade Level(s)
Social Studies	Honors Cognitive Psychology	10-12
Social Studies	CP Modern World History	11
Social Studies	Sociology	11-12
Social Studies	CP US History I	9
Social Studies	CP US History II	10
Social Studies	US Government	12
Social Studies	Exploring Geography	6
Social Studies	Ancient World History	7
Social Studies	Early American History	8

Phase II: HS English & Math

Board Approved:

November 10, 2025

Department	Course Name	Grade Level(s)
English	English 2	10
English	American Literature	11-12
English	British Literature (CP)	11-12
English	Media in the 21st Century	11-12
English	Public Speaking	9-12
English	Yearbook	9-12
Math	Algebra II	9-11
Math	Geometry	9-11

Courses Presented for Board Approval

Business	ELA	Mathematics	Science	Social Studies
Career Education Consumer Skills	History of Film 1 Journalism 5th Grade ELA*	Algebra 3 Explorations in Computer Science Pre-Calculus	K-8 Science Principles of Science Biology Chemistry Physics	African American Studies Psychology World War II

New Course Proposals

Business

- Foundations of Economics
  - .5 credit/marking period course

English Language Arts

- Advanced Yearbook Publications
  - .5 credit/marking period course

**CVHS Course catalogue for 2027-2028*

Next Steps/Timeline

Existing Courses/Redesign

Board & Public Review:
October 12 - November 6, 2026

Questions/Follow-Up: November 9, 2026

Board Approval: November 16, 2026

New Course Proposals

Board & Public Review:
October 12 - November 6, 2026

Questions/Follow-Up: November 9, 2026

Board Approval: November 16, 2026



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Unit 1: Career Awareness and Exploration

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2025	HS Career Education	1 Week(s)	9, 10	Business Education	Matthew Fox, Tonya Santamaria, Bartosz Ciurski, Joshua Butina, Leann McDonald, Mel Upton, Brody Bonadio

Focus

We will explore a broad range of career options and get to understand the skills, education, and experiences required for different professions. We will explore individual interests, strengths, and values to begin identifying potential career paths. Through research, group discussions, and various activities, we will develop a clearer sense of what careers align with our goals and aspirations. The unit aims to build foundational knowledge that supports informed decision-making about future education and work opportunities.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Business, Computer and Information Technology: 9

- Analyze personal characteristics, talents, skills, abilities and career assessment results as related to career pathways, clusters, or occupations. Reference Career Education and Work 13.1.11.A - B *(15.2.12.A)*
- Analyze and compare global employment opportunities relative to career interests, including but not limited to, the country's culture, legitimacy of a global business, prospective employers, and social network/virtual identity. *(15.2.12.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Plan and Navigate Careers: Evaluate careers and identify possibilities to design and navigate career pathways and aspirations. *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Career planning is a continuous process influenced by personal interests, abilities, values, and changing career outlooks. *(U1)*
- Personal responsibility and self-management contribute to success in

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can I use what I know about myself and current job trends to create and continually adjust a realistic career plan? *(Q1)*
- How can I create, implement, and reflect on a personal action plan that

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Analyze the relationship between career choices and career preparation opportunities to choose a path. *(13.1.9-12.A)*
- Describe employment outlook, organized by indemand occupations, clusters, pathways, or other methods. *(13.1.9-12.D)*
- Examine basic labor laws to determine the rights and responsibilities of both employers and employees. *(13.1.9-12.F)*
- Demonstrate shared responsibility for collaborative work and the value of contributions made by team members with various perspectives. *(13.2.9-12.C)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

career preparation and lifelong learning. *(U2)*

shows responsibility, growth, and readiness for life beyond high school? *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Career Options and Pathways *(K1)*
- Education and Training Requirements *(K2)*
- Interests, Strengths, and Values *(K3)*
- Career Decision-Making *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify my interests, strengths, values, and areas for growth to better understand myself as a learner and future employee. *(S1)*
- I can research a variety of careers using reliable sources to understand job responsibilities, required education, and potential earnings. *(S2)*
- I can consider short- and long-term consequences when making academic, career, or workplace decisions. *(S3)*
- I can collaborate effectively with others by listening actively, sharing responsibilities, and respecting different perspectives. *(S4)*
- I can manage my time, tasks, and responsibilities to meet deadlines and balance multiple commitments. *(S5)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Unit 2: Employability Skills

Draft Date	Course	Duration	Grades	Subjects	Team
06-12-2025	HS Career Education	2 Week(s)	9, 10	Business Education	Tonya Santamaria, Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Brody Bonadio

Focus

We will work on developing the essential skills and behaviors that will help us learn how to become effective and reliable employees in any workplace. We will learn about communication, collaboration, problem-solving, time management, and professionalism. Through interactive activities and real-world scenarios, we will practice how to demonstrate these skills and understand their importance for career success.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Business, Computer and Information Technology: 9

- Analyze personal characteristics, talents, skills, abilities and career assessment results as related to career pathways, clusters, or occupations. Reference Career Education and Work 13.1.11.A - B *(15.2.12.A)*
- Analyze career goals based on, but not limited to, interest, lifestyle, skills, and values in order to transition from high school. Reference Career Education and Work 13.1.11.G, 13.1.11.H *(15.2.12.J)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Develop Essential Skills: Utilize and integrate essential communication, collaboration, financial literacy, digital fluency, and/or evolving workforce skills. *(T1)*
- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Soft skills directly impact success in both school and future careers. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can I develop and improve my soft skills to increase my chances of success in real-world situations? *(Q1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*
- Use professional etiquette and observe social protocols when communicating verbally, nonverbally, and in writing. *(13.2.9-12.B)*
- Demonstrate shared responsibility for collaborative work and the value of contributions made by team members with various perspectives. *(13.2.9-12.C)*
- Evaluate time and project management strategies and their application to both personal and work situations. *(13.2.9-12.E)*
- Identify sources of lifelong learning to strengthen existing skills, develop new skills, and maximize career growth. *(13.3.9-12.B)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall?
Students will know...

- Soft vs hard skills *(K1)*
- Workplace skills *(K2)*
- Professional skills *(K3)*
- Transferable skills *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain the difference between soft skills and hard skills and why both are important in the workplace. *(S1)*
- I can identify my own soft skills and hard skills and describe how they apply to different careers. *(S2)*
- I can demonstrate workplace skills such as punctuality, responsibility, adaptability, and a positive attitude. *(S3)*
- I can identify skills I have developed in school, activities, or jobs that can transfer to multiple careers. *(S4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Unit 3: Post-Secondary Options

Draft Date	Course	Duration	Grades	Subjects	Team
06-12-2025	HS Career Education	2 Week(s)	9, 10	Business Education	Tonya Santamaria, Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Brody Bonadio

Focus

In this unit, we'll explore the many different paths you can take after high school—college, apprenticeships, trades, the workforce, and more. Together, we'll learn how each option can open doors to exciting futures, depending on your interests and goals. Our collaborative activities will allow everyone to discover and forge their own unique career path.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Business, Computer and Information Technology: 9

- Compare and contrast career interests with post-secondary opportunities. Reference Career Education and Work 13.1.12.D *(15.2.12.E)*
- Evaluate various methods for financing a post-secondary education. *(15.2.12.F)*
- Analyze and complete an application (e.g., job, scholarship, financial aid, post-secondary) in a focused and effective manner. *(15.2.12.G)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Plan and Navigate Careers: Evaluate careers and identify possibilities to design and navigate career pathways and aspirations. *(T1)*
- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Post-secondary choices connect directly to careers. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can I analyze and compare multiple career pathways to justify

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Analyze the relationship between career choices and career preparation opportunities to choose a path. *(13.1.9-12.A)*
- Evaluate career options based on personal interests, abilities, aptitudes, achievements, and goals. *(13.4.9-12.B)*
- Use a variety of methods to research careers that align with personal interests, values, strengths, and career goals. *(13.4.9-12.C)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

- Education and training have costs and benefits. *(U2)*

which one best matches my goals, values, and strengths? *(Q1)*
- How can I use data on education, training, and earnings to make long-term financial and career decisions that support my goals? *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Post-High School Pathways *(K1)*
- Education and Training Requirements *(K2)*
- Career Fields and Industries *(K3)*
- Career Planning Concepts *(K4)*
- Opportunity Costs *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify and describe different post–high school pathways, including college, trade school, military service, apprenticeships, and entering the workforce. *(S1)*
- I can identify the education, training, certifications, or licenses required for different careers. *(S2)*
- I can identify major career fields and industries and describe the types of jobs within each. *(S3)*
- I can use career planning concepts such as goal setting, career pathways, and career ladders to plan for the future. *(S4)*
- I can evaluate the trade-offs involved when choosing one post–high school or career option over another. *(S5)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Unit 4: Personal Interest and Career Planning

Draft Date	Course	Duration	Grades	Subjects	Team
06-12-2025	HS Career Education	2 Week(s)	9, 10	Business Education	Tonya Santamaria, Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Brody Bonadio

Focus

In this unit, we'll take time to connect who we are—our interests, strengths, and values—to possible career paths. Together we will begin shaping our goals for the future. We will strive to better understand the essentials of budgeting, funding different options for post secondary education, and making the best informed decision in order to achieve a healthy work-life balance. This unit will be approximately one to two weeks.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Business, Computer and Information Technology: 9

- Analyze personal characteristics, talents, skills, abilities and career assessment results as related to career pathways, clusters, or occupations. Reference Career Education and Work 13.1.11.A - B *(15.2.12.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Develop Essential Skills: Utilize and integrate essential communication, collaboration, financial literacy, digital fluency, and/or evolving workforce skills. *(T1)*
- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T2)*
- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T3)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Analyze entrepreneurship and other self-employment opportunities as they relate to personal career goals and corporate opportunities; evaluate successful entrepreneurs in both nonprofit and for-profit organizations and how the 4 P's play a role in branding. *(13.1.9-12.B)*
- Analyze external factors that impact employment opportunities, such as, but not limited to: Competition, Global influences ,Job growth, Job openings, Labor supply, Potential advancement, Potential earnings *(13.1.9-12.C)*
- Evaluate career options based on personal interests, abilities, aptitudes, achievements, and goals. *(13.4.9-12.B)*
- Use a variety of methods to research careers that align with personal interests, values, strengths, and career goals. *(13.4.9-12.C)*
- Evolve career plan to enact additional action steps that may include, but not be limited to: Electives, Extracurricular activities, Coursework, Career interests, Strengths and abilities, Educational and training opportunities, Work-based learning, Industry-recognized credentials *(13.4.9-12.D)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Financial literacy, especially budgeting and saving, affects personal and professional life planning. *(U1)*
- Interests, values, and strengths impact our ability to make decisions in career planning and impact our future employment opportunities. *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can I design and evaluate a personal budget and financial plan that supports my short- and long-term life and career goals? *(Q1)*
- How can understanding my personal interests, strengths, and values guide me in planning a meaningful and fulfilling career? *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Career Alignment *(K1)*
- Time management *(K2)*
- Obligation Planning *(K3)*
- Budgeting *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can evaluate career choices to determine how well they match their personal goals and priorities. *(S1)*
- I can plan and prioritize tasks to use my time effectively in school, work, and personal life. *(S2)*
- I can evaluate how commitments and responsibilities affect their time, finances, and career choices. *(S3)*
- I can analyze spending choices and make adjustments to support short- and long-term goals. *(S4)*
- I can maintain a basic budget that tracks income, expenses, and savings. *(S5)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Profile of a CV Learner	
■ Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)* ■ Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*	

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Unit 5: Job Acquisition and Retention

Draft Date	Course	Duration	Grades	Subjects	Team
06-12-2025	HS Career Education	2 Week(s)	9, 10	Business Education	Tonya Santamaria, Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Brody Bonadio

Focus

In this unit, we'll work together to build the skills needed to find, apply for, and keep a job. From writing resumes to preparing for interviews and learning what it takes to succeed in the workplace. Everyone brings something unique to the table, and we'll learn how to highlight those strengths with confidence. Our goal is to feel more prepared and confident in our own abilities, as we take these steps toward our future careers.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Business, Computer and Information Technology: 9

- Compare and contrast employment laws including, but not limited to, American with Disabilities Act (ADA), Child Labor Laws, Civil Rights Act of 1964, Consolidated Omnibus Reconciliation Act (COBRA), and Family Medical Leave Act (FMLA). *(15.2.12.I)*
- Evaluate the impact of workplace expectations on job performance. Reference Career Education and Work 13.3.12.A - B *(15.2.12.M)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Develop Essential Skills: Utilize and integrate essential communication, collaboration, financial literacy, digital fluency, and/or evolving workforce skills. *(T1)*
- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T2)*
- Apply Technology Creatively: Use technology to extend creativity and/or improve problem-solving ability to adapt to the ever-changing world. *(T3)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Demonstrate appropriate work ethic in the workplace, community, and classroom. *(15.3.12.N)*

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Utilize school- and community-based opportunities for career awareness/ preparation. *(13.1.9-12.E)*
- Use professional etiquette and observe social protocols when communicating verbally, nonverbally, and in writing. *(13.2.9-12.B)*
- Develop strategies for navigating career and life transitions, such as coping with loss of employment, resigning from a job, negotiating a raise or promotion, and employing transferable skills. *(13.3.9-12.A)*
- Incorporate feedback and personal reflection to evaluate success towards completing goals and determine a next course of action. *(13.3.9-12.C)*
- Strategically market yourself as a job candidate. *(13.4.9-12.A)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Workplace safety, labor laws, and employee rights protect workers and ensure fair treatment. *(U1)*
- Finding and retaining a job requires a set of practical skills, including creating resumes, writing cover letters, preparing for interviews, and presenting themselves professionally. *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can I apply my knowledge of labor laws and employee rights to evaluate real or simulated workplace situations and propose fair, legal solutions? *(Q1)*
- What skills and behaviors are essential to succeed and grow in the workplace beyond getting hired? *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Job Search Basics *(K1)*
- Resume and Cover Letter Fundamentals *(K2)*
- Interview Basics *(K3)*
- Self-Presentation *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify common job search methods, including online postings, networking, and employer websites. *(S1)*
- I can complete a job application accurately and follow instructions during the hiring process. *(S2)*
- I can create a clear, well-organized resume that highlights my skills, experiences, and accomplishments. *(S3)*
- I can write a basic cover letter tailored to a specific job or career opportunity. *(S4)*

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		■ I can prepare for an interview by researching the employer and practicing common interview questions. *(S5)* ■ I can demonstrate appropriate interview behavior, including professional communication and body language. *(S6)* ■ I can present themself professionally through appropriate appearance, attitude, and communication. *(S7)*

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Unit 1: Financial Mindset and Goals

Draft Date	Course	Duration	Grades	Subjects	Team
06-12-2025	HS Consumer Skills	1 Week(s)	11, 12	Business Education	Tonya Santamaria, Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Brody Bonadio

Focus

We will learn that financial literacy is an essential life skill that empowers individuals to make informed and responsible decisions about money. We will grasp the importance of creating and following a budget to effectively manage income and expenses, avoid debt, and work toward financial goals. We will demonstrate that setting specific, measurable financial goals helps guide decision-making and supports overall financial well-being.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Personal Finance: 9-12 (2026)

- Determine the financial impact of various long-term goals (e.g., lifestyle, family, education). *(17.1.9-12.A)*
- Apply a systematic decisionmaking process, including opportunity costs, to setting and achieving financial goals. *(17.1.9-12.B)*
- Analyze the impact of various factors on a person's financial mindset and decisions. *(17.1.9-12.C)*
- Evaluate strategies for dealing with behavioral biases (e.g., loss aversion, experiential bias, mental accounting) and

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T1)*
- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T2)*
- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T3)*
- Develop Essential Skills: Utilize and integrate essential communication, collaboration, financial literacy, digital fluency, and/or evolving workforce skills. *(T4)*

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other obstacles to managing personal finances. *(17.1.9-12.D)*
- Assess the value of sharing financial goals and information with others. *(17.1.9-12.E)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Financial goals affect your decision making. *(U1)*
- When making financial decisions, you will almost always have trade offs. *(U2)*
- Being in good financial standing requires you to make well informed decisions. *(U3)*
- Detailed and up to date record keeping can help you better keep track of your finances. *(U4)*
- The terms net and gross are used in similar settings but mean different things. *(U5)*
- Understand the role of state and federal regulators, consumer protection agencies, and laws in preventing fraud, ensuring fairness, and protecting financial well-being. *(U6)*
- Biases like loss aversion, mental accounting, and experiential bias can negatively impact financial choices, but strategies exist to mitigate them. *(U7)*
- Planning for needs and wants may affect your decision making. *(U8)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- In what ways does financial literacy contribute to informed and responsible decision-making throughout a lifetime? *(Q1)*
- How do individual values, goals, and priorities shape financial behavior and planning? *(Q2)*
- What role does budgeting play in achieving both short-term and long-term financial stability? *(Q3)*

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	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ Difference between needs and wants *(K1)* ■ Financial record keeping *(K2)* ■ Short and long-term financial goals *(K3)* ■ Different roles of consumers in the market *(K4)* ■ Government and corporate roles in the market *(K5)*	What discrete skills and processes should students be able to use? Students can... ■ I can identify and differentiate between needs and wants. *(S1)* ■ I can understand the difference between short-term and long-term goals. *(S2)* ■ I can explain the difference between gross and net pay. *(S3)* ■ I can determine how personal habits may affect finances and decision-making. *(S4)* ■ I can develop a method for basic financial record keeping. *(S5)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Unit 2: Income

Draft Date	Course	Duration	Grades	Subjects	Team
06-12-2025	HS Consumer Skills	1 Week(s)	11, 12	Business Education	Tonya Santamaria, Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Brody Bonadio

Focus

We will learn about a variety of sources that income can come including wages, salaries, investments, and entrepreneurial activities. We will examine the different factors that affect income such as taxes, payroll deductions, and employer-provided benefits. We explore how career choices play a significant role in determining earning potential and long-term financial stability.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Personal Finance: 9-12 (2026)

- Explain various types of income (e.g., earned, unearned, passive, active) and their sources (e.g., work, rentals, investments, government programs). *(17.2.9-12.A)*
- Describe sources of retirement income and how they relate to individual investment choices, employer-sponsored retirement plans, and government programs. *(17.2.9-12.B)*
- Use data to support an individual's decision to obtain or forgo post-secondary

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T1)*
- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T2)*

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education based on the associated costs and anticipated future income. *(17.2.9-12.C)*
- Research options to pay for education and training, ways to reduce the total cost, and steps needed to obtain financial aid. *(17.2.9-12.D)*
- Evaluate the impacts of technology, labor markets, and economic conditions and trends on a person's employment potential. *(17.2.9-12.E)*
- Explain the impact of employee benefits (e.g., health insurance, retirement savings plans, education reimbursement programs) on an individual's finances. *(17.2.9-12.F)*
- Analyze the financial impact of a person's decision to own a business, work as an independent contractor, or be employed. *(17.2.9-12.G)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Income can come in many different forms. *(U1)*
- Gross pay and net pay are not the same. *(U2)*
- Payroll deductions include more than just taxes. *(U3)*
- Making informed career decisions requires looking at more factors than just salary. *(U4)*
- Employee benefits can have real financial value, even though they are payroll deductions. *(U5)*
- Passive income requires little to no daily work while still making money. *(U6)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do taxes, payroll deductions, and employer-provided benefits affect the amount of money you actually take home? *(Q1)*
- Where does income come from, and how do different types of income (wages, salaries, investments, entrepreneurship) impact financial opportunities? *(Q2)*
- Why is it important to consider both income and non-financial factors (passion, lifestyle, time, values) when choosing a career? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Net and gross pay calculations *(K1)*
- Job benefits other than cash *(K2)*
- Passive income *(K3)*
- Payroll deductions *(K4)*
- Income types *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can calculate gross pay based on different forms of income. *(S1)*
- I can calculate an estimated net pay based on gross pay and other deductions. *(S2)*
- I can identify mandatory and voluntary deductions. *(S3)*

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		■ I can explain how a job may offer value through items other than cash. *(S4)* ■ I can explain and identify different types of passive income, and why people may use them. *(S5)*

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Unit 3: Spending

Draft Date	Course	Duration	Grades	Subjects	Team
06-12-2025	HS Consumer Skills	1 Week(s)	11, 12	Business Education	Tonya Santamaria, Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Brody Bonadio

Focus

We will learn about responsible spending by creating a budget based on needs, wants, and financial priorities. We will prepare for major life purchases, choosing appropriate payment methods and understanding a variety of taxes and expenses. We will explore external factors such as advertising and peer influence which can impact our financial health.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Personal Finance: 9-12 (2026)

- Develop a process for making informed spending decisions, including factors to consider (e.g., product features, price, durability, environmental or societal impact, reliability of information). *(17.3.9-12.A)*
- Compare ways people can lower the price they pay for goods and services (e.g., online tools, discount retailers, negotiating, secondhand items). *(17.3.9-12.B)*
- Develop a personal approach to keeping track of income and spending. *(17.3.9-12.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Develop Essential Skills: Utilize and integrate essential communication, collaboration, financial literacy, digital fluency, and/or evolving workforce skills. *(T1)*
- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T2)*
- Apply Technology Creatively: Use technology to extend creativity and/or improve problem-solving ability to adapt to the ever-changing world. *(T3)*
- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T4)*
- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T5)*

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- Evaluate various budgeting approaches (e.g., 50-30-20, zero-based) and methods (e.g., envelope system, spreadsheets, online tools). *(17.3.9-12.D)*
- Create a personal budget to allocate current or future income, including estimates for fixed and variable expenses. *(17.3.9-12.E)*
- Identify methods for adjusting a budget for unexpected expenses or loss of income. *(17.3.9-12.F)*
- Compare the effects of using various payment methods when making purchases. *(17.3.9-12.G)*
- Compare various approaches to paying bills, including making automated payments and ensuring bills are paid on time. *(17.3.9-12.H)*
- Describe the impact of technology on payment methods and how it influences spending. *(17.3.9-12.I)*
- Analyze a housing decision, including comparing renting and buying, upfront and ongoing costs, and the process of obtaining a mortgage or a lease. *(17.3.9-12.J)*
- Justify the purchase or lease of a vehicle and the alternatives considered (e.g., new versus used, total cost of ownership or use). *(17.3.9-12.K)*
- Analyze the impact of paying sales, excise, and property taxes on financial decisions. *(17.3.9-12.L)*
- Justify a decision to participate in or forgo a fundraising effort based on the organization and cause. *(17.3.9-12.M)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Making informed spending decisions requires evaluating multiple factors. *(U1)*
- There are different budgeting methods, and what works best depends on personal style and goals. *(U2)*
- Major purchases will require an understanding and analysis of long term costs. *(U3)*
- There are many methods you can use to decrease spending on items. *(U4)*
- Taxes and interest may be very impactful in the overall cost of certain items. *(U5)*
- Budgets must be flexible and adjusted for unexpected events. *(U6)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can individuals effectively evaluate needs versus wants to make responsible spending decisions? *(Q1)*
- How can understanding the difference between debit and credit help make better informed decisions? *(Q2)*
- What criteria can be used to assess the value and necessity of goods and services before making a purchase? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- concept of monthly payments on large items. *(K1)*
- budgeting methods, such as the 50-30-20, and zero-based methods. *(K2)*
- total costs associated with different methods of payment. *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- make informed purchasing decisions based on different features and aspects of products. *(S1)*
- use different resources to find better deals or offers on products. *(S2)*
- create a budget using several different strategies. *(S3)*

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Profile of a CV Learner		
■ Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)* ■ Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*	■ the value and practice of comparison shopping. *(K4)* ■ money saving strategies. *(K5)*	■ analyze different options when making larger purchases. *(S4)* ■ explain the differences in renting or leasing as opposed to buying outright, as well as the potential payments associated with each option. *(S5)*

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Unit 4: Saving & Budgeting

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-12-2025	HS Consumer Skills	1 Week(s)	11, 12	Business Education	Tonya Santamaria, Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Brody Bonadio

Focus

We focus on saving and investing as critical components of a strong personal financial strategy. We will explore different savings and budgeting strategies. We will also explore saving for emergencies and how life can have unexpected financial problems that require critical budgeting skills.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Personal Finance: 9-12 (2026)

- Compare various financial service providers (e.g., banks, credit unions, check cashers, brokerage firms) and the types of accounts and services each provides. *(17.1.9-12.F)*
- Communicate the process of opening financial accounts and the factors to consider when selecting financial institutions and professionals. *(17.1.9-12.G)*
- Evaluate the use of financial technology to access financial services and make financial decisions. *(17.1.9-12.H)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Apply budgeting skills to manage real-life income and expenses independently. *(T1)*
- Develop consistent saving habits that support short-term needs and long-term financial goals. *(T2)*
- Evaluate financial decisions and adjust saving and budget plans when unexpected situations arise. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Budgets are planning tools that help individuals intentionally allocate income to meet needs, wants, and financial goals. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can creating and following a budget help me make better financial decisions now and in the future? *(Q1)*

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- Develop a system for documenting and organizing personal financial records, both paper and electronic. *(17.1.9-12.I)*
- Develop a personal approach to keeping track of income and spending. *(17.3.9-12.C)*
- Evaluate various budgeting approaches (e.g., 50-30-20, zero-based) and methods (e.g., envelope system, spreadsheets, online tools). *(17.3.9-12.D)*
- Create a personal budget to allocate current or future income, including estimates for fixed and variable expenses. *(17.3.9-12.E)*
- Identify methods for adjusting a budget for unexpected expenses or loss of income. *(17.3.9-12.F)*
- Calculate a person's net worth given their assets and liabilities. *(17.4.9-12.A)*
- Develop a savings plan for accomplishing personal shortand long-term financial goals. *(17.4.9-12.B)*
- Compare the features of various savings vehicles (e.g., savings accounts, certificates of deposit, money market accounts) and the interest rates offered by several institutions. *(17.4.9-12.C)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

- Tracking income and spending is essential for understanding where money goes and for making informed financial decisions. *(U2)*
- Budgets should be flexible and adjusted when income changes or unexpected expenses occur. *(U3)*
- Net worth is a measure of financial health that reflects the relationship between assets and liabilities. *(U4)*
- Different savings vehicles offer varying levels of access, risk, and return, which should be matched to specific financial goals. *(U5)*

- Why is saving money important, and what strategies can help me build savings consistently over time? *(Q2)*
- How do unexpected events impact my financial plans, and how can I adapt my budget and savings to stay financially secure? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Budgeting Methods *(K1)*
- Income Based Budgeting *(K2)*
- Expenses *(K3)*
- Balancing a Budget *(K4)*
- Opportunity costs *(K5)*
- Length of Saving Goal *(K6)*
- Surplus and Deficit *(K7)*
- Net Worth *(K8)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify, categorize, and track expenses (fixed, variable, periodic). *(S1)*
- I can compare income vs. expenses to determine surplus or deficit. *(S2)*
- I can create a balanced budget based on realistic numbers. *(S3)*
- I can revise a budget based on changes in income, priorities, or unexpected costs. *(S4)*
- I can set S.M.A.R.T. savings goals for short-term, medium-term, and long-term. *(S5)*
- I can create an action plan for building an emergency fund. *(S6)*

Unit 5: Risk & Insurance

Draft Date	Course	Duration	Grades	Subjects	Team
06-12-2025	HS Consumer Skills	1 Week(s)	11, 12	Business Education	Tonya Santamaria, Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Brody Bonadio

Focus

We will strive to understand that life involves financial risks, and that insurance is a key tool for protecting against potential losses from unforeseen events. We will learn about the importance of assessing and managing risk as part of responsible financial planning. We will explore different factors that affect what kind of insurance is purchased by individuals and the risk and benefits that stem from these choices.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Personal Finance: 9-12 (2026)

- Explain the financial implications of wills, powers of attorney, and naming beneficiaries for various accounts. *(17.1.9-12.J)*
- Explain the role of various state and federal financial regulators and consumer protection agencies. *(17.1.9-12.K)*
- Describe the issues addressed by various laws and regulations that impact or safeguard a person's finances. *(17.1.9-12.L)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Develop Essential Skills: Utilize and integrate essential communication, collaboration, financial literacy, digital fluency, and/or evolving workforce skills. *(T1)*
- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T2)*

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- Evaluate a person's potential for financial risk (e.g., loss of personal property, reduction in income, liability). *(17.5.9-12.A)*
- Critique approaches to avoiding, reducing, retaining, and transferring risk given a particular scenario. *(17.5.9-12.B)*
- Formulate insurance recommendations based on individual needs, situations, and preferences, including but not limited to automotive, homeowners, renters, health, life, and disability, as justified. *(17.5.9-12.C)*
- Use information from various sources to compare insurance providers, plans, and prices. *(17.5.9-12.D)*
- Formulate a process of comparing insurance products, determining out-of-pocket costs, and filing claims. *(17.5.9-12.E)*
- Describe circumstances in which a person may be required to show proof of insurance or obtain a minimum amount of coverage. *(17.5.9-12.F)*
- Evaluate the impact of public insurance programs for individuals facing financial hardship (e.g., Medicare, Medicaid, and unemployment). *(17.5.9-12.G)*
- Analyze trends in financial fraud and strategies to avoid becoming a victim. *(17.5.9-12.H)*
- Research the agencies individuals can contact and steps they can take to address financial fraud and scams, including identity theft. *(17.5.9-12.I)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Life involves financial risks, and insurance is a key tool for protecting against potential losses from unforeseen events. *(U1)*
- It is important to assess and manage risk as part of responsible financial planning. *(U2)*
- Different factors affect what kind of insurance is purchased by individuals and the risk and benefits that stem from these choices. *(U3)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How does insurance function as a financial tool for risk management and protection against economic loss? *(Q1)*
- What types of risks do individuals and families face, and how can insurance mitigate those risks? *(Q2)*
- How can individuals evaluate and select insurance policies that align with their financial needs and circumstances? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Basic Concept of Risk *(K1)*
- Insurance Concepts *(K2)*
- Types of Insurance *(K3)*
- Insurance Principles *(K4)*
- Financial Implications *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can analyze and evaluate risk. *(S1)*
- I can understand insurance policies and their importance. *(S2)*
- I can make decisions using a cost-benefit analysis strategy. *(S3)*
- I can explain different risk management strategies and demonstrate proper use. *(S4)*
- I can choose the best insurance options using different research and comparison skills. *(S5)*

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contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*	

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Unit 6: Credit Fundamentals

Draft Date	Course	Duration	Grades	Subjects	Team
06-12-2025	HS Consumer Skills	1 Week(s)	11, 12	Business Education	Tonya Santamaria, Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Brody Bonadio

Focus

We will learn that credit is a valuable financial resource necessary to achieving financial stability. We will develop skills to help limit mismanaging credit, which can result in significant financial consequences. We will build skills necessary to maintain a strong credit history and credit score which is essential for accessing credit under favorable terms and for achieving many personal financial goals.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Personal Finance: 9-12 (2026)

- Evaluate pathways to obtaining credit and what lenders look for in a borrower (e.g., character, capacity, capital, collateral). *(17.6.9-12.A)*
- Describe how credit reports and scores are determined, used, and improved. *(17.6.9-12.B)*
- Compare various forms of credit and how each is used (e.g., secured and unsecured loans, installment and revolving credit, service credit). *(17.6.9-12.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Develop Essential Skills: Utilize and integrate essential communication, collaboration, financial literacy, digital fluency, and/or evolving workforce skills. *(T1)*
- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- When used correctly and responsibly, credit can be a very valuable tool. *(U1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Analyze the use of loans to finance higher education and home purchases, how they are obtained, and options for paying them back. *(17.6.9-12.D)*
- Calculate the total cost of credit given a variety of situations (e.g., making minimum payments, paying fees, using alternative financial service providers). *(17.6.9-12.E)*
- Describe the consequences of failing to repay debts and sources of debt management assistance. *(17.6.9-12.F)*
- Evaluate various rights and laws related to credit and their impact on consumers. *(17.6.9-12.G)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

- Lenders will look at your credit, along with multiple other factors, when determining what size loan you are eligible for. *(U2)*
- Loans are very commonly used for major life purchases. *(U3)*
- Mismanaging your credit can have costly effects in your future. *(U4)*
- Consumers do have rights and protections when it comes to credit. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can credit be utilized responsibly to support financial well-being and opportunity? *(Q1)*
- What are the long-term implications of credit history and credit scores on an individual's financial options? *(Q2)*
- What practices promote the effective management of credit and the avoidance of debt-related challenges? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Loan terms *(K1)*
- Interest accrued on purchases *(K2)*
- Credit management *(K3)*
- PRT Formula *(K4)*
- Consumer rights and protections *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain the importance of how credit can impact major purchases. *(S1)*
- I can explain and calculate how interest rates can change the total costs of purchases. *(S2)*
- I can evaluate credit worthiness based on credit score and other factors. *(S3)*
- I can explain how debt repayment will directly effect a person's credit. *(S4)*
- I can calculate interest using the PRT formula. (Principal x Rate x Time) *(S5)*



Unit 7: Taxes

Draft Date	Course	Duration	Grades	Subjects	Team
09-22-2025	HS Consumer Skills	1 Week(s)	11, 12	Business Education	Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Tonya Santamaria, Brody Bonadio

Focus

In this unit, we will explore the role taxes play in personal and public finance. We will learn why taxes exist, how they are collected, and how they impact both individuals and the economy. We will gain hands-on experience reading pay stubs, calculating income taxes, and understanding the different types of taxes they may encounter in life—including federal, state, and local income taxes, sales tax, and property tax.

The unit will also introduce the basics of tax documents such as the W-2, W-4, and 1040 forms. Students will simulate filing a simple tax return using real-life scenarios and IRS resources. By the end of the unit, students will understand their rights and responsibilities as taxpayers and feel confident navigating the early stages of their financial lives.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Personal Finance: 9-12 (2026)

- Calculate the impact of taxes and payroll deductions on income. *(17.2.9-12.H)*
- Complete various federal, state, and local tax forms. *(17.2.9-12.I)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Develop Essential Skills: Utilize and integrate essential communication, collaboration, financial literacy, digital fluency, and/or evolving workforce skills. *(T1)*
- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T2)*

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understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Taxes are an essential part of everyday life for all people. *(U1)*
- There are many different types of taxes, and most serve different purposes. *(U2)*
- It is very important to keep good records and prepare your taxes correctly. *(U3)*
- How you plan for taxes can affect your financial state though the remainder of the year. *(U4)*
- Being informed and up to date on your tax information supports responsible citizenship and financial literacy. *(U5)*
- You will pay different amounts for different taxes based on the tax percentage. *(U6)*
- Certain taxes have a base that you will pay only up to that amount. *(U7)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- Why do we pay taxes, and how do they affect individuals, communities, and society as a whole? *(Q1)*
- How may understanding the different types of taxes help us make better informed decisions? *(Q2)*
- What are the steps required to plan for, and file your taxes? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Taxable income *(K1)*
- Tax rates *(K2)*
- Basic tax laws *(K3)*
- Online tax assistance programs *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify different taxes and the rates associated with them. *(S1)*
- I can keep accurate records of payments and taxes. *(S2)*

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	■ Tax documents *(K5)* ■ Payment preparation *(K6)*	■ I can keep up to date on tax laws and stay well informed. *(S3)* ■ I can research different programs that will assist with filing taxes. *(S4)*

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Unit 8: Investing

Draft Date	Course	Duration	Grades	Subjects	Team
09-22-2025	HS Consumer Skills	1 Week(s)	11, 12	Business Education	Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Tonya Santamaria, Brody Bonadio

Focus

This unit introduces students to the world of investing and teaches them how to build long-term financial security through informed investment decisions. Students will explore the foundational principles of investing, including how the stock market works, the relationship between risk and return, and why time is one of the most powerful tools for building wealth.

The unit also covers key investment vehicles such as stocks, bonds, mutual funds, ETFs, and retirement accounts like 401(k)s and IRAs. Students will learn how diversification reduces risk and why understanding personal risk tolerance is essential for creating a smart investment strategy. Through simulations, real-world examples, and interactive activities, students will develop the knowledge and confidence to begin thinking like investors.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Personal Finance: 9-12 (2026)

- Explain factors that contribute to rates of return for various investments, including risk, inflation, and taxes. *(17.4.9-12.D)*
- Explain the similarities and differences between stocks, bonds, mutual funds, and exchange-traded funds, and the factors that influence price fluctuations for each. *(17.4.9-12.E)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Develop Essential Skills: Utilize and integrate essential communication, collaboration, financial literacy, digital fluency, and/or evolving workforce skills. *(T1)*
- Plan and Navigate Careers: Evaluate careers and identify possibilities to design and navigate career pathways and aspirations. *(T2)*

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- Describe factors to consider when selecting sources of investment advice and trading methods (e.g., online trading platforms, financial advisors, robo-advisors). *(17.4.9-12.F)*
- Explain how popular benchmark indices are used. *(17.4.9-12.G)*
- Recommend an investment portfolio diversified to meet specific goals, including purpose, starting age, time horizon, and tolerance for risk. *(17.4.9-12.H)*
- Compare retirement-specific investment options, including employer-sponsored plans, Roth and traditional individual retirement accounts, and accounts available to people who are self-employed. *(17.4.9-12.I)*
- Analyze personal attitudes towards risk and how these might impact future investment decisions and outcomes. *(17.4.9-12.J)*
- Describe methods to avoid or counteract the potentially negative impacts of behavioral biases (e.g., loss aversion, herding, choice overload) on investment decisions. *(17.4.9-12.K)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Many types of investments also include some amount of risk. *(U1)*
- There are many types of investments such as stocks, bonds, and land. *(U2)*
- Having a well diversified portfolio can help reduce your overall risk. *(U3)*
- It is important to make informed investments, free from any biases. *(U4)*
- The earlier you are able to start investing, the more you will earn in the long-term. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do risk, time, and personal goals influence investment decisions and potential returns? *(Q1)*
- What factors should investors consider when choosing types of investments and sources of investment advice? *(Q2)*
- How can understanding behavioral biases and market factors help investors make better long-term decisions? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Principal investment amounts *(K1)*
- Portfolio diversification *(K2)*
- Stocks, bonds, and mutual funds *(K3)*
- Physical investments *(K4)*
- Investment risk *(K5)*
- Investment terms *(K6)*
- Inflation *(K7)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify and create a diversified portfolio. *(S1)*
- I can differentiate between different types of investments such as stocks, bonds, and physical assets. *(S2)*
- I can analyze the risk and potential return associated with investments. *(S3)*
- I can make informed investments by researching different investing ideas and strategies using different platforms. *(S4)*

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■ Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*		■ I can recognize and attempt to limit personal biases. *(S5)* ■ I can identify and predict market changes based on world or cultural events. *(S6)*

Unit 9: Major Life Purchases

Draft Date	Course	Duration	Grades	Subjects	Team
09-22-2025	HS Consumer Skills	1 Week(s)	11, 12	Business Education	Joshua Butina, Bartosz Ciurski, Matthew Fox, Leann McDonald, Mel Upton, Tonya Santamaria, Brody Bonadio

Focus

This unit introduces students to the financial decision-making process involved in major life purchases and how those choices impact both short- and long-term financial goals. Students will examine common high-cost purchases such as housing and transportation and learn how to evaluate options using realistic financial data, personal priorities, and opportunity costs.

Throughout the unit, students will explore how budgeting, payment methods, financing, and taxes affect the true cost of a purchase over time. They will analyze factors such as upfront costs, ongoing expenses, interest, depreciation, and total cost of ownership, while also comparing alternatives like renting versus buying and leasing versus owning. Through case studies, real-world scenarios, and decision-making activities, students will develop the skills and confidence to make informed, responsible choices when facing major financial commitments.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Personal Finance: 9-12 (2026)

- Determine the financial impact of various long-term goals (e.g., lifestyle, family, education). *(17.1.9-12.A)*
- Apply a systematic decisionmaking process, including opportunity costs, to setting and achieving financial goals. *(17.1.9-12.B)*
- Develop a process for making informed spending decisions, including factors to

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T1)*
- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T2)*

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consider (e.g., product features, price, durability, environmental or societal impact, reliability of information). *(17.3.9-12.A)*

- Compare ways people can lower the price they pay for goods and services (e.g., online tools, discount retailers, negotiating, secondhand items). *(17.3.9-12.B)*
- Develop a personal approach to keeping track of income and spending. *(17.3.9-12.C)*
- Evaluate various budgeting approaches (e.g., 50-30-20, zero-based) and methods (e.g., envelope system, spreadsheets, online tools). *(17.3.9-12.D)*
- Create a personal budget to allocate current or future income, including estimates for fixed and variable expenses. *(17.3.9-12.E)*
- Identify methods for adjusting a budget for unexpected expenses or loss of income. *(17.3.9-12.F)*
- Compare the effects of using various payment methods when making purchases. *(17.3.9-12.G)*
- Analyze a housing decision, including comparing renting and buying, upfront and ongoing costs, and the process of obtaining a mortgage or a lease. *(17.3.9-12.J)*
- Justify the purchase or lease of a vehicle and the alternatives considered (e.g., new versus used, total cost of ownership or use). *(17.3.9-12.K)*
- Analyze the impact of paying sales, excise, and property taxes on financial decisions. *(17.3.9-12.L)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Major life purchases have long-term financial consequences. *(U1)*
- Effective financial decision making requires a structured process that includes evaluating alternatives and considering opportunity costs. *(U2)*
- Comparing sellers, negotiating, and using alternative purchasing options can reduce the total cost of goods and services. *(U3)*
- The method used to pay for a purchase (cash, credit, loan, lease) affects the total cost, financial risk, and future cash flow. *(U4)*
- Taxes and fees associated with purchases reduce available income and must be considered when evaluating affordability and value. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do major life purchases affect long-term financial goals and lifestyle choices? *(Q1)*
- How do different payment methods, financing options, and taxes influence the total cost of a purchase? *(Q2)*
- How can individuals evaluate housing and transportation options to determine the best choice for their financial situation? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Financial goals and decision making *(K1)*
- Informed spending decisions *(K2)*
- Cost reduction strategies *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can make informed spending decisions by comparing different options and practicing cost reduction strategies such as negotiating and finding sales. *(S1)*

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Profile of a CV Learner		
■ Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*	■ Budgeting methods and tools *(K4)* ■ Payment methods *(K5)* ■ Associated taxes and fees *(K6)*	■ I can determine the best payment strategies by comparing cash, leasing, and financing by analyzing payment terms as well as taxes and fees associated with the purchase. *(S2)* ■ I can create a budget to make better informed decisions on major life purchases. *(S3)*

Unit 1: The Economic Way of Thinking

Draft Date	Course	Duration	Grades	Subjects	Team
05-07-2026	Foundations of Economics	1.5 Week(s)	9, 10, 11, 12	Business Education	Joshua Butina, Tonya Santamaria, Mel Upton

Focus

This introductory unit establishes the foundational mindset of economics by exploring how individuals and societies make choices in a world of limited resources. Students will examine the core concepts of scarcity, opportunity cost, and trade-offs to understand why every decision involves compromise. Emphasis is placed on the role of incentives in shaping behavior and how rational decision-making frameworks are used to evaluate alternatives. By the end of the unit, students will develop an "economic way of thinking" that helps them analyze everyday choices, weigh costs and benefits, and better understand how scarcity influences both personal and societal decision-making.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Economics (2024): 9-12

- Evaluate the strengths and weaknesses of traditional, command, and market economies. *(6.1.9-12.A)*
- Analyze the impact of traditional, command, and market economies on the United States economy. *(6.1.9-12.B)*
- Analyze actions taken as a result of scarcity in decision-making. *(6.1.9-12.C)*
- Evaluate the allocation of resources used to produce goods and services. *(6.1.9-12.E)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T1)*
- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T2)*
- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T3)*

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- Analyze the opportunity cost of decisions by individuals, businesses, communities, and nations. *(6.1.9-12.G)*
- Evaluate in terms of marginal analysis how incentives influence decisions of consumers, producers, and policymakers. *(6.1.9-12.H)*
- Analyze the relationship between specialization and the standard of living. *(6.1.9-12.I)*
- Explain that individuals and nations have a comparative advantage in the production of goods or services if they can produce a product at a lower opportunity cost than other individuals or nations. *(6.1.9-12.M)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Students will understand that scarcity requires individuals and societies to make choices, and that every choice involves trade-offs and opportunity costs. They will infer that incentives influence behavior and that effective decision-making involves evaluating costs, benefits, and potential consequences. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- Why do we have to make choices, and how do we make good ones? *(Q1)*
- How do our choices impact us financially, socially, physically, etc.? *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Scarcity *(K1)*
- Opportunity cost *(K2)*
- Trade-offs *(K3)*
- Incentives *(K4)*
- Decision-making *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can distinguish between needs and wants when making economic decisions. *(S1)*
- I can evaluate trade-offs associated with different choices. *(S2)*
- I can use economic reasoning to justify a decision. *(S3)*

Unit 2: Economics Systems and Decision-Making

Draft Date	Course	Duration	Grades	Subjects	Team
05-07-2026	Foundations of Economics	1.5 Week(s)	9, 10, 11, 12	Business Education	Joshua Butina, Tonya Santamaria, Mel Upton

Focus

After learning how economists think about choices, trade-offs, incentives, and opportunity costs, we will use these ideas to examine how different economic systems make decisions about how resources are used. This unit explores how different societies organize their economies to answer the fundamental questions of what to produce, how to produce it, and for whom it is produced. Students will examine the major types of economic systems, including traditional, command, market, and mixed economies, and analyze how each system allocates resources and makes decisions. Through comparative analysis, students will evaluate the advantages and disadvantages of different market types and consider how varying levels of economic freedom and government involvement impact efficiency, innovation, and equity. By the end of the unit, students will be able to critically assess how economic systems shape decision-making and influence the well-being of individuals and societies. After learning how economists think about choices, trade-offs, incentives, and opportunity costs, we will use these ideas to examine how different economic systems make decisions about how resources are used.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Economics (2024): 9-12

- Evaluate the strengths and weaknesses of traditional, command, and market economies. *(6.1.9-12.A)*
- Analyze the impact of traditional, command, and market economies on the United States economy. *(6.1.9-12.B)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T1)*
- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T2)*
- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T3)*

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Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Students will understand that different economic systems allocate resources and make decisions in different ways, each with its own strengths and weaknesses. They will infer that there is no perfect economic system and that societies must balance economic freedom, efficiency, and equity when addressing economic challenges. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do different economic systems answer the basic economic questions? *(Q1)*
- How do different economic systems impact each other and what are the results of those impacts? *(Q2)*
- Can any economic system achieve both efficiency and fairness? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Market types (perfect comp., monopolistic comp., oligopoly, monopoly) *(K1)*
- Economy types (traditional, command, market, mixed) *(K2)*
- Comparative analysis *(K3)*
- Economic freedom *(K4)*
- Equity *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can compare and contrast different economic systems. *(S1)*
- I can explain how equity and efficiency may conflict in economic decision-making. *(S2)*
- I can identify the characteristics of traditional, command, market, and mixed economies. *(S3)*

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Unit 3: Supply, Demand, and Market Equilibrium

Draft Date	Course	Duration	Grades	Subjects	Team
05-07-2026	Foundations of Economics	1.5 Week(s)	9, 10, 11, 12	Business Education	Joshua Butina, Tonya Santamaria, Mel Upton

Focus

After exploring how individuals, businesses, and governments make economic decisions within different systems, we will use those decisions to understand how supply and demand interact to determine prices and quantities in markets. This unit introduces the fundamental model of how markets function through the interaction of buyers and sellers. Students will explore the law of demand and the law of supply to understand how prices and quantities are determined in a market economy. Through the construction and analysis of supply and demand curves, students will examine how equilibrium is established and how changes in market conditions lead to shifts in price and output. The unit also introduces elasticity as a tool for measuring responsiveness to price changes, helping students better understand consumer and producer behavior. By the end of the unit, students will be able to use supply and demand analysis to explain real-world market outcomes and predict the effects of economic changes.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Economics (2024): 9-12

- Predict how changes in supply and demand affect equilibrium price and quantity sold. *(6.2.9-12.D)*
- Evaluate the relationship between economic growth and changes in macroeconomic indicators such as the Consumer Price Index (CPI), gross domestic

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Develop Essential Skills: Utilize and integrate essential communication, collaboration, financial literacy, digital fluency, and/or evolving workforce skills. *(T1)*
- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T2)*
- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T3)*

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product (GDP), and unemployment rate. *(6.3.9-12.A)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T4)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Students will understand that prices and quantities in markets are determined by the interaction of supply and demand. They will infer that changes in consumer behavior, producer decisions, and external factors can affect market outcomes and that elasticity influences how markets respond to these changes. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What determines the prices of goods and services? *(Q1)*
- What happens when markets fail to find balance? *(Q2)*
- How do consumers and producers influence each other in the marketplace? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Law of Demand *(K1)*
- Law of Supply *(K2)*
- Equilibrium *(K3)*
- Elasticity *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can interpret supply and demand graphs. *(S1)*
- I can explain the law of demand and the law of supply. *(S2)*
- I can identify factors that cause shifts in supply and demand. *(S3)*
- I can determine market equilibrium price and quantity. *(S4)*
- I can predict how changes in market conditions affect equilibrium. *(S5)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Unit 4: The Role of the Government in the Economy

Draft Date	Course	Duration	Grades	Subjects	Team
05-07-2026	Foundations of Economics	1.5 Week(s)	9, 10, 11, 12	Business Education	Joshua Butina, Tonya Santamaria, Mel Upton

Focus

After learning how markets use supply, demand, and prices to allocate resources, we will examine why and how the government may intervene when markets do not produce the desired economic outcomes. This unit examines how and why governments participate in economic systems and the impact of their actions on markets and society. Students will explore the provision of public goods and services, the rationale behind taxation, and the ways in which governments use regulation to influence economic behavior. The unit also introduces fiscal policy and its role in stabilizing economic growth and addressing unemployment and inflation. A key focus is placed on understanding market failures—such as externalities and public goods—that justify government intervention. By the end of the unit, students will be able to evaluate the effectiveness of government policies and analyze the balance between market efficiency and public welfare.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Economics (2024): 9-12

- Evaluate the strengths and weaknesses of traditional, command, and market economies. *(6.1.9-12.A)*
- Analyze the impact of traditional, command, and market economies on the United States economy. *(6.1.9-12.B)*
- Analyze actions taken as a result of scarcity in decision-making. *(6.1.9-12.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T1)*
- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T2)*
- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T3)*

Meaning

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- Analyze how choices made by individuals, firms, or government officials are constrained by available resources. *(6.1.9-12.D)*
- Evaluate the allocation of resources used to produce goods and services. *(6.1.9-12.E)*
- Evaluate regional, national, or international economic decisions using marginal analysis. *(6.1.9-12.F)*
- Analyze the opportunity cost of decisions by individuals, businesses, communities, and nations. *(6.1.9-12.G)*
- Evaluate in terms of marginal analysis how incentives influence decisions of consumers, producers, and policymakers. *(6.1.9-12.H)*
- Analyze the relationship between specialization and the standard of living. *(6.1.9-12.I)*
- Analyze the relationships between trade, competition, and productivity. *(6.1.9-12.J)*
- Evaluate how a country might benefit by lowering or removing trade barriers. *(6.1.9-12.K)*
- Analyze how consumers and producers participate in the global production and consumption of goods or services. *(6.1.9-12.L)*
- Explain that individuals and nations have a comparative advantage in the production of goods or services if they can produce a product at a lower opportunity cost than other individuals or nations. *(6.1.9-12.M)*
- Explain how deficit spending by the federal government increases the national debt

Understandings	Essential Questions
What specifically do you want students to understand? What inferences should they make? Students will understand that... ■ Government intervention can both correct and distort market outcomes. *(U1)*	What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering... ■ When should the government get involved in the economy? *(Q1)* ■ Who benefits - and who pays - when the government intervenes in the market? *(Q2)* ■ How can the government policies both help and harm economic outcomes? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge	Skills
What facts and basic concepts should students know and be able to recall? Students will know... ■ Regulation *(K1)* ■ Taxes *(K2)* ■ Goods/services *(K3)* ■ Fiscal policies *(K4)* ■ Market failures *(K5)*	What discrete skills and processes should students be able to use? Students can... ■ I can explain the purposes of taxation. *(S1)* ■ I can distinguish between public and private goods and services. *(S2)* ■ I can evaluate government responses to economic challenges. *(S3)* ■ I can assess the costs and benefits of government intervention. *(S4)*

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and the impact it has on the economy. *(6.3.9-12.D)*

- Evaluate the economic roles of governments in a globalized economy (e.g., trade policy, income inequality, distribution of wealth). *(6.3.9-12.G)*
- Evaluate government decisions in prioritizing public goods and services. *(6.3.9-12.I)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*



Unit 5: Measuring and Managing the Economy

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
05-07-2026	Foundations of Economics	1.5 Week(s)	9, 10, 11, 12	Business Education	Joshua Butina, Tonya Santamaria, Mel Upton

Focus

After examining the government's role in influencing the economy, we will build on that knowledge to explore how the government and other policymakers measure and respond to major economic issues such as inflation, unemployment, and economic growth. This unit introduces students to the core tools used to measure the overall performance of an economy and the institutions that help manage it. Students will explore key macroeconomic indicators such as Gross Domestic Product (GDP), unemployment, and inflation to understand how economists assess economic health over time. The unit also examines the role of the Federal Reserve and its influence on the economy through monetary policy, including interest rates and money supply management. By the end of the unit, students will be able to interpret economic data, recognize trends in economic performance, and explain how government and central bank policies work to stabilize the economy.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Economics (2024): 9-12

- Evaluate the relationship between economic growth and changes in macroeconomic indicators such as the Consumer Price Index (CPI), gross domestic product (GDP), and unemployment rate. *(6.3.9-12.A)*
- Identify fiscal and monetary policies that address inflation, unemployment, or economic growth. *(6.3.9-12.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T1)*
- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T2)*
- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T3)*

Meaning

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Explain how the Federal Reserve defines money. *(6.4.9-12.A)*
- Analyze Federal Reserve policies designed to raise or lower interest rates. *(6.4.9-12.E)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Understandings	Essential Questions
What specifically do you want students to understand? What inferences should they make? Students will understand that... ■ National economies are managed through policy tools that balance growth, stability, and employement. *(U1)*	What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering... ■ How do we measure economic performance, and what can policymakers do to influence it? *(Q1)* ■ Should the government prioritize growth, stability, or equality? *(Q2)* ■ How do short-term economic decisions affect long-term prosperity? *(Q3)* ■ What do economic indicators really tell us about people's well-being? *(Q4)*

Acquisition of Knowledge & Skill

Knowledge	Skills
What facts and basic concepts should students know and be able to recall? Students will know... ■ Gross Domestic Product *(K1)* ■ Unemployment *(K2)* ■ Inflation *(K3)* ■ The Federal Reserve *(K4)*	What discrete skills and processes should students be able to use? Students can... ■ I can define and interpret Gross Domestic Product (GDP). *(S1)* ■ I can distinguish between different types of unemployment. *(S2)* ■ I can explain how inflation affects consumers, businesses, and governments. *(S3)* ■ I can explain the role and functions of the Federal Reserve. *(S4)*



Unit 6: Global Economics and Trade

Draft Date	Course	Duration	Grades	Subjects	Team
05-07-2026	Foundations of Economics	1.5 Week(s)	9, 10, 11, 12	Business Education	Joshua Butina, Tonya Santamaria, Mel Upton

Focus

After learning how economies are measured and managed at the national level, we will expand our perspective to examine how countries interact through international trade, specialization, exchange rates, and the global economy. This unit explores how economies around the world are interconnected through trade, finance, and globalization. Students will examine the concept of comparative advantage to understand why countries specialize and trade, and how this leads to increased efficiency and global cooperation. The unit also analyzes trade barriers such as tariffs and quotas, and their impact on domestic and international markets. In addition, students will study exchange rates and their influence on global purchasing power and trade flows. Through the lens of globalization, students will evaluate the benefits and challenges of an increasingly interconnected global economy. By the end of the unit, students will be able to explain how international trade shapes economic growth, consumer choice, and relationships between nations.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Economics (2024): 9-12

- Analyze the relationships between trade, competition, and productivity. *(6.1.9-12.J)*
- Evaluate how a country might benefit by lowering or removing trade barriers. *(6.1.9-12.K)*
- Explain that individuals and nations have a comparative advantage in the production of goods or services if they can produce a

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Develop Essential Skills: Utilize and integrate essential communication, collaboration, financial literacy, digital fluency, and/or evolving workforce skills. *(T1)*
- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T2)*
- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T3)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

product at a lower opportunity cost than other individuals or nations. *(6.1.9-12.M)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Nations benefit from trade, but global interdependence creates both opportunities and challenges. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- Why do countries trade and how do we measure comparative advantage? *(Q1)*
- Should countries protect their own industries or promote free trade? *(Q2)*
- Should countries protect their own industries or promote free trade? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Comparative advantage *(K1)*
- Trade barriers *(K2)*
- Exchange rates *(K3)*
- Globalization *(K4)*
- Imports and Exports *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain the concept of comparative advantage. *(S1)*
- I can calculate comparative advantage using production data. *(S2)*
- I can analyze the benefits and costs of international trade. *(S3)*
- I can identify common trade barriers and their effects. *(S4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/



Unit 7: Personal Finance and Personal Decision-Making

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
05-07-2026	Foundations of Economics	1.5 Week(s)	9, 10, 11, 12	Business Education	Joshua Butina, Tonya Santamaria, Mel Upton

Focus

After understanding how economic decisions affect countries and the global economy, we will bring these ideas down to the individual level and apply them to the financial decisions people make in their everyday lives. This unit focuses on the essential financial skills individuals need to make informed and responsible economic decisions throughout their lives. Students will learn the fundamentals of budgeting and money management, including how income, expenses, and saving goals shape financial planning. The unit also explores how individuals evaluate financial choices by considering short-term and long-term outcomes, opportunity costs, and behavioral influences on decision-making. In addition, students will examine the role of risk and uncertainty in financial decisions, including strategies for managing and minimizing risk. By the end of the unit, students will be able to create practical financial plans and apply economic reasoning to real-world personal finance decisions.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Economics (2024): 9-12

- Analyze actions taken as a result of scarcity in decision-making. *(6.1.9-12.C)*
- Analyze how choices made by individuals, firms, or government officials are constrained by available resources. *(6.1.9-12.D)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T1)*
- Understand and Participate in the Economy: Function as economically literate citizens using critical thinking, reasoning, and ethical decision-making skills for career, business, and life. *(T2)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Analyze the opportunity cost of decisions by individuals, businesses, communities, and nations. *(6.1.9-12.G)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Sound financial decisions are grounded in economic reasoning and long-term planning. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can understanding basic economic concepts impact my ability to make critical financial decisions in my life? *(Q1)*
- How does financial literacy empower individuals and communities? *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Budgeting *(K1)*
- Outcomes of decision-making *(K2)*
- Personal and system-risk *(K3)*
- Personal finance relating to scarcity *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can evaluate the short-term and long-term consequences of financial decisions. *(S1)*
- I can identify risks associated with financial choices. *(S2)*
- I can compare financial alternatives using economic reasoning. *(S3)*
- I can create a personal financial plan based on individual goals. *(S4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/



Unit 1: From Silence to Sound: An Exploration of the Origin of Cinema and the Silent Era

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
05-23-2025	HS History of Film I	11.5 Day(s)	9, 10, 11, 12	English Language Arts	Shaun Karli, Matthew Brubaker, Jessica Cooper, Olivia Hess

Focus

To understand where cinema is today, we need to understand how it all began. We launch our study of film history with an exploration of the silent era, beginning with the magical imagination of Georges Méliès and the birth of narrative cinema. From the earliest experiments in visual storytelling to the rise of silent film as a major artistic and cultural force, this unit traces how filmmakers learned to communicate without sound. It culminates with Martin Scorsese's *Hugo*, a modern homage that brings the story of Méliès and the wonder of early cinema to life for a new generation. We will analyze how cinematic techniques and technological innovations shaped storytelling, and we will apply film vocabulary and historical knowledge in performance tasks that assess our understanding of film form, genre, and the transition from silent to sound cinema.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 9-10

- Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. *(CC.1.2.9-10.A)*
- Cite strong and thorough textual evidence to support analysis of what the text says

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T1)*

Meaning

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What helps me figure out the lesson or theme? *(Q1)*

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explicitly as well as inferences and conclusions based on an author's explicit assumptions and beliefs about a subject. *(CC.1.2.9-10.B)*

- Apply appropriate strategies to analyze, interpret, and evaluate how an author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them. *(CC.1.2.9-10.C)*
- Determine an author's particular point of view and analyze how rhetoric advances the point of view. *(CC.1.2.9-10.D)*
- Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. *(CC.1.3.9-10.A)*
- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences and conclusions based on an author's explicit assumptions and beliefs about a subject. *(CC.1.3.9-10.B)*
- **Analyze how complex characters develop over the course of a text, interact with other characters, and advance the plot or develop the theme.** *(CC.1.3.9-10.C)*
- **Analyze how an author's choices concerning how to structure a text, order events within it and manipulate time create an effect.** *(CC.1.3.9-10.E)*

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Strong inferences are based on specific text details that lead to a broader theme(s), point(s), or conclusion(s). *(U1)*
- Readers ask questions about the plot, settings, and characters of a story to determine and explain a central message. *(U2)*
- Readers notice how elements of a story impact and influence other elements to enhance their understanding of the text. *(U3)*
- Authors structure the plot of the story to create conflict and develop characters. *(U4)*
- Authors use visuals and text features to enhance their message. *(U5)*

- How can I use inferences to support my understanding of the text? *(Q2)*
- How do literary elements work together in this text to help me understand the big picture? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- who Georges Méliès was and how his background in theater and magic influenced his contributions to early cinema. *(K1)*
- the historical significance of *A Trip to the Moon* (1902) and its place in film history as an early narrative and special effects film. *(K2)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify and explain cinematic techniques such as montage, camera angles, shot types, and sound in selected film scenes. *(S1)*
- I can distinguish between diegetic and non-diegetic sound in a film clip. *(S2)*
- I can analyze how low angle and high angle shots contribute to power

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Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*

- the definition and function of montage in film editing. *(K3)*
- the difference between diegetic and non-diegetic sound. *(K4)*
- how low angle, high angle, medium shots, and two shots affect meaning and audience perception. *(K5)*
- what a red herring is and how it functions in narrative storytelling. *(K6)*
- what the Kuleshov Effect is and why it is important in understanding how audiences interpret edited images. *(K7)*
- the historical and artistic contributions of early filmmakers such as the Lumière Brothers, Charlie Chaplin, Buster Keaton, D.W. Griffith, and Robert Wiene. *(K8)*
- that German Expressionism, as seen in *The Cabinet of Dr. Caligari*, used stylized visuals and psychological themes that influenced later genres like horror and film noir. *(K9)*
- the cultural and technical importance of *The Kid*, *Pandora's Box*, and *The General* in the development of narrative, acting, and editing in silent cinema. *(K10)*
- that early film technology included devices like the kinetoscope and early experiments in synchronized sound, such as the Dickson Experimental Sound Film. *(K11)*
- that *Intolerance* (1916) introduced epic production design and complex narrative structure to early film. *(K12)*

- I can identify and describe how montage editing creates meaning in a sequence of shots. *(S1)*
- I can analyze how camera angles and shot sizes contribute to the emotional impact of a scene. *(S2)*
- I can evaluate how sound and visuals work together to establish mood, dynamics or emotional tone in a scene. *(S3)*
- I can interpret how montage editing and the Kuleshov Effect shape audience meaning-making. *(S4)*
- I can recognize and describe the use of a red herring in film narratives. *(S5)*
- I can explain how *Hugo* (2011) functions both as a narrative film and a tribute to the early history of cinema. *(S6)*
- I can connect themes and cinematic techniques in *Hugo* to the innovations of Georges Méliès and early film history. *(S7)*
- I can **analyze indirect characterization** through visual and narrative clues (e.g., Hugo's possessions, Daste's behavior). *(S8)*
- I can explain how the introduction of synchronized sound impacted film production, acting styles, and camera movement. *(S9)*
- I can analyze how *Singin' in the Rain* uses humor and satire to reflect the historical challenges of Hollywood's transition to sound. *(S10)*

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	■ that close-ups, like the final shot in *The Great Train Robbery*, played a critical role in developing cinematic language and emotional engagement. *(K13)* ■ how flashbacks and editing transitions function to reveal backstory and shape audience understanding of characters and plot. *(K14)* ■ that modern films like *Hugo* use visual homage and intertextual references to celebrate the history of cinema. *(K15)* ■ that film structure—including nonlinear timelines and montage—can reflect character psychology and develop theme. *(K16)* ■ the symbolic significance of recurring objects in film, such as the automaton, and how symbolism contributes to theme and character development. *(K17)* ■ that *The Jazz Singer* (1927) was the first major film to feature synchronized sound and marked the beginning of the transition from silent films to talkies. *(K18)* ■ that the transition to sound in film introduced major technical and performance challenges, including static camerawork, microphone limitations, and the decline of many silent film actors' careers. *(K19)*	



Unit 2: From Script to Screen: An Exploration of the Studio System and Hollywood's Dream Makers

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
05-23-2025	HS History of Film I	4.5 Day(s)	9, 10, 11, 12	English Language Arts	Shaun Karli, Matthew Brubaker, Jessica Cooper, Olivia Hess

Focus

As the film industry matured, Hollywood turned its dreams toward building the perfect entertainment empire through efficiency and control. During the rise of the Studio System, filmmakers operated like craftsmen on an assembly line, guided by the vision of powerful producers and the marketability of carefully cultivated stars. We explore the inner workings of this golden era—from the Big Five studios to Poverty Row, from A-list prestige pictures to quick-turnaround B-movies. This unit culminates with *The Bad and the Beautiful*, a behind-the-scenes drama that mirrors the ambition, glamour, and cost of Hollywood's most powerful dream-makers. We will deepen our understanding of the Hollywood Studio System by examining how studio-era power dynamics shaped film production and storytelling, culminating in a written analysis of *The Bad and the Beautiful* that challenges us to interpret character motivations, industry influence, and the personal cost of cinematic ambition.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 9-10

- Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. *(CC.1.2.9-10.A)*
- Cite strong and thorough textual evidence to support analysis of what the text says

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T2)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T3)*
- Speaking and Listening: Effectively utilize appropriate speaking techniques (volume, inflection, pace, etc.) and vocabulary in a variety of settings to clearly communicate ideas and information. *(T4)*

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explicitly as well as inferences and conclusions based on an author's explicit assumptions and beliefs about a subject. *(CC.1.2.9-10.B)*

- Apply appropriate strategies to analyze, interpret, and evaluate how an author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them. *(CC.1.2.9-10.C)*
- Determine an author's particular point of view and analyze how rhetoric advances the point of view. *(CC.1.2.9-10.D)*
- Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. *(CC.1.3.9-10.A)*
- Analyze how complex characters develop over the course of a text, interact with other characters, and advance the plot or develop the theme. *(CC.1.3.9-10.C)*
- Analyze how an author's choices concerning how to structure a text, order events within it and manipulate time create an effect. *(CC.1.3.9-10.E)*
- Write arguments to support claims in an analysis of substantive topics. *(CC.1.4.9-10.G)*
- Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade level reading standards for literature and literary non-fiction. *(CC.1.4.9-10.S)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Strong inferences are based on specific text details that lead to a broader theme(s), point(s), or conclusion(s). *(U1)*
- Readers ask questions about the plot, settings, and characters of a story to determine and explain a central message. *(U2)*
- Readers notice how elements of a story impact and influence other elements to enhance their understanding of the text. *(U3)*
- The perspective of the narrator impacts how the reader interprets the plot and meaning of the text. *(U4)*
- Authors structure the plot of the story to create conflict and develop characters. *(U5)*
- Authors use visuals and text features to enhance their message. *(U6)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What helps me figure out the lesson or theme? *(Q1)*
- How can I use inferences to support my understanding of the text? *(Q2)*
- How do literary elements work together in this text to help me understand the big picture? *(Q3)*
- How does the genre and the way the story is told (use of language, structure) impact my understanding? *(Q4)*
- How do the illustrations and structure of the text help me better understand the story? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- the defining characteristics of the Hollywood studio system and how it

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify and explain the central idea of a nonfiction text and analyze how it is developed through specific supporting details. *(S1)*

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Profile of a CV Learner		
■ Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*	functioned as a commercial enterprise. *(K1)* ■ the economic strategies used by Hollywood producers to minimize risk and ensure profitability (e.g., studio system, star system, vertical integration). *(K2)* ■ the role and influence of producers versus directors during the studio era. *(K3)* ■ how the American system of mass production influenced film production methods and artistic outcomes. *(K4)*	■ I can cite strong and thorough textual evidence to support inferences and conclusions. *(S2)* ■ I can analyze how an author organizes information and uses rhetorical strategies to convey a point of view or purpose. *(S3)* ■ I can explain how a theme is developed and refined through characters, setting, and plot events. *(S4)* ■ I can evaluate how complex characters change over time and influence the progression of the plot and theme. *(S5)* ■ I can explain how an author's or filmmaker's structural choices shape the meaning and emotional impact of a narrative. *(S6)*

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Unit 3: From Light to Shadow: An Exploration of Film Noir and America's Postwar Disillusionment

Draft Date	Course	Duration	Grades	Subjects	Team
05-23-2025	HS History of Film I	10.5 Day(s)	9, 10, 11, 12	English Language Arts	Shaun Karli, Matthew Brubaker, Jessica Cooper, Olivia Hess

Focus

With the golden glow of Hollywood behind them, postwar filmmakers turned their gaze to the shadows. In the wake of World War II, a darker, more cynical vision of America emerged on screen. Influenced by German Expressionism and hardboiled fiction, directors and screenwriters explored themes of alienation, moral ambiguity, and fatalism. In this unit, we trace the rise of *film noir*—a uniquely American response to disillusionment and changing social roles. We analyze the stylized visuals, voiceovers, and femme fatales that define the genre, culminating in a close study of *Double Indemnity*, a film that exemplifies noir's seductive descent into crime, guilt, and betrayal. We will sharpen our ability to interpret cinematic techniques, construct evidence-based arguments, and analyze how visual storytelling reflects cultural anxieties and complex human motivations.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 9-10

- Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. *(CC.1.3.9-10.A)*
- Cite strong and thorough textual evidence to support analysis of what the text says

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Speaking and Listening: Effectively utilize appropriate speaking techniques (volume, inflection, pace, etc.) and vocabulary in a variety of settings to clearly communicate ideas and information. *(T3)*

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explicitly as well as inferences and conclusions based on an author's explicit assumptions and beliefs about a subject. *(CC.1.3.9-10.B)*
- Analyze how complex characters develop over the course of a text, interact with other characters, and advance the plot or develop the theme. *(CC.1.3.9-10.C)*
- Analyze how an author's choices concerning how to structure a text, order events within it and manipulate time create an effect. *(CC.1.3.9-10.E)*
- Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately. *(CC.1.4.9-10.A)*
- Initiate and participate effectively in a range of collaborative discussions on grades level topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. *(CC. 1.5.9-10.A)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Strong inferences are based on specific text details that lead to a broader theme(s), point(s), or conclusion(s). *(U1)*
- Readers ask questions about the plot, settings, and characters of a story to determine and explain a central message. *(U2)*
- Readers notice how elements of a story impact and influence other elements to enhance their understanding of the text. *(U3)*
- The perspective of the narrator impacts how the reader interprets the plot and meaning of the text. *(U4)*
- Authors structure the plot of the story to create conflict and develop characters. *(U5)*
- Stories can have similar themes that help readers develop their understanding of themselves and the world. *(U6)*
- Effective writers choose organizational structures and transitions to logically connect ideas and information. *(U7)*
- Effective writers choose appropriate/ relevant evidence from text(s) to support their opinion. *(U8)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What helps me figure out the lesson or theme? *(Q1)*
- How can I use inferences to support my understanding of the text? *(Q2)*
- How do literary elements work together in this text to help me understand the big picture? *(Q3)*
- How does the genre and the way the story is told (use of language, structure) impact my understanding? *(Q4)*
- What am I learning about the world as it was /is based on this story? How does it compare to other stories? *(Q5)*
- How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q6)*
- What is the best way to organize this information? *(Q7)*
- How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? *(Q8)*

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other perspectives, viewpoints, and cultures. *(PCVL.CM)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- how *Sunset Boulevard* critiques the culture and power dynamics of Hollywood. *(K1)*
- the defining characteristics of film noir, including chiaroscuro lighting, fatalism, and morally complex characters. *(K2)*
- how Gloria Swanson and Erich von Stroheim's real-life histories inform their roles in the film. *(K3)*
- key cinematic techniques used in the film, such as framing, mise-en-scène, and voiceover narration. *(K4)*
- how to identify and interpret themes such as illusion vs. reality, ambition, and decline. *(K5)*
- how classic film noir reflects postwar American anxieties, moral ambiguity, and fatalism. *(K6)*
- how *Double Indemnity* and *Sunset Boulevard* use voiceover narration, visual motifs, and lighting to develop tone and character. *(K7)*
- the role of historical context—such as the Hays Code, studio system, and casting—in shaping the themes and presentation of these films. *(K8)*
- how performance, setting, and dialogue contribute to the construction of archetypal figures like the femme

Skills

What discrete skills and processes should students be able to use? Students can...

- I can analyze character motivation and development through dialogue and visual storytelling. *(S1)*
- I can interpret how cinematic techniques contribute to tone, mood, and narrative meaning. *(S2)*
- I can construct evidence-based arguments using the RACER paragraph structure. *(S3)*
- I can cite specific moments from the film using timestamps and apply accurate film vocabulary. *(S4)*
- I can collaborate in small groups to synthesize and present analytical interpretations. *(S5)*
- I can express thoughtful interpretations in writing and discussion using appropriate film terminology and precise language. *(S6)*

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	fatale, the doomed male protagonist, and the fading star. *(K9)* ■ how to identify major themes in film, including betrayal, illusion vs. reality, power dynamics, and downfall. *(K10)*	

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Unit 4: From Shadows to Slapstick: An Exploration of Screwball Comedy and the Search for Joy

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
05-23-2025	HS History of Film I	5 Day(s)	9, 10, 11, 12	English Language Arts	Shaun Karli, Matthew Brubaker, Jessica Cooper, Olivia Hess

Focus

As shadows deepened in the postwar world and film noir exposed the darker corners of the American psyche, audiences also sought refuge in laughter. In the midst of hardship and shifting social norms, screwball comedy offered a bright, chaotic counterpoint. These films upended expectations—blurring class lines, mocking authority, and playfully challenging the gender expectations of that time period. With rapid-fire dialogue and unlikely romance, they captured a nation wrestling with its identity and longing for connection. In this unit, we explore how comedy became a clever disguise for deeper questions about inequality, relationships, and the pursuit of the American dream.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 9-10

- Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. *(CC.1.3.9-10.A)*
- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences and conclusions based on an author's explicit

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Speaking and Listening: Effectively utilize appropriate speaking techniques (volume, inflection, pace, etc.) and vocabulary in a variety of settings to clearly communicate ideas and information. *(T3)*

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assumptions and beliefs about a subject. *(CC.1.3.9-10.B)*
- Analyze how complex characters develop over the course of a text, interact with other characters, and advance the plot or develop the theme. *(CC.1.3.9-10.C)*
- Analyze how an author's choices concerning how to structure a text, order events within it and manipulate time create an effect. *(CC.1.3.9-10.E)*
- Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately. *(CC.1.4.9-10.A)*
- Initiate and participate effectively in a range of collaborative discussions on grades level topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. *(CC. 1.5.9-10.A)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Strong inferences are based on specific text details that lead to a broader theme(s), point(s), or conclusion(s). *(U1)*
- Readers ask questions about the plot, settings, and characters of a story to determine and explain a central message. *(U2)*
- Readers notice how elements of a story impact and influence other elements to enhance their understanding of the text. *(U3)*
- Authors structure the plot of the story to create conflict and develop characters. *(U4)*
- Effective writers make deliberate and strategic choices when considering task, purpose, and audience to prove an opinion/claim about a topic. *(U5)*
- Effective writers choose appropriate/ relevant evidence from text(s) to support their opinion. *(U6)*
- Engaging in collaborative discussions allows students to learn from each other, deepen their understanding of topics, and gain new perspectives. *(U7)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What helps me figure out the lesson or theme? *(Q1)*
- How can I use inferences to support my understanding of the text? *(Q2)*
- How do I choose details to retell/ summarize this text? *(Q3)*
- How does the genre and the way the story is told (use of language, structure) impact my understanding? *(Q4)*
- What am I learning about the world as it was /is based on this story? How does it compare to other stories? *(Q5)*
- How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q6)*
- What is the best way to organize this information? *(Q7)*
- How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? *(Q8)*

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Acquisition of Knowledge & Skill	
Knowledge	**Skills**
What facts and basic concepts should students know and be able to recall? Students will know...	What discrete skills and processes should students be able to use? Students can...
■ Genres are loose collections of tropes, themes, and plot devices that categorize stories. *(K1)* ■ Screwball comedy emerged in the 1930s, blending romance, satire, and farce. *(K2)* ■ *It Happened One Night* (1934) established the genre, becoming the first film to win the five major Academy Awards. *(K3)* ■ Screwball comedies typically involve mismatched couples who clash but eventually fall in love. *(K4)* ■ Key features include fast-paced dialogue, escalating farcical situations, and witty banter. *(K5)* ■ The genre reflected changing gender roles in 1930s America, where women increasingly entered the workforce. *(K6)* ■ City versus country tension symbolized contrasts between modern life and traditional values. *(K7)* ■ Class conflict often placed wealthy elites against honest, working-class characters, reflecting Great Depression anxieties. *(K8)* ■ Screwball comedies were shaped by the Hays Code (1934–1968), which	■ I can analyze character motivation and development through dialogue and visual storytelling. *(S1)* ■ I can interpret how cinematic techniques contribute to tone, mood, and narrative meaning. *(S2)* ■ I can construct evidence-based arguments using the RACER paragraph structure. *(S3)* ■ I can cite specific moments from the film using timestamps and apply accurate film vocabulary. *(S4)* ■ I can collaborate in small groups to synthesize and present analytical interpretations. *(S5)* ■ I can express thoughtful interpretations in writing and discussion using appropriate film terminology and precise language. *(S6)* ■ I can explain how censorship shaped film content by identifying examples of innuendo, metaphor, and farce. *(S7)* ■ I can evaluate how screwball comedies both reflected and challenged 1930s–40s American cultural values. *(S8)* ■ I can connect historical context (Great Depression, Hays Code, shifting gender roles) to themes and character dynamics in film analysis. *(S9)*

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censored crime, violence, and sexuality. *(K9)*

- The genre relied on innuendo, metaphor, and frustration to convey sexuality indirectly. *(K10)*
- The decline of censorship in the 1960s made screwball comedies less relevant, but their influence survives in modern romantic comedies. *(K11)*
- Farce is a form of comedy based on improbable, exaggerated situations, often involving disguises. *(K12)*
- Innuendo uses subtle hints to suggest sexual or impolite ideas without stating them directly. *(K13)*
- The **Hollywood star system** was central to screwball comedy's popularity, as iconic actors and actresses shaped audience expectations and carried the genre's themes.
    - Teachers may choose which performer to highlight in their course (e.g., Marilyn Monroe, Tony Curtis, Jack Lemmon, Cary Grant, Claudette Colbert, Clark Gable).
    - For example, if you teach *Some Like it Hot*, you might teach them about Marilyn Monroe (she delivered one of her most acclaimed performances in *Some Like It Hot*; she died at age 36 from a barbiturate overdose, though her death was not considered a suicide; etc.)

(K14)

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Unit 5: From Suspicion to Obsession: An Exploration of Hitchcock and the Art of Psychological Suspense

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
05-23-2025	HS History of Film I	9 Day(s)	9, 10, 11, 12	English Language Arts	Shaun Karli, Matthew Brubaker, Jessica Cooper, Olivia Hess

Focus

As the charm of comedy gave way to deeper anxieties in a rapidly changing world, one filmmaker invited audiences to peer into the hidden corners of the human mind. Alfred Hitchcock transformed suspense into an art form, crafting tightly wound narratives where danger lurked not just around corners, but within the characters themselves. In this unit, we delve into Hitchcock's masterful use of visual storytelling, subjective camera work, and psychological complexity to explore themes of guilt, voyeurism, and identity.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 9-10

- Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. *(CC.1.3.9-10.A)*
- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences and conclusions based on an author's explicit assumptions and beliefs about a subject. *(CC.1.3.9-10.B)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Speaking and Listening: Effectively utilize appropriate speaking techniques (volume, inflection, pace, etc.) and vocabulary in a variety of settings to clearly communicate ideas and information. *(T3)*

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- Analyze how complex characters develop over the course of a text, interact with other characters, and advance the plot or develop the theme. *(CC.1.3.9-10.C)*
- Analyze how an author's choices concerning how to structure a text, order events within it and manipulate time create an effect. *(CC.1.3.9-10.E)*
- Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately. *(CC.1.4.9-10.A)*
- Initiate and participate effectively in a range of collaborative discussions on grades level topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. *(CC. 1.5.9-10.A)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Strong inferences are based on specific text details that lead to a broader topic, point, or conclusion. *(U1)*
- Readers ask questions about the plot, settings, and characters of a story to determine and explain a central message. *(U2)*
- Readers notice how elements of a story impact and influence other elements to enhance their understanding of the text. *(U3)*
- The perspective of the narrator impacts how the reader interprets the plot and meaning of the text. *(U4)*
- Authors structure the plot of the story to create conflict and develop characters. *(U5)*
- Stories can have similar themes that help readers develop their understanding of themselves and the world. *(U6)*
- Effective writers choose organizational structures and transitions to logically connect ideas and information. *(U7)*
- Effective writers choose appropriate/ relevant evidence from text(s) to support their opinion. *(U8)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What helps me figure out the lesson or theme? *(Q1)*
- How can I use inferences to support my understanding of the text? *(Q2)*
- How do literary elements work together in this text to help me understand the big picture? *(Q3)*
- How does the genre and the way the story is told (use of language, structure) impact my understanding? *(Q4)*
- What am I learning about the world as it was /is based on this story? How does it compare to other stories? *(Q5)*
- How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q6)*
- What is the best way to organize this information? *(Q7)*
- How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? *(Q8)*

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	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ Alfred Hitchcock is an influential filmmaker known for his mastery of suspense and psychological thrillers. *(K1)* ■ Intrinsic dangers reside mostly in characters rather than their environment in Hitchcock's work. *(K2)* ■ Subjective camera work is a prominent feature of Hitchcock's work. *(K3)* ■ Subjective camera work is used to create a feeling of suspense in film. *(K4)* ■ Psychological complexity in characters is used to explore themes of guilt, voyeurism, and identity. *(K5)* ■ Suspense is more about the audience's reaction to the unknown than graphic representations of horror. *(K6)* ■ How the filmmaker uses camera angles, pacing, dialogue, music, etc. to create a sense of suspense. *(K7)*	What discrete skills and processes should students be able to use? Students can... ■ I can cite specific moments from the film using timestamps and apply accurate film vocabulary. *(S1)* ■ I can construct evidence-based arguments using the RACER paragraph structure. *(S2)* ■ I can interpret how subjective camera work contributes to tone, mood, and narrative meaning. *(S3)* ■ I can collaborate in small groups to synthesize and present analytical interpretations. *(S4)* ■ I can express thoughtful interpretations in writing and discussion using appropriate film terminology and precise language. *(S5)* ■ I can evaluate how the psychological complexity of Hitchcock's characters explore themes of guilt, voyeurism, and identity. *(S6)*



Unit 6: From Margin to Spotlight: An Exploration of Sidney Poitier and the Struggle for Dignity on Screen

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
05-23-2025	HS History of Film I	4 Day(s)	9, 10, 11, 12	English Language Arts	Shaun Karli, Matthew Brubaker, Jessica Cooper, Olivia Hess

Focus

As Hollywood's golden age gave way to social upheaval, a new kind of star emerged—one who challenged the roles Black actors had long been confined to. In this unit, we examine the groundbreaking career of Sidney Poitier, whose performances broke barriers and redefined representation in American film. With quiet strength and moral clarity, Poitier portrayed characters who demanded to be seen not as symbols, but as human beings. His work during the civil rights era reflected a nation in turmoil, and offered a vision of dignity, resistance, and change. Through his films, we explore how cinema became a battleground for identity, justice, and the American promise.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 9-10

- Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. *(CC.1.2.9-10.A)*
- Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T2)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T3)*
- Speaking and Listening: Effectively utilize appropriate speaking techniques (volume, inflection, pace, etc.) and vocabulary in a variety of settings to clearly communicate ideas and information. *(T4)*

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specific details; provide an objective summary of the text. *(CC.1.3.9-10.A)*
- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences and conclusions based on an author's explicit assumptions and beliefs about a subject. *(CC.1.3.9-10.B)*
- Analyze how complex characters develop over the course of a text, interact with other characters, and advance the plot or develop the theme. *(CC.1.3.9-10.C)*
- Analyze how an author's choices concerning how to structure a text, order events within it and manipulate time create an effect. *(CC.1.3.9-10.E)*
- Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately. *(CC.1.4.9-10.A)*
- Initiate and participate effectively in a range of collaborative discussions on grades level topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. *(CC. 1.5.9-10.A)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Strong inferences are based on specific text details that lead to a broader topic, point, or conclusion. *(U1)*
- Strong inferences are based on specific text details that lead to a broader theme(s), point(s), or conclusion(s). *(U2)*
- Readers ask questions about the plot, settings, and characters of a story to determine and explain a central message. *(U3)*
- Readers notice how elements of a story impact and influence other elements to enhance their understanding of the text. *(U4)*
- The perspective of the narrator impacts how the reader interprets the plot and meaning of the text. *(U5)*
- Authors structure the plot of the story to create conflict and develop characters. *(U6)*
- Stories can have similar themes that help readers develop their understanding of themselves and the world. *(U7)*
- Effective writers choose organizational structures and transitions to logically connect ideas and information. *(U8)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What helps me figure out the lesson or theme? *(Q1)*
- How can I use inferences to support my understanding of the text? *(Q2)*
- How do literary elements work together in this text to help me understand the big picture? *(Q3)*
- How does the genre and the way the story is told (use of language, structure) impact my understanding? *(Q4)*
- What am I learning about the world as it was /is based on this story? How does it compare to other stories? *(Q5)*
- How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q6)*
- What is the best way to organize this information? *(Q7)*
- How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? *(Q8)*

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audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

- Effective writers choose appropriate/ relevant evidence from text(s) to support their opinion. *(U9)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Black actors were often limited to stereotypical roles in Hollywood before Poitier's rise to prominence. *(K1)*
- Poitier's career developed during the era of the Civil Rights Movement and reflected broader social and political changes in the United States. *(K2)*
- Film can influence public attitudes about identity, justice, and equality. *(K3)*
- Representation in media affects how individuals and groups are perceived by society. *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can analyze character motivation and development through dialogue and visual storytelling. *(S1)*
- I can interpret how cinematic techniques contribute to tone, mood, and narrative meaning. *(S2)*
- I can construct evidence-based arguments using the RACER paragraph structure. *(S3)*
- I can cite specific moments from the film using timestamps and apply accurate film vocabulary. *(S4)*
- I can collaborate in small groups to synthesize and present analytical interpretations. *(S5)*
- I can express thoughtful interpretations in writing and discussion using appropriate film terminology and precise language. *(S6)*

Information Overload: Media Literacy

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2025	HS CP Journalism	2 Week(s)	11, 12	English Language Arts	Janae Lapp, Shaun Karli

Focus

Before we start producing news, we have to examine our own media consumption. We will review traditional sources of media, as well as more recent “disruptors” such as the internet and social media. Regardless of the format, we need to ask how we can be ethical and informed consumers of news.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 11-12

- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences and conclusions based on and related to an author’s implicit and explicit assumptions and beliefs. *(CC.1.2.11-12.B)*
- Evaluate how an author’s point of view or purpose shapes the content and style of a text. *(CC.1.2.11-12.D)*
- Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem. *(CC.1.2.11-12.G)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T1)*
- Speaking and Listening: Demonstrate interest in and acknowledgement of diverse perspectives by asking probing questions and providing respectful verbal and non-verbal feedback. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Diverse media that features a range of perspectives on a given topic helps individuals to deepen and challenge their thinking. *(U1)*
- (6-12): Integrating multiple sources of information in diverse media or

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can I figure out the author's point of view? *(Q1)*
- How do I find and use trustworthy information? *(Q2)*
- (4-12) How does the author’s perspective and time when this text

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- Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. *(CC.1.2.11-12.J)*
- Integrate multiple sources of information presented in diverse formats and media (e.g. visually, quantitative, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. *(CC. 1.5.11-12.C)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

formats enhances a speaker's credibility and persuasiveness. *(U2)*
- Multimedia components and visual aids (i.e. pictures, charts, PowerPoints, etc.) are powerful tools that can significantly enhance the development, credibility and communication of main ideas and themes in presentations. *(U3)*

was produced affect my understanding? *(Q3)*
- How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? *(Q4)*
- How can I create a positive and respectful discussion that encourages everyone to share their ideas? How effective is the strategy that I am using, and what changes might be needed? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Vocabulary: bias, gatekeeper, newsworthy, copy, beat, deadline, pitch, source, attribution, angle, scoop *(K1)*
- Elements of a print newspaper: headline, byline, lead, cover, cutline/caption, index, flag/logo, column, dateline, jumpline, wire story *(K2)*
- Traditional media gatekeepers *(K3)*
- Roles in a newsroom: Editor-in-Chief, Assistant Editor-in-Chief, Copy Editor, Fact Checker, Public Relations, Photographer *(K4)*
- Hard vs soft news *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can use textual cues to navigate a traditional newspaper. *(S1)*
- I can identify sources of journalistic bias. *(S2)*
- I can use online tools to determine bias of news outlets. *(S3)*
- I can select a variety of sources to get multiple perspectives. *(S4)*
- I can articulate the definition of journalism. *(S5)*
- I can name 3-5 news values and explain how editors use them to determine newsworthiness. *(S6)*
- I can self-evaluate and track growth of my journalistic skills. *(S7)*

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Just the Facts, Please: News Writing

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2025	HS CP Journalism	4 Week(s)	11, 12	English Language Arts	Janae Lapp, Shaun Karli

Focus

Now that we understand more about the current media landscape, it is time to add our journalistic voice. We will learn the basics of news writing and photojournalistic style, and start to produce publishable stories for our own school community.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 11-12

- Evaluate how an author's point of view or purpose shapes the content and style of a text. *(CC.1.2.11-12.D)*
- Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately. *(CC.1.4.11-12.A)*
- Write with a sharp distinct focus identifying topic, task, and audience. *(CC.1.4.11-12.B)*
- Write with an awareness of the stylistic aspects of composition. • Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. • Establish and maintain a formal style and objective tone while attending to

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T1)*
- Writing: Build stamina, perseverance, and craftsmanship through the writing process to become fluent, strategic, and independent writers. *(T2)*
- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Meeting a common goal often requires flexibility, compromise, and a willingness to accept constructive feedback. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- As I am speaking/writing... What am I trying to say? How do I explain my ideas or approach for a specific purpose and audience? What details are appropriate to include to clarify my message? How can I utilize accessibility

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the norms of the discipline in which they are writing. *(CC.1.4.11-12.E)*
- Demonstrate a grade appropriate command of the conventions of standard English grammar and spelling. *(CC. 1.4.11-12.F)*
- Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. *(CC.1.4.11-12.V)*
- Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation. *(CC.1.4.11-12.W)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity

- Effective communication provides an opportunity to affect local and global change. *(U2)*
- Effective readers determine the author's viewpont and how it shapes the text. *(U3)*
- Effective readers evaluate the style, tone, and use of evidence that an author chooses to include in the text to convey an idea. *(U4)*
- Effective writers make deliberate and strategic choices when considering purpose and audience to convey information clearly about a topic. *(U5)*
- Effective writers choose appropriate/ relevant evidence from text(s) to support their opinion. *(U6)*
- Effective writers understand there are multiple points of view/opinions. *(U7)*
- Effective writers create organizational structures to support their opinions. *(U8)*
- Effective writers choose organizational structures to logically sequence ideas and events. *(U9)*
- Effective writers strengthen their writing through the process of revising and editing. *(U10)*
- Effective writers effectively use a variety of digital tools to collaborate, produce, and publish their writing. *(U11)*
- Strategic researchers gather information from a variety of reliable resources to answer a specific research question or explore a topic. *(U12)*

tools to ensure diverse audiences can understand me? What adjustments do I need to make? *(Q1)*
- How can I figure out the author's point of view? *(Q2)*
- How does the way this information is organized help me understand the text? *(Q3)*
- How do I find and use trustworthy information? *(Q4)*
- How does the author support their argument? *(Q5)*
- How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q6)*
- What is the best way to organize this information? *(Q7)*
- How clear is my argument? What can I do to make it more logical and effective? *(Q8)*
- How do I know if I communicated my point effectively? *(Q9)*
- What is the best way to organize the events in this story? *(Q10)*
- How do I find reliable and useful sources for my research? How do I compare information that I have found from multiple sources to figure out what is accurate? *(Q11)*

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and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*	■ Strategic researchers participate in independent and collaborative research to better understand the content that they are researching. *(U13)*	
	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ Basic news writing vocabulary: Angle, Backgrounder, Developing story, Hard lead, Hard news, Inverted pyramid, Investigative reporting, Lead/lede, News story, Nut paragraph, Participant observation, Scoop, Cutline, Information graphic *(K1)* ■ Inverted pyramid style of news writing *(K2)* ■ Types of leads *(K3)* ■ Journalistic experiences during an important event (such as 9/11) *(K4)* ■ Types of photojournalism styles *(K5)*	What discrete skills and processes should students be able to use? Students can... ■ I can determine which stories are the most newsworthy. *(S1)* ■ I can interview sources to gather accurate information. *(S2)* ■ I can write a hard news lead. *(S3)* ■ I can write a hard news headline. *(S4)* ■ I can write a news story in inverted pyramid style. *(S5)* ■ I can describe the challenges for journalists reporting on tragedies. *(S6)* ■ I can take pictures that accurately tell a story. *(S7)* ■ I can write cutlines that give additional information about a photo. *(S8)*

Dilemmas and Tensions: Ethics in Journalism

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2025	HS CP Journalism	2 Week(s)	11, 12	English Language Arts	Janae Lapp, Shaun Karli

Focus

As we try to produce truthful, fact-based journalism, we will encounter ethical dilemmas. To help resolve these, we will first examine legal precedence related to journalism. We will also study theories of how to make wise decisions to deal with ethical tensions. We will examine scenarios that real-life student journalists encounter, creating and analyzing our own case studies.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 11-12

- Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem. *(CC.1.2.11-12.G)*
- Read and comprehend literary non-fiction and informational text on grade level, reading independently and proficiently. *(CC.1.2.11-12.L)*
- Initiate and participate effectively in a range of collaborative discussions on grades level topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. *(CC.1.5.11-12.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T1)*
- Speaking and Listening: Demonstrate interest in and acknowledgement of diverse perspectives by asking probing questions and providing respectful verbal and non-verbal feedback. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Strong inferences are based on specific text details that lead to a broader topic, point, or conclusion. *(U1)*
- Engaging in collaborative discussions allows students to learn from each

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What challenges do communities face? What are some innovative and traditional ways they are meeting those challenges? How does that inspire my own ideas? *(Q1)*

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- Evaluate how the speaker's perspective, reasoning, and use of evidence and rhetoric affect the credibility of an argument through the author's stance, premises, links among ideas, word choice, points of emphasis, and tone. *(CC.1.5.11-12.B)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

other, deepen their understanding of topics, and gain new perspectives. *(U2)*
- ELA: Reading provides a window into others' perspectives and stories which promotes compassion for others and develops critical thinking. *(U3)*
- Being receptive to contradictory or challenging ideas, asking probing questions, and providing respectful feedback broadens one's perspective and deepens others' thinking. *(U4)*
- Meaningful change in a community requires looking at a problem from multiple angles with curiosity and a willingness to challenge and deepen one's thinking. *(U5)*

- How do societies and individuals interact and influence each other? *(Q2)*
- What is the problem, and why does this problem exist and need solving? *(Q3)*
- How do I come up with a solution that can potentially help with this problem? *(Q4)*
- How do I work to design, test, and rework the solution based on feedback from the target audience? *(Q5)*
- To what extent does the way I act show what and who is important to me? *(Q6)*
- How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? *(Q7)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Vocabulary: First Amendment, censorship, court of public opinion, public forum, invasion of privacy, libel, off the record, plagiarism *(K1)*
- Stephen Glass and the *New Republic* scandal *(K2)*
- PA laws related to student journalism *(K3)*
- Supreme Court rulings related to student journalism: Tinker vs. DeMoines, Hazelwood School District v. Kuhlmeier, Dean v. Utica Community Schools *(K4)*
- Areas of ethical inquiry: personal ethics, professional ethics, social and political ethics,

Skills

What discrete skills and processes should students be able to use? Students can...

- I can describe the types of ethical frameworks that journalists use to make decisions. *(S1)*
- I can apply ethical frameworks to solve real-life journalistic dilemmas. *(S2)*
- I can justify why journalists are making certain decisions based on ethical frameworks. *(S3)*
- I can resolve censorship issues when they arise. *(S4)*

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	global ethics *(K5)* ■ Ethical frameworks: Teleological, Deontological, Virtue *(K6)* ■ Ethical Justifications: Authoritative, External, Voices, Naturalism, Social Agreement, or Contract *(K7)* ■ How censorship affects journalists and audiences *(K8)*	■ I can correctly attribute my and others' work and sources. *(S5)* ■ I can apply laws and court rulings to my own situations. *(S6)*

Stories Worth Sharing: Feature Writing

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2025	HS CP Journalism	4 Week(s)	11, 12	English Language Arts	Janae Lapp, Shaun Karli

Focus

Once we have learned to write in an informational style, it's time to learn about journalistic formats that use more creative elements. We will learn about different types of feature stories, then spend time interviewing one individual in depth and writing a personality profile about him or her.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 11-12

- Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately. *(CC.1.4.11-12.A)*
- Write with a sharp distinct focus identifying topic, task, and audience. *(CC.1.4.11-12.B)*
- Develop and analyze the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic; include graphics and multimedia when useful to aiding comprehension. *(CC. 1.4.11-12.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T1)*
- Writing: Build stamina, perseverance, and craftsmanship through the writing process to become fluent, strategic, and independent writers. *(T2)*
- Speaking and Listening: Demonstrate interest in and acknowledgement of diverse perspectives by asking probing questions and providing respectful verbal and non-verbal feedback. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Being receptive to contradictory or challenging ideas, asking probing questions, and providing respectful

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- As I am reading my research, how do I deepen and challenge my thinking? *(Q1)*

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- Organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create whole; use appropriate and varied transitions and syntax to link the major sections of the text; provide a concluding statement or section that supports the information presented; include formatting when useful to aiding comprehension. *(CC. 1.4.11-12.D)*
- Write with an awareness of the stylistic aspects of composition. • Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. • Establish and maintain a formal style and objective tone while attending to the norms of the discipline in which they are writing. *(CC.1.4.11-12.E)*
- Demonstrate a grade appropriate command of the conventions of standard English grammar and spelling. *(CC. 1.4.11-12.F)*

ISTE Standards

ISTE Standards: 1

- Evaluate and select information sources and digital tools based on the appropriateness to specific tasks *(ISTE.3.1.c)*
- Process data and report results *(ISTE.3.1.d)*

feedback broadens one's perspective and deepens others' thinking. *(U1)*
- Effective writers make deliberate and strategic choices when considering purpose and audience to convey information clearly about a topic. *(U2)*
- Effective writers choose organizational structures and transitions to logically connect ideas and information. *(U3)*
- Effective writers strengthen their writing through the process of revising and editing. *(U4)*
- Effective writers effectively use a variety of digital tools to collaborate, produce, and publish their writing. *(U5)*

- How do the stories people tell give insight into who they are? *(Q2)*
- How does who I am writing for impact the way I am sharing information about the topic? *(Q3)*
- How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q4)*
- What is the best way to organize this information? *(Q5)*
- How do I play with words and phrases to communicate my ideas more powerfully? *(Q6)*
- How does my audience feedback help me revise? *(Q7)*
- How does using a digital tool strengthen writing ? (5-12) *(Q8)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Vocabulary: anecdotal lead, angle, close-ended questions, features, human-interest story, profile, standard verbatim transcription *(K1)*
- Grammar rules of integrating quotes *(K2)*
- Why profile writing is important *(K3)*
- Interviewing skills *(K4)*
- Types of interviewing questions *(K5)*
- Types of digital tools to assist with interviewing and transcribing *(K6)*
- Types of feature headlines *(K7)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can write effective interview questions. *(S1)*
- I can ask follow-up questions to probe more deeply during an interview. *(S2)*
- I can use digital tools to record and transcribe a long-form interview. *(S3)*
- I can edit a written transcript into standard verbatim form. *(S4)*
- I can use body language and non-verbal cues to make an interview subject feel comfortable. *(S5)*
- I can write an effective feature lead. *(S6)*

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Profile of a CV Learner		
■ Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)* ■ Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*	■ Common attribution verbs *(K8)* ■ Types of feature leads *(K9)* ■ *Wall Street Journal* organization for feature stories *(K10)*	■ I can select the most powerful quotes from a transcript. *(S7)* ■ I can use the *Wall Street Journal* format to organize a feature story. *(S8)* ■ I can smoothly integrate quotes and paraphrases. *(S9)* ■ I can write effective feature leads and headlines. *(S10)*

The Press and Democracy: History of Journalism

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2025	HS CP Journalism	2 Week(s)	11, 12	English Language Arts	Janae Lapp, Shaun Karli

Focus

Now that we have some experience as student journalists, we can think about how journalists have historically participated in American democracy. By examining case studies like Watergate, we can learn how to intentionally use the power of the press to uphold democratic principles and free speech in our own times.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 11-12

- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences and conclusions based on and related to an author's implicit and explicit assumptions and beliefs. *(CC.1.2.11-12.B)*
- Analyze the interaction and development of a complex set of ideas, sequence of events, or specific individuals over the course of the text. *(CC.1.2.11-12.C)*
- Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging. *(CC.1.2.11-12.E)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Effective communication provides an opportunity to affect local and global change. *(U1)*
- Effective readers identify key details of informational texts to determine main ideas. *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How have the events of the past influenced the world we know today? *(Q1)*
- How do societies and individuals interact and influence each other? *(Q2)*
- How will I judge if a risk I am thinking about is worth taking? What are the

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem. *(CC.1.2.11-12.G)*
- Analyze foundational U.S. and world documents of historical, political, and literary significance for their themes, purposes, and rhetorical features. *(CC.1.2.11-12.I)*
- Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama. *(CC.1.3.11-12.C)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

- Strong inferences are based on specific text details that lead to a broader topic, point, or conclusion. *(U3)*
- (4-12) The perspective of authors on a specific topic, situated in place and time, impacts how readers understand their works. *(U4)*

consequences of not doing it? Is this worth my persistence? Would my time and efforts be better applied elsewhere? *(Q3)*
- What do I need to know to retell/summarize this text? *(Q4)*
- What questions do I have as I read this text? *(Q5)*
- What is this author trying to tell me based on the evidence used? How does this connect to what I already know and believe? *(Q6)*
- How do I find and use trustworthy information? *(Q7)*
- (4-12) How does the author's perspective and time when this text was produced affect my understanding? *(Q8)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Vocabulary: investigative reporting, desk, off the record, background, deep background, classified, subpoena, verbatim, slush fund *(K1)*
- Famous journalists of the past: Walter Cronkite, Joseph Pulitzer (Pulitzer Prize), William Randolph Hearst, Bob Woodward/Carl Bernstein, Edward R. Murrow, Nellie Bly, Margaret Bourke-White, Idea Tarbell, Barbara Walters, Tom Brokaw, David Brinkley, Tim

Skills

What discrete skills and processes should students be able to use? Students can...

- I can determine what sources to use to investigate a story. *(S1)*
- I can explain the contributions of key journalists in history. *(S2)*
- I can connect historical examples of journalism, such as Watergate, to current events. *(S3)*
- I can articulate the role of journalism in upholding democracy. *(S4)*
- I can use research skills to find accurate information about historic figures. *(S5)*

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	Russert, Thomas Friedman, Diane Sawyer, Anderson Cooper, Benjamin Franklin, Wolf Blitzer, Mike Wallace, Peter Jennings, Walter Lippmann *(K2)* ■ Investigative journalism, freedom of the press, and rhetorical strategies *(K3)* ■ Journalistic components of the Watergate scandal *(K4)*	■ I can present about a journalist in a clear and engaging way. *(S6)*

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The Head and the Heart: Opinion Writing

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2025	HS CP Journalism	4 Week(s)	11, 12	English Language Arts	Janae Lapp, Shaun Karli

Focus

Once we have a strong foundation in fact-based writing, we can learn to write opinion pieces from a foundation of research rather than our own personal biases. We can consider the issues that fire our hearts and imaginations, closely examine the evidence, and learn to craft a persuasive message to a particular audience.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 11-12

- Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences and conclusions based on and related to an author's implicit and explicit assumptions and beliefs. *(CC.1.2.11-12.B)*
- Evaluate how an author's point of view or purpose shapes the content and style of a text. *(CC.1.2.11-12.D)*
- Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging. *(CC.1.2.11-12.E)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Writing: Build stamina, perseverance, and craftsmanship through the writing process to become fluent, strategic, and independent writers. *(T3)*
- Writing: Apply knowledge of vocabulary to communicate effectively in a variety of contexts using appropriate conventions *(T4)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Effective communication provides an opportunity to affect local and global change. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What challenges do communities face? What are some innovative and traditional ways they are meeting those

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- Evaluate how words and phrases shape meaning and tone in texts. *(CC.1.2.11-12.F)*
- Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade level reading and content, choosing flexibly from a range of strategies and tools. *(CC.1.2.11-12.K)*
- Write arguments to support claims in an analysis of substantive topics. *(CC. 1.4.11-12.G)*
- Write with a sharp distinct focus identifying topic, task, and audience. Introduce the precise, knowledgeable claim. *(CC. 1.4.11-12.H)*
- Distinguish the claim(s) from alternate or opposing claims; develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases. *(CC. 1.4.11-12.I)*
- Create organization that logically sequences claim(s), counterclaims, reasons, and evidence; Use words, phrases, and clauses as well as varied syntax to link the major sections of the text create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims; provide a concluding statement or section that follows from and supports the argument presented. *(CC.1.4.11-12.J)*
- Being receptive to contradictory or challenging ideas, asking probing questions, and providing respectful feedback broadens one's perspective and deepens others' thinking. *(U2)*
- Meaningful change in a community requires looking at a problem from multiple angles with curiosity and a willingness to challenge and deepen one's thinking. *(U3)*
- Innovative problem-solvers realize that failure is an opportunity to learn and accept constructive feedback to evaluate and revise their thinking. *(U4)*
- Effective readers determine the author's viewpont and how it shapes the text. *(U5)*
- Diverse media that features a range of perspectives on a given topic helps individuals to deepen and challenge their thinking. *(U6)*
- Effective readers evaluate the style, tone, and use of evidence that an author chooses to include in the text to convey an idea. *(U7)*
- (4-12) The perspective of authors on a specific topic, situated in place and time, impacts how readers understand their works. *(U8)*
- Effective writers choose appropriate/ relevant evidence from text(s) to support their opinion. *(U9)*
- Effective writers understand there are multiple points of view/opinions. *(U10)*

challenges? How does that inspire my own ideas? *(Q1)*
- What causes/issues/problems do I care about (local-global)? What are some ways I can affect positive change? *(Q2)*
- What is the problem, and why does this problem exist and need solving? *(Q3)*
- How do I come up with a solution that can potentially help with this problem? *(Q4)*
- How will I judge if a risk I am thinking about is worth taking? What are the consequences of not doing it? Is this worth my persistence? Would my time and efforts be better applied elsewhere? *(Q5)*
- To what extent does the way I act show what and who is important to me? *(Q6)*
- What is this author trying to tell me based on the evidence used? How does this connect to what I already know and believe? *(Q7)*
- How can I figure out the author's point of view? *(Q8)*
- How does the way this information is organized help me understand the text? *(Q9)*
- How do I find and use trustworthy information? *(Q10)*
- How does the author support their argument? *(Q11)*
- How does this text compare to other texts on the same topic? *(Q12)*
- (4-12) How does the author's perspective and time when this text

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- Write with an awareness of the stylistic aspects of composition. • Use precise language and domain-specific vocabulary to manage the complexity of the topic. • Establish and maintain a formal style and objective tone while attending to the norms of the discipline in which they are writing. *(CC.1.4.11-12.K)*
- Demonstrate a grade appropriate command of the conventions of standard English grammar and spelling. *(CC. 1.4.11-12.L)*
- Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. *(CC. 1.4.11-12.T)*
- Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments and information. *(CC.1.4.11-12.U)*
- Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation. *(CC.1.4.11-12.W)*
- Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or

- Effective writers create organizational structures to support their opinions. *(U11)*
- Effective writers effectively use a variety of digital tools to collaborate, produce, and publish their writing. *(U12)*
- Effective writers strengthen their writing through the process of revising and editing. *(U13)*

was produced affect my understanding? *(Q13)*
- How does who I am writing for impact the way I am sharing information about the topic? *(Q14)*
- (7+) What are other opinions about this topic? How can I consider/use these opinions in my argument? *(Q15)*
- How clear is my argument? What can I do to make it more logical and effective? *(Q16)*
- How do I know if I communicated my point effectively? *(Q17)*
- How do I play with words and phrases to communicate my ideas more powerfully? *(Q18)*
- How do I find reliable and useful sources for my research? How do I compare information that I have found from multiple sources to figure out what is accurate? *(Q19)*
- As I am reading my research, how do I deepen and challenge my thinking? *(Q20)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Vocabulary: angle, bias, editorial, editorial cartoon, editorial department, editorialize, op-ed page, counter-claim *(K1)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can use ethos, logos and pathos to convince an audience. *(S1)*
- I can craft arguments based on the target audience. *(S2)*
- I can acknowledge and refute counter-arguments. *(S3)*

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a day or two) for a range of discipline-specific tasks, purposes and audiences. *(CC. 1.4.11-12.X)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

- Persuasive techniques: ethos, logos, pathos *(K2)*
- Connotation and denotation of words *(K3)*
- Types of feature leads *(K4)*
- Types of feature headlines *(K5)*
- Structure of an editorial *(K6)*
- Structure of a review *(K7)*

- I can choose language with specific connotations. *(S4)*
- I can determine viewpoints and bias in argument writing. *(S5)*
- I can synthesize various viewpoints. *(S6)*
- I can find reliable statistics about a topic. *(S7)*
- I can use details to support an opinion about a cultural artifact. *(S8)*

How We Communicate

Draft Date	Course	Duration	Grades	Subjects	Team
02-09-2026	(Draft) Grade 5 English Language Arts	10 Day(s)	5	English Language Arts	Jill Koser, SYSTEM USER, Kelly Galbraith, Lind Raymond

Focus

In this unit, students are supported in understanding how reasoning and evidence effectively support an author's point of view or purpose. In order to develop this understanding within the ELA discipline, students read two informational articles and then write a short personal narrative drawing from their own experiences.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 5

- Determine two or more main ideas in a text and explain how they are supported by key details; summarize the text. *(CC.1.2.5.A)*
- Cite textual evidence by quoting accurately from the text to explain what the text says explicitly and make inferences. *(CC.1.2.5.B)*
- **Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.** *(CC.1.2.5.D)*
- **Determine how an author supports particular points in a text through reasons and evidence.** *(CC.1.2.5.H)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Effective readers determine the author's viewpoint and how it shapes the text. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can I figure out the author's point of view? *(Q1)*
- How can I use appropriate spelling, punctuation, grammar, mechanics, and

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- Write narratives to develop real or imagined experiences or events. *(CC.1.4.5.M)*
- **Demonstrate a grade appropriate command of the conventions of standard English grammar and spelling.** *(CC.1.4.5.R)*

- Effective writers apply appropriate vocabulary, conventions, and genre features to clarify their writing. *(U2)*

genre features/conventions in my writing? *(Q2)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Authors use reasons and evidence to convey their point of view in a text. *(K1)*
- Narrative Writing: Writers develop a personal narrative with all story elements following a narrative structure. *(K2)*
- Conventions: Writers will need to know the rules of spelling, punctuation and grammar so that the reader understands the ideas presented. *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain the author's point of view in a summary of a text. *(S1)*
- I can use the elements of narrative writing to tell a story. *(S2)*
- I can use the rules of spelling, punctuation and grammar in my writing. *(S3)*

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How Authors Convey Ideas

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
02-09-2026	(Draft) Grade 5 English Language Arts	23 Day(s)	5	English Language Arts	Jill Koser, SYSTEM USER, Kelly Galbraith, Lind Raymond

Focus

Successfully analyzing text, at any grade level, requires more than a lesson that guides students in responding to a text dependent analysis prompt for one particular text. Students need to engage in a series of coherent units throughout the entire year that systematically promote deeper learning and analysis of the reading/literary elements. This unit provides teachers with a way to reshuffle the texts in order for students to dive deeply into comprehension and analysis of a small set of reading/ literary elements using a variety of texts, and to demonstrate the ability to respond to a TDA prompt in writing. The Pennsylvania Academic Standards for English Language Arts require moving instruction away from generic questions to questions that require students to analyze what they are reading. This will help to ensure that students are college and career ready.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 5

- **Determine a theme of a text from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.** *(CC.1.3.5.A)*
- **Cite textual evidence by quoting accurately from the text to explain what the text says explicitly and make inferences.** *(CC.1.3.5.B)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Strong inferences are based on specific text details that lead to a broader theme(s), point(s), or conclusion(s). *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can I use inferences to support my understanding of the text? *(Q1)*

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- **Compare and contrast two or more characters, settings or events in a story or drama, drawing on specific details in the text.** *(CC.1.3.5.C)*
- Determine the meaning of words and phrases as they are used in grade level text, including interpretation of figurative language. *(CC.1.3.5.F)*
- Compare and contrast texts in the same genre on their approaches to similar themes and topics as well as additional literary elements. *(CC.1.3.5.H)*
- **Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade level reading standards for literature and informational texts.** *(CC.1.4.5.S)*
- Engage effectively in a range of collaborative discussions on grade level topics and texts, building on others' ideas and expressing their own clearly. *(CC.1.5.5.A)*
- Summarize the main points written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. *(CC.1.5.5.B)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*

- Readers notice how elements of a story impact and influence other elements to enhance their understanding of the text. *(U2)*

- How do literary elements work together in this text to help me understand the big picture? *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Theme is often thought of as the author's message or the major idea of the text. *(K1)*
- Theme is often determined by examining the character's actions, thoughts, and words and how the character(s) respond to situations *(K2)*
- Inferences are based on text evidence and require comprehension of the text. *(K3)*
- Analysis requires explaining the interrelationship of two reading/ literary elements and drawing a conclusion about the whole text. *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- Theme: I can use text evidence and inferences about the characters to identify a theme statement. *(S1)*
- Inferences: I can use characters' actions, thoughts, and words as text evidence to make inferences. *(S2)*
- Analysis: I can Identify and explain inferences made from the text(s) to explain and analyze the ways characters and theme are related. *(S3)*

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Comparing Character Perspectives

Draft Date	Course	Duration	Grades	Subjects	Team
06-22-2026	(Draft) Grade 5 English Language Arts	21 Day(s)	5	English Language Arts	Kelly Galbraith, Jill Koser, SYSTEM USER, Lind Raymond

Focus

In this unit, students read the novel *Wonder* by R.J. Palacio and explore how the story elements of point-of-view, text structure, plot, and character help to convey deeper, more nuanced meanings. In the novel, chapters are told from different character voices and perspectives, and they all describe personal experiences and interactions with Auggie and members of his family. In essence, these varied perspectives provide both inside-out (Auggie's view of the world) and outside-in (others' views of Auggie) views to deepen understanding of the theme and, ultimately, the human condition.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 5

- **Determine a theme of a text from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.** *(CC.1.3.5.A)*
- **Cite textual evidence by quoting accurately from the text to explain what the text says explicitly and make inferences.** *(CC.1.3.5.B)*
- **Compare and contrast two or more characters, settings or events in a story or**

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T2)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T3)*
- Speaking and Listening: Demonstrate interest in and acknowledgement of diverse perspectives by asking probing questions and providing respectful verbal and non-verbal feedback. *(T4)*

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drama, drawing on specific details in the text. *(CC.1.3.5.C)*

- **Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.** *(CC.1.3.5.D)*
- **Explain how a series of chapters, scenes or stanzas fits together to provide the overall structure of a particular story, drama, or poem.** *(CC.1.3.5.E)*
- Determine the meaning of words and phrases as they are used in grade level text, including interpretation of figurative language. *(CC.1.3.5.F)*
- Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem). *(CC.1.3.5.G)*
- **Write narratives to develop real or imagined experiences or events.** *(CC. 1.4.5.M)*
- Orient the reader by establishing a situation and introducing a narrator and/ or characters. *(CC.1.4.5.N)*
- **Use narrative techniques such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations; use concrete words and phrases and sensory details to convey experiences and events precisely.** *(CC.1.4.5.O)*
- Organize an event sequence that unfolds naturally, using a variety of transitional words and phrases to manage the sequence of events; provide a conclusion

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Strong inferences are based on specific text details that lead to a broader theme(s), point(s), or conclusion(s). *(U1)*
- Readers ask questions about the plot, settings, and characters of a story to determine and explain a central message. *(U2)*
- Readers notice how elements of a story impact and influence other elements to enhance their understanding of the text. *(U3)*
- The perspective of the narrator impacts how the reader interprets the plot and meaning of the text. *(U4)*
- Authors structure the plot of the story to create conflict and develop characters. *(U5)*
- Effective writers make deliberate and strategic choices when considering purpose and audience to convey information clearly about a topic. *(U6)*
- Effective writers choose organizational structures and transitions to logically connect ideas and information. *(U7)*
- Effective writers establish a situation that includes the elements and techniques of narrative writing to tell a cohesive story. *(U8)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What helps me figure out the lesson or theme? *(Q1)*
- How can I use inferences to support my understanding of the text? *(Q2)*
- How do literary elements work together in this text to help me understand the big picture? *(Q3)*
- What reading strategies am I using to read this text? How do I know if they are working? *(Q4)*
- How can I figure out the author's point of view based on the literary elements used? *(Q5)*
- How does the genre and the way the story is told (use of language, structure) impact my understanding? *(Q6)*
- How do multiple versions of the same story show / reveal different interpretations? *(Q7)*
- What is the best way to organize this information? *(Q8)*
- How do I use narrative elements to help me tell a story? *(Q9)*
- What is the best way to organize the events in this story? *(Q10)*
- How do I make this story come alive based on the details I use? *(Q11)*

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that follows from the narrated experiences and events. *(CC.1.4.5.P)*
- Write with an awareness of styles. Use sentences of varying length. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style. *(CC.1.4.5.Q)*
- Demonstrate a grade appropriate command of the conventions of standard English grammar and spelling. *(CC.1.4.5.R)*
- **Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade level reading standards for literature and informational texts.** *(CC.1.4.5.S)*
- Engage effectively in a range of collaborative discussions on grade level topics and texts, building on others' ideas and expressing their own clearly. *(CC.1.5.5.A)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of

- Effective writers choose organizational structures to logically sequence ideas and events. *(U9)*
- (3+) Effective writers critically engage with literature or informative texts through analysis, reflection, and research to find evidence to support their ideas. *(U10)*
- Engaging in collaborative discussions allows students to learn from each other, deepen their understanding of topics, and gain new perspectives. *(U11)*
- Perspective shapes meaning. The same event can be understood differently depending on who tells it, what they believe, and what they have experienced. *(U12)*
- Point of view and perspective are related, but different. Point of view is the narrator's position or pronoun structure, while perspective is the character's mindset, beliefs, and personal lens. *(U13)*
- Texts and film communicate meaning in different ways. Visual and auditory elements in film can affect tone, mood, and character understanding differently than written text. *(U14)*

- (3+) How do I choose relevant information to include in my writing? How does that help support an analysis of text(s)? *(Q12)*
- How do I play with words and phrases to communicate my ideas more powerfully? *(Q13)*
- How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? *(Q14)*

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others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The difference between point-of-view and perspective *(K1)*
- How multiple narrators reveal different views *(K2)*
- Key theme topics in the novel including kindness, acceptance, bullying, identity, courage, empathy, resilience, and belonging *(K3)*
- Story elements: plot, conflict, setting, character, theme, and narrative structure *(K4)*
- Narrative structural techniques: shifting narrators, short chapters, flashbacks, internal thoughts, and linear chronology *(K5)*
- Types of figurative language: symbolism, metaphor, simile, motif *(K6)*
- Grade level grammar and conventions: dialogue punctuation and comparative language *(K7)*
- Multimedia elements in film: visuals, sound, facial expressions, music, camera choices *(K8)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can compare and contrast two or more characters' perspectives on the same event. *(S1)*
- I can explain how multiple perspectives deepen the reader's understanding of a story. *(S2)*
- I can distinguish between point-of-view and perspective when discussing literature. *(S3)*
- I can track character development across a novel using charts, annotations, and textual evidence. *(S4)*
- I can quote accurately from the text to support explicit understanding and inferences. *(S5)*
- I can analyze how characters respond to challenges and how those responses reveal theme. *(S6)*
- I can explain how chapters, flashbacks, and shifting narrators fit together to create the whole structure of the novel. *(S7)*
- I can determine the meaning of words and phrases in context, including figurative language. *(S8)*
- I can annotate key passages by marking character details, important events, questions, inferences, and author's craft moves. *(S9)*

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		■ I can write a text-dependent analysis essay explaining how the author uses perspective and other literary elements to build meaning. *(S10)* ■ I can use narrative techniques such as dialogue, description, pacing, sensory details, and reflection in my writing. *(S11)* ■ I can apply grammar and conventions skills in my writing. *(S12)* ■ I can compare the novel and film version of *Wonder* to explain how multimedia elements affect meaning, tone, or character development. *(S13)* ■ I can reflect on how literature connects to real-world choices, empathy, and community action. *(S14)*



Extension: A Long Walk to Water

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-24-2026	(Draft) Grade 5 English Language Arts	13 Day(s)	5	English Language Arts	Jill Koser, SYSTEM USER, Kelly Galbraith, Lind Raymond

Focus

Interdisciplinary Science Unit: In this extension to the Watery Planet unit, we will learn about two characters living in Sudan at different times but facing serious challenges connected to survival and access to water. We learn about common economics practices and dig deeper into the Triangular Trade. We explore how each character responds to hardship, which helps them identify key themes such as perseverance, hope, and resilience. We will use our analysis skills that we've built this year to identify how character responses contribute to the themes of the text.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 5

- Determine a theme of a text from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text. *(CC.1.3.5.A)*
- Cite textual evidence by quoting accurately from the text to explain what the text says explicitly and make inferences. *(CC.1.3.5.B)*
- Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent. *(CC.1.3.5.D)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Explore text and other media to seek understanding of multiple perspectives and cultures. (Global Citizen) *(T1)*
- PCVL Global Citizen: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Themes are revealed through characters' responses to challenges. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What themes does the author develop, and how do the characters' choices show those themes? *(Q1)*

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- Explain how a series of chapters, scenes or stanzas fits together to provide the overall structure of a particular story, drama, or poem. *(CC.1.3.5.E)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

- Strong readers support ideas with accurate textual evidence. *(U2)*
- Authors use multiple points of view to deepen understanding of a topic. *(U3)*
- Chapters work together intentionally to build structure and meaning. *(U4)*
- PCVL Global Citizen: Global Citizens demonstrate compassion, empathy, and respect for others in a diverse society. *(U5)*

- How does quoting/citing the text strengthen our thinking and understanding of the characters and theme? *(Q2)*
- How do Salva's and Nya's perspectives help us understand life in Sudan? *(Q3)*
- How do the chapters work together to tell a complete story? *(Q4)*
- PCVL Global Citizens: What challenges do communities face? What are some innovative and traditional ways they are meeting those challenges? How does that inspire my own ideas? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Students will know that an author reveals a theme through characters response to conflicts and obstacles *(K1)*
- Students will know that textual evidence consists of a direct quotes and specific details used to support an inference or claim. *(K2)*
- Students will know how Salva's and Nya's point of view shapes their perspective on events, settings, and cultures. *(K3)*
- Students will know how an author organizes chapter and puts two stories dide-by-side to build a bigger message. *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify a theme based on a characters responses to conflicts and obstacles. *(S1)*
- I can quote or cite a text to support inferences and explain details about characters and themes *(S2)*
- I can identify how two different points of view describe setting, events, and cultural experiences in a region. *(S3)*
- I can explain how the author sets up alternating chapters to show how Salva's and Nya's separate journeys connect. *(S4)*
- PCVL Global Citizens: I can demonstrate compassion, empathy, and respect for others in a diverse society. *(S5)*

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	■ PCVL Global Citizens: Students will know how to seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(K5)*	

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Watery Planet

Draft Date	Course	Duration	Grades	Subjects	Team
02-09-2026	(Draft) Grade 5 English Language Arts, Grade 5 Science	5 Week(s)	5	English Language Arts	Jill Koser, SYSTEM USER, Kelly Galbraith, Lind Raymond

Focus

Interdisciplinary Science Unit: In this unit, students consider the profound importance of water as a natural resource. Students investigate the distribution of water, how it cycles through Earth's systems, and explore how it affects human societies. In addition, students will create an infographic detailing a strategy that could be used to conserve water in their community or context. Finally, students will extend their learning by applying their knowledge of science principles to novels and grade level texts.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 5

- **Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a text based on specific information in the text.** *(CC.1.2.5.C)*
- Determine a theme of a text from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text. *(CC.1.3.5.A)*
- Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent. *(CC.1.3.5.D)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T2)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T3)*
- Speaking and Listening: Effectively utilize appropriate speaking techniques (volume, inflection, pace, etc.) and vocabulary in a variety of settings to clearly communicate ideas and information. *(T4)*
- Science: Explain how the natural and designed worlds are interrelated and the application of scientific knowledge and technology can have beneficial, detrimental, or unintended consequences. (Global Citizen, Communicator) *(T5)*

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- **Explain how a series of chapters, scenes or stanzas fits together to provide the overall structure of a particular story, drama, or poem.** *(CC.1.3.5.E)*
- **Write informative/ explanatory texts to examine a topic and convey ideas and information clearly.** *(CC.1.4.5.A)*
- Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic; include illustrations and multimedia when useful to aiding comprehension. *(CC.1.4.5.C)*
- Group related information logically linking ideas within and across categories of information using words, phrases, and clauses; provide a concluding statement or section; include formatting when useful to aiding comprehension. *(CC.1.4.5.D)*
- Include multimedia components and visual displays in presentations when appropriate to enhance the development of main ideas or themes. *(CC.1.5.5.F)*

Pennsylvania Academic Standards

Science (2023): 5 Standards

- Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

  Clarifying Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate;

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- **Strong inferences are based on specific text details that lead to a broader topic, point, or conclusion. (RI and RL)** *(U1)*
- Readers notice how elements of a story impact and influence other elements to enhance their understanding of the text. (RL) *(U2)*
- The perspective of the narrator impacts how the reader interprets the plot and meaning of the text. (RL) *(U3)*
- Effective writers choose organizational structures and transitions to logically connect ideas and information. (Info Writing) *(U4)*
- **The Earth's surface processes affect and are affected by human activities. (Science)** *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do the details help me find the theme or lesson (Literature) and main idea (Info Text)? *(Q1)*
- How do the elements of a story work together to help me understand the big picture? (RL) *(Q2)*
- How do I know who is telling the story? (RL) *(Q3)*
- How do I use organizational structure to connect my ideas and information logically? (W) *(Q4)*
- Science: How can we solve problems in the environment? *(Q5)*
- Science: How much water is on Earth, and how is it distributed between saltwater and freshwater? *(Q6)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Using specific evidence from the text helps to explain what the text is about. (RI) *(K1)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can use information and details from the text to explain important relationships/interactions. (RI) *(S1)*

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the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system. **Assessment Boundary:** Assessment is limited to the interactions of two systems at a time. *(3.3.5.C)* ■ Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. **Clarifying Statement:** N/A **Assessment Boundary:** Assessment is limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere. *(3.3.5.D)* ■ Generate and design possible solutions to a current environmental issue, threat, or concern. **Clarifying Statement:** This could include but is not limited to topics such as biodiversity, watersheds, invasive species, natural resources, etc. **Assessment Boundary:** N/A *(3.3.5.F)*	■ The narrator's point of view influences how events are described. (RL) *(K2)* ■ Use facts, examples, and details to support what they are writing about. (W) *(K3)* ■ Gather information about a topic from various resources and make decisions about what is best to include in their writing. (W-Content) *(K4)* ■ Use headings, subheadings, and other text features to organize their writing so it is easy to follow. (W-Organization) *(K5)* ■ Science: Students will know that water is distributed on the earth in different ways. *(K6)* ■ Science: Students will know about current issues, threats or concerns in the environment. *(K7)*	■ I can describe the narrator's point of view and how their purpose is conveyed in the text. (RL) *(S2)* ■ I can organize my writing to share important ideas and facts clearly. (W-Info) *(S3)* ■ I can use percentages and data to graph water on earth. (Science) *(S4)* ■ I can create and design solutions to the environmental issues using the design process. (Science) *(S5)*
Profile of a CV Learner		
■ **Global Citizenship: Students will be able to mindfully and respectfully seek to**		

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understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*	

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Colonial America

Draft Date	Course	Duration	Grades	Subjects	Team
02-09-2026	(Draft) Grade 5 English Language Arts	3 Week(s)	5	English Language Arts	Jill Koser, SYSTEM USER, Kelly Galbraith, Lind Raymond

Focus

Interdisciplinary Social Studies Unit: In this unit, we get a chance to explore effects of trade between nations. We learn about common economics practices and dig deeper into the Triangular Trade. We share our thoughts through a causal analysis to figure out the "why" of specific events and the effect of specific consequences.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 5

- Determine two or more main ideas in a text and explain how they are supported by key details; summarize the text. *(CC.1.2.5.A)*
- Determine the meaning of words and phrases as they are used in grade level text, including interpretation of figurative language. *(CC.1.2.5.F)*
- **Write opinion pieces on topics or texts. *(CC.1.4.5.G)***
- Introduce the topic and state an opinion on the topic. *(CC.1.4.5.H)*
- Provide reasons that are supported by facts and details; draw from credible sources. *(CC.1.4.5.I)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T2)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T3)*
- Speaking and Listening: Demonstrate interest in and acknowledgement of diverse perspectives by asking probing questions and providing respectful verbal and non-verbal feedback. *(T4)*

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- Create an organizational structure that includes related ideas grouped to support the writer's purpose; link opinion and reasons using words, phrases, and clauses; provide a concluding statement or section related to the opinion. *(CC.1.4.5.J)*
- With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. *(CC. 1.4.5.T)*
- Engage effectively in a range of collaborative discussions on grade level topics and texts, building on others' ideas and expressing their own clearly. *(CC.1.5.5.A)*
- **Summarize the main points written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.** *(CC. 1.5.5.B)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- **Strong inferences are based on specific text details that lead to a broader topic, point, or conclusion. (RI)** *(U1)*
- Effective readers identify key details of informational texts to determine main ideas. (RI) *(U2)*
- Effective writers make deliberate and strategic choices when considering task, purpose, and audience to prove an opinion/claim about a topic. *(U3)*
- Readers use strategies to determine and clarify unknown words in grade level content to develop their ability to independently and effectively handle unfamiliar words encountered in the content they are reading. (RI-Vocab) *(U4)*
- Effective writers critically engage with literature or informative texts through analysis, reflection, and research to find evidence to support their ideas. (W-Causal Essay) *(U5)*
- Effective writers create organizational structures to support their opinions. (W-Causal Essay) *(U5)*
- Engaging in collaborative discussions allows students to learn from each other, deepen their understanding of

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How does the author use evidence to explain ideas? (RI) *(Q1)*
- How am I making meaning of unknown words to support my reading? (RI) *(Q2)*
- How does who I am writing for impact the way I am supporting my opinion about the topic? (W) *(Q3)*
- What details help me find the main idea? (RI) *(Q4)*
- How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? (S&L) *(Q5)*

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topics, and gain new perspectives. (S&L) *(U6)*
- Effective writers critically engage with literature or informative texts through analysis, reflection, and research to find evidence to support their ideas. (TDA) *(U7)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Causal analysis is explains the cause and effect of an action, event, or idea. (RI) *(K1)*
- A thesis is the main idea of a causal analysis. (RI) *(K2)*
- There is a relationship between historical events, which creates new understanding of historic concepts. (RI) *(K3)*
- Analyzing informational text through examining vocabulary and ideas creates new understanding. (RI) *(K4)*
- Identifying appropriate and accurate information in text can support a thesis/claim statement. (W) *(K5)*
- Being a part of collaborative conversations helps me express my ideas more clearly. (S&L) *(K6)*

Skills

What discrete skills and processes should students be able to use? Students can...

- Identify the cause and effect within a historic event. (RI, SS) *(S1)*
- Summarize text using important and appropriate details. (RI) *(S2)*
- Examine a writing prompt to determine what is being asked.(W) *(S3)*
- Use context clues to understand the meaning of new words and phrases. (RI) *(S4)*
- Examine rubric descriptors to identify what key parts are important. (W) *(S5)*
- Develop a thesis statement with a claim to explain overall causal analysis of the text. (W) *(S6)*
- Use an outline to plan the structure and organization of a causal analysis. *(S7)*
- Revise organization within and across paragraphs to make sure it is clear and logical. *(S8)*
- Gather and cite evidence from the text to support the thesis. *(S9)*

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		■ Explain reasons, facts, and details to support the thesis. *(S10)* ■ Use maps, graphics, and charts to further support an idea. *(S11)*

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Web of Life

Draft Date	Course	Duration	Grades	Subjects	Team
02-09-2026	(Draft) Grade 5 English Language Arts, Grade 5 Science	4 Week(s)	5	English Language Arts	Jill Koser, SYSTEM USER, Kelly Galbraith, Lind Raymond

Focus

Interdisciplinary Science Unit: In this unit, students explore how organisms depend on one another and form an interconnected ecosystem. Students investigate food chains, food webs, and the importance of producers, consumers, and decomposers. Students will analyze how pollution impacts the ecosystems through informational text analysis. Students then explore a variety of solutions for reducing plastic waste and reducing the amount of plastic that ends up in the ocean.

In this informational text unit, students will be challenged to explain the relationship between two or more scientific ideas, noticing how authors use description, sequence, or cause- and-effect paragraph structure to help readers notice and explain the connections between events. Students will also analyze how authors use a variety of reasons and evidence to support their points, depending on their purpose for writing the text. Throughout the unit, students learn how to prepare for class discussions, determining which evidence best supports a particular idea and how to elaborate on that evidence.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 5

- **Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a text based on specific information in the text.** *(CC.1.2.5.C)*
- Use text structure, in and among texts, to interpret information (e.g., chronology,

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T3)*

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comparison, cause/effect, problem/solution). *(CC.1.2.5.E)*
- Determine how an author supports particular points in a text through reasons and evidence. *(CC.1.2.5.H)*
- Integrate information from several texts on the same topic to demonstrate understanding of that topic. *(CC.1.2.5.I)*
- Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade level reading and content, choosing flexibly from a range of strategies and tools. *(CC.1.2.5.K)*
- **Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade level reading standards for literature and informational texts.** *(CC.1.4.5.S)*

Pennsylvania Academic Standards

Science (2023): 5 Standards

- Support an argument that plants get the materials they need for growth chiefly from air and water.

  Clarifying Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.

  Assessment Boundary: N/A *(3.1.5.A)*
- Develop a model to describe the movement of matter among plants, animals, decomposers, and the

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Authors use a variety of features to help readers identify the organized text structure. *(U1)*
- **Effective readers identify key details of informational texts to determine main ideas. (RI)** *(U2)*
- Strategic readers investigate how multiple authors and texts on a specific topic are situated in a particular place and time. These choices affect the way their work is understood. (RI) *(U3)*
- Readers use strategies to determine and clarify unknown words in grade level content to develop their ability to independently and effectively handle unfamiliar words encountered in the content they are reading. (RI-Vocab) *(U4)*
- **Effective writers critically engage with literature or informative texts through analysis, reflection, and research to find evidence to support their ideas. (TDA)** *(U5)*
- Plants acquire their material for growth chiefly from air and water. (Life Science) *(U6)*
- Matter that is not food (air, water, decomposed materials in soil) is

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- **How does the author use evidence to explain ideas? (RI)** *(Q1)*
- How does the way this information is organized help me understand the text? *(Q2)*
- How is this text similar and different from other texts? (RI) *(Q3)*
- What should I do when I read a word that I don't know? (RI-Vocab) *(Q4)*
- **How do I choose relevant information to include in my writing? How does that help support an analysis of text(s)? (TDA)** *(Q5)*
- How do organisms detect, process, and use information about the environment? (Life Science) *(Q6)*
- How do organisms interact with the living and nonliving environments to obtain matter and energy? (Life Science) *(Q7)*

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environment.

Clarifying Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.

Assessment Boundary: Assessment does not include molecular explanations. *(3.1.5.B)*

- Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

Clarifying Statement: Examples of models could include diagrams, and flow charts.

Assessment Boundary: N/A *(3.2.5.G)*

- Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Clarifying Statement: N/A

Assessment Boundary: N/A *(3.3.5.E)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a

changed by plants into matter that is food. (Life Science) *(U7)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- **Key ideas and details in the text help me understand what I am reading by making connections between concepts. (RI)** *(K1)*
- Students can use text structure of a paragraph to notice the connection between the type of details within a paragraph. *(K2)*
- Connections within, between, and among texts help me understand the main ideas. (RI) *(K3)*
- There are specific strategies to use when coming across a science word that is unfamiliar. (RI-Vocab) *(K4)*
- **Students comprehend the texts they read and analyze the author's use of elements and structure to communicate their understanding in an well-written essay. (TDA)**
    1. Reading Comprehension
    2. Analysis of an author's use of literary devices (elements), text structure, or other choices made by the author
    3. Well-written essay to communicate this understanding

(K5)

Skills

What discrete skills and processes should students be able to use? Students can...

- **I can explain the relationships between two ideas or concepts in a science text based on specific details in the text. (RI)** *(S1)*
- I can identify and use the text structure to help me identify key ideas and details in Informational Texts. *(S2)*
- I can put together (integrate) information from several texts to show I understand the science topic. (RI) *(S3)*
- I can use context, morphology, or other strategies to figure out the meaning of new science vocabulary words. (RI-Vocab) *(S4)*
- **I can use what I know about informational texts and structures to analyze and present my ideas. (TDA)** *(S5)*
- I can describe where plant matter comes from. *(S6)*
- I can explain how matter moves within different types of ecosystems. *(S7)*

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willingness to accept constructive feedback. *(PCVL.IPS)*	■ Plant matter comes mostly from air and water, not from the soil *(K6)* ■ Matter moves among plants, animals, decomposers, and the environment. *(K7)*	

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The American Revolution

Draft Date	Course	Duration	Grades	Subjects	Team
02-09-2026	(Draft) Grade 5 English Language Arts	4 Week(s)	5	English Language Arts	Jill Koser, SYSTEM USER, Kelly Galbraith, Lind Raymond

Focus

Interdisciplinary Social Studies Unit: Students will connect historical event facts and graphic resources to analyze the cause and effect of the roles of various groups of people in the Revolutionary War.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 5

- Determine two or more main ideas in a text and explain how they are supported by key details; summarize the text. *(CC.1.2.5.A)*
- Cite textual evidence by quoting accurately from the text to explain what the text says explicitly and make inferences. *(CC.1.2.5.B)*
- Determine the meaning of words and phrases as they are used in grade level text, including interpretation of figurative language. *(CC.1.2.5.F)*
- **Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.** *(CC.1.2.5.G)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T2)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Effective readers can determine and analyze the meaning of words and phrases used by authors in text to enhance comprehension. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How have the events of the past influenced the world we know today? *(Q1)*
- How does this text compare to other texts on the same topic? *(Q2)*

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- **Write informative/ explanatory texts to examine a topic and convey ideas and information clearly.** *(CC.1.4.5.A)*
- Identify and introduce the topic clearly. *(CC.1.4.5.B)*
- Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade level reading standards for literature and informational texts. *(CC.1.4.5.S)*
- With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. *(CC. 1.4.5.T)*
- **Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.** *(CC.1.4.5.W)*
- Engage effectively in a range of collaborative discussions on grade level topics and texts, building on others' ideas and expressing their own clearly. *(CC.1.5.5.A)*
- Summarize the main points written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. *(CC. 1.5.5.B)*
- **Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.** *(CC.1.5.5.C)*

- Diverse media that features a range of perspectives on a given topic helps individuals to deepen and challenge their thinking. *(U2)*
- (4-12) The perspective of authors on a specific topic, situated in place and time, impacts how readers understand their works. *(U3)*
- Readers use strategies to determine and clarify unknown words in content to develop their ability to independently and effectively handle unfamiliar words. *(U4)*
- Effective writers make deliberate and strategic choices when considering purpose and audience to convey information clearly about a topic. *(U5)*
- (3+) Effective writers critically engage with literature or informative texts through analysis, reflection, and research to find evidence to support their ideas. *(U6)*
- Strategic researchers gather information from a variety of reliable resources to answer a specific research question or explore a topic. *(U7)*
- Strategic researchers participate in independent and collaborative research to better understand the content that they are researching. *(U8)*
- Engaging in collaborative discussions allows students to learn from each other, deepen their understanding of topics, and gain new perspectives. *(U9)*
- Including accurate facts and relevant, descriptive details in oral reports and

- What reading strategies am I using to read this text? How do I know if they are working? *(Q3)*
- How does this text (ex. Illustration, table, a video clip) help me understand the topic? *(Q4)*
- (4-12) How does the author's perspective and time when this text was produced affect my understanding? *(Q5)*
- How am I making meaning of unknown words to support my reading? *(Q6)*
- (3+) How do I choose relevant information to include in my writing? How does that help support an analysis of text(s)? *(Q7)*
- How do I find reliable and useful sources for my research? How do I compare information that I have found from multiple sources to figure out what is accurate? *(Q8)*
- As I am reading my research, how do I deepen and challenge my thinking? *(Q9)*

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Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

storytelling enhances the credibility, depth, and focus of communication. *(U10)*

- ELA: Reading provides a window into others' perspectives and stories which promotes compassion for others and develops critical thinking. *(U11)*
- Being receptive to contradictory or challenging ideas, asking probing questions, and providing respectful feedback broadens one's perspective and deepens others' thinking. *(U12)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Author's purposefully use graphics and images to enhance the text and assist the reader in creating a deeper understanding of a topic. *(K1)*
- Interacting with and summarizing a text supports the reader's understanding of the topic. *(K2)*
- Effective research of a topic includes asking probing questions, selecting accurate facts from reliable texts, and having collaborative discussions with others. *(K3)*
- The purpose of a multi-modal report is to give a full picture on a topic using not only words, but also images, video, or sound. *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- Connect the use of graphics and images to a given topic. *(S1)*
- Summarize text using important and appropriate details. *(S2)*
- Ask questions that lead to further research a topic. *(S3)*
- Select accurate facts from a reliable resource to support a thesis. *(S4)*
- Collaborate in a discussion to further develop ideas. *(S5)*
- Write a multi-modal report on a given topic. *(S6)*
- Examine rubric descriptors to identify what key parts are important. *(S7)*
- Use an outline to plan the structure and organization of a text dependent analysis. *(S8)*

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	■ Identifying appropriate and accurate information in a text can support a thesis statement. *(K5)*	■ Develop a thesis statement to explain overall historical impacts. *(S9)* ■ Gather and cite evidence from the text to support the thesis statement. *(S10)* ■ Explain reasons, facts, and details to support the thesis. *(S11)*

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Unit 1: Building Background: Review of Skills

Draft Date	Course	Duration	Grades	Subjects	Team
06-01-2026	HS Advanced Yearbook Publications	1 Week(s)	9, 10, 11, 12	English Language Arts	Katie Fake, Shaun Karli, Janae Lapp, Connie Martin, Ashley Johnston, Brittany Haines

Focus

To start the course, we will work as a group to create classroom norms for yearbook production and spend time reviewing the background knowledge built in the Yearbook Publications course.

Stage 1: Learning Goals

Established Goals

Standards

ISTE Standards

ISTE Standards: 1

- Apply existing knowledge to generate new ideas, products, or processes *(ISTE.1.1.a)*
- Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media *(ISTE.2.1.a)*
- Communicate information and ideas effectively to multiple audiences using a variety of media and formats *(ISTE.2.1.b)*
- Identify and define authentic problems and significant questions for investigation *(ISTE.4.1.a)*
- Plan and manage activities to develop a solution or complete a project *(ISTE.4.1.b)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Writing: Apply knowledge of vocabulary to communicate effectively in a variety of contexts using appropriate conventions *(T3)*
- Speaking and Listening: Effectively utilize appropriate speaking techniques (volume, inflection, pace, etc.) and vocabulary in a variety of settings to clearly communicate ideas and information. *(T4)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Strategic researchers gather information from a variety of reliable

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do I find reliable and useful sources for my research? How do I

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Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

resources to answer a specific research question or explore a topic. *(U1)*
- Strategic researchers participate in independent and collaborative research to better understand the content that they are researching. *(U2)*
- Engaging in collaborative discussions allows students to learn from each other, deepen their understanding of topics, and gain new perspectives. *(U3)*
- Adapting speech to different contexts and tasks allows students to communicate more effectively so that others can understand and respond. *(U4)*
- Including accurate facts and relevant, descriptive details in oral reports and storytelling enhances the credibility, depth, and focus of communication. *(U5)*
- Structuring reports and stories in a clear and organized manner helps students convey information logically, enabling their audience to follow along easily and grasp the main points being communicated. *(U6)*
- Multimedia components and visual aids (i.e. pictures, charts, PowerPoints, etc.) are powerful tools that can significantly enhance the development, credibility and communication of main ideas and themes in presentations. *(U7)*

compare information that I have found from multiple sources to figure out what is accurate? *(Q1)*
- As I am reading my research, how do I deepen and challenge my thinking? *(Q2)*
- How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? *(Q3)*
- How can I create a positive and respectful discussion that encourages everyone to share their ideas? How effective is the strategy that I am using, and what changes might be needed? *(Q4)*
- How do I integrate diverse media when speaking to improve my credibility? (6-12) *(Q5)*
- How can I use appropriate volume, pace, articulation, and pronunciation to speak clearly? *(Q6)*
- How can using media help the audience understand my message? *(Q7)*

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	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ Collaboration skills *(K1)* ■ Time and task management skills *(K2)* ■ Elements of civil discourse and how to use it to work together effectively in a group *(K3)* ■ The knowledge and skills learned in previous yearbook class, including theme, photography, writing copy, advertising, and graphic design *(K4)* ■ Effective communication skills *(K5)*	What discrete skills and processes should students be able to use? Students can... ■ I can collaborate and communicate effectively with a team. *(S1)* ■ I can manage time and tasks effectively so that all group members have significant work to complete and all assignments are finished by the deadline. *(S2)* ■ I can respectfully contribute ideas, encourage others, and participate in a group. *(S3)* ■ I can apply all relevant knowledge and skills learned in previous yearbook class, coupled with additional research, to create a unique presentation that enhances and deepens my knowledge. *(S4)*

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Unit 2: Collaborative Creation: Yearbook Production

Draft Date	Course	Duration	Grades	Subjects	Team
06-01-2026	HS Advanced Yearbook Publications	7 Week(s)	9, 10, 11, 12	English Language Arts	Connie Martin, Katie Fake, Shaun Karli, Janae Lapp, Ashley Johnston, Brittany Haines, Connie Martin

Focus

For the majority of our course, we will apply the knowledge and skills we have learned and built upon to work with others to create elements of the school's yearbook. We will apply our knowledge to propose ideas for future yearbooks to create our school's history.

Stage 1: Learning Goals

Established Goals

Standards

ISTE Standards

ISTE Standards: 1

- Apply existing knowledge to generate new ideas, products, or processes *(ISTE.1.1.a)*
- Create original works as a means of personal or group expression *(ISTE.1.1.b)*
- Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media *(ISTE.2.1.a)*
- Communicate information and ideas effectively to multiple audiences using a variety of media and formats *(ISTE.2.1.b)*
- Contribute to project teams to produce original works or solve problems *(ISTE.2.1.d)*
- Plan and manage activities to develop a solution or complete a project *(ISTE.4.1.b)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T1)*
- Speaking and Listening: Effectively utilize appropriate speaking techniques (volume, inflection, pace, etc.) and vocabulary in a variety of settings to clearly communicate ideas and information. *(T2)*
- Speaking and Listening: Demonstrate interest in and acknowledgement of diverse perspectives by asking probing questions and providing respectful verbal and non-verbal feedback. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Meeting a common goal often requires flexibility, compromise, and a

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What makes a group effective? How are we working together right now? How

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- Advocate and practice safe, legal, and responsible use of information and technology *(ISTE.5.1.a)*
- Understand and use technology systems *(ISTE.6.1.a)*
- Select and use applications effectively and productively *(ISTE.6.1.b)*
- Troubleshoot systems and applications *(ISTE.6.1.c)*
- Transfer current knowledge to learning of new technologies *(ISTE.6.1.d)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

willingness to accept constructive feedback. *(U1)*
- Teams work efficiently and effectively when members share leadership and decision-making responsibilities. *(U2)*
- Effective writers make deliberate and strategic choices when considering purpose and audience to convey information clearly about a topic. *(U3)*
- Effective writers understand there are multiple points of view/opinions. *(U4)*
- Effective writers choose organizational structures to logically sequence ideas and events. *(U5)*
- Effective writers strengthen their writing through the process of revising and editing. *(U6)*
- Effective writers effectively use a variety of digital tools to collaborate, produce, and publish their writing. *(U7)*
- Strategic researchers gather information from a variety of reliable resources to answer a specific research question or explore a topic. *(U8)*
- Engaging in collaborative discussions allows students to learn from each other, deepen their understanding of topics, and gain new perspectives. *(U9)*
- Adapting speech to different contexts and tasks allows students to communicate more effectively so that others can understand and respond. *(U10)*

can we continue to improve to meet a common goal? *(Q1)*
- What are some strategies I am using to check in and get feedback on my part? What are my next steps? *(Q2)*
- As I am speaking/writing... What am I trying to say? How do I explain my ideas or approach for a specific purpose and audience? What details are appropriate to include to clarify my message? How can I utilize accessibility tools to ensure diverse audiences can understand me? What adjustments do I need to make? *(Q3)*
- How does who I am writing for impact the way I am sharing information about the topic? *(Q4)*
- What is the best way to organize this information? *(Q5)*
- How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q6)*
- How do I know if I communicated my point effectively? *(Q7)*
- How does using a digital tool strengthen writing ? (5-12) *(Q8)*
- How do I find reliable and useful sources for my research? How do I compare information that I have found from multiple sources to figure out what is accurate? *(Q9)*

Acquisition of Knowledge & Skill

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	Knowledge	Skills
	What facts and basic concepts should students know and be able to recall? Students will know... ■ Collaboration skills *(K1)* ■ Time and task management skills *(K2)* ■ Elements of civil discourse and how to use it to work together effectively in a group *(K3)* ■ The knowledge and skills learned in previous yearbook class units, including theme, photography, writing copy, advertising, and graphic design *(K4)* ■ Effective communication skills *(K5)*	What discrete skills and processes should students be able to use? Students can... ■ I can collaborate and communicate effectively with a team. *(S1)* ■ I can manage time and tasks effectively so that all group members have significant work to complete and all assignments are finished by the deadline. *(S2)* ■ I can respectfully contribute ideas, encourage others, and participate in a group. *(S3)* ■ I can apply all relevant knowledge and skills learned in previous yearbook class units to create products for the yearbook. *(S4)*

Unit 3: Relevant Reflection: Creating a Portfolio

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS Advanced Yearbook Publications	1 Week(s)	9, 10, 11, 12	English Language Arts	Katie Fake, Shaun Karli, Janae Lapp, Connie Martin, Ashley Johnston, Brittany Haines

Focus

As a culmination of skills, students will work to choose, analyze, and reflect on artifacts that represent their growth as a yearbook staff member, making goals for their future growth as well.

Stage 1: Learning Goals

Established Goals

Standards

ISTE Standards

ISTE Standards: 1

- Communicate information and ideas effectively to multiple audiences using a variety of media and formats *(ISTE.2.1.b)*
- Evaluate and select information sources and digital tools based on the appropriateness to specific tasks *(ISTE.3.1.c)*
- Process data and report results *(ISTE.3.1.d)*
- Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity *(ISTE.5.1.b)*
- Demonstrate personal responsibility for lifelong learning *(ISTE.5.1.c)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T1)*
- Writing: Apply knowledge of vocabulary to communicate effectively in a variety of contexts using appropriate conventions *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Effective writers make deliberate and strategic choices when considering purpose and audience to convey information clearly about a topic. *(U1)*
- Effective writers create organizational structures to support their opinions. *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How will I know if my learning was successful? What sources of data should I consider? *(Q1)*
- What motivates me to keep learning? What do I still wonder about? How might I transfer what I have learned to another situation? *(Q2)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

- Effective writers choose organizational structures to logically sequence ideas and events. *(U3)*
- Effective writers effectively use a variety of digital tools to collaborate, produce, and publish their writing. *(U4)*

- How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q3)*
- What is the best way to organize this information? *(Q4)*
- How does using a digital tool strengthen writing ? (5-12) *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Time and task management *(K1)*
- The knowledge and skills learned in previous yearbook class, including theme, photography, writing copy, advertising, and graphic design *(K2)*
- Effective communication skills *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can manage time and tasks effectively so that all group members have significant work to complete and all assignments are finished by the deadline. *(S1)*
- I can apply all relevant knowledge and skills learned in previous yearbook class, coupled with additional research, to create a unique presentation that enhances and deepens their knowledge. *(S2)*
- I can articulate accurate and evaluation of prior work to make goals for the future. *(S3)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/



Unit 1: Fundamental Skills

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Algebra 3	16 Day(s)	10, 11, 12	Mathematics	William Graber, Amanda Manuel, Brittany Torres, Bethany Hovan, CHRIS HIGH, Mark Pieters, Dana Keares, Theodora Bevan-Xenelis, Hanna Garber, Makenna Nicarry

Focus

Master the Math Toolkit: Solve Anything Life Throws Your Way! In this fundamental skills unit, students will review and strengthen essential algebraic concepts, including polynomial operations, exponents, rational and radical expressions, complex numbers, and solving a variety of equations and inequalities—linear, absolute value, radical, rational, and quadratic. The focus is on building fluency and confidence with these core skills to support success in advanced algebra topics.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Apply inverse operations to solve equations or formulas for a given variable. *(CC.2.2.HS.D.8)*
- Use reasoning to solve equations and justify the solution method. *(CC.2.2.HS.D.9)*

Mathematical Practices

- Look for and make use of structure. *(MP7)*
- Look for and express regularity in repeated reasoning. *(MP8)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Solve Problems Effectively: Based on an examination of the problem/situation, initiate a plan, execute it, evaluate and explain the reasonableness of the solution. (Innovative Problem Solver) *(T1)*
- Solve Problems Efficiently: Use skills, strategies, models, or manipulatives to increase efficiency and accuracy. (Innovative Problem Solver) *(T2)*
- Grow Confidence: Demonstrate perseverance and self-efficacy by making an attempt, using reflection, monitoring progress, and changing course as needed. (Lifelong Learner) *(T3)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Every problem can be categorized based on a similar structure and set of characteristics. *(U1)*
- Recognize that patterns and structures foster efficiency in problem solving. *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How am I getting better over time? What do I need to continue to work on? *(Q1)*
- How will I know if my learning was successful? What sources of data should I consider? *(Q2)*
- What motivates me to keep learning? What do I still wonder about? How might I transfer what I have learned to another situation? *(Q3)*
- (8+) How does evaluating a function show relationships between quantities? (U1) *(Q4)*
- (9+) How are solutions justified when solving a problem? (U2,3) *(Q5)*
- (9+) How do I use what I know about operations, factors, and graphs when making sense of polynomials? (U1,2,3) *(Q6)*
- (9+) How do you write equivalent expressions to solve problems? (U2,3) *(Q7)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ Algebraic equations across multiple representations (Linear, Absolute Value, Quadratic, Radical, and Rational) *(K1)* ■ Standard forms, properties, and simplification rules for algebraic and complex expressions (Polynomial, Rational, Radical, and Complex) *(K2)*	What discrete skills and processes should students be able to use? Students can... ■ I can factor different polynomial expressions. *(S1)* ■ I can add, subtract, multiply, and divide polynomials, rational expressions, and radicals accurately. *(S2)* ■ I can solve linear, absolute value, radical, rational, and quadratic equations. *(S3)* ■ I can perform operations with complex numbers and simplify expressions involving them. *(S4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/



Unit 2: Rational Functions

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Algebra 3	14 Day(s)	10, 11, 12	Mathematics	Hanna Garber, Amanda Manuel, Brittany Torres, William Graber, Bethany Hovan, CHRIS HIGH, Mark Pieters, Dana Keares, Theodora Bevan-Xenelis, Makenna Nicarry

Focus

If you upload 5 TikToks in an hour and your friend uploads 8 in the same time, how long to post 20 together? In this unit on rational expressions, students will learn to simplify, multiply, divide, add, and subtract rational expressions while identifying restrictions on the variable. They will also apply these skills to solve equations and model real-world problems involving ratios and rates.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Apply and extend the properties of exponents to solve problems with rational exponents *(CC.2.1.HS.F.1)*
- Extend the knowledge of rational functions to rewrite in equivalent forms. *(CC.2.2.HS.D.6)*

Mathematical Practices

- Model with mathematics. *(MP4)*
- Attend to precision *(MP6)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Solve Problems Efficiently: Use skills, strategies, models, or manipulatives to increase efficiency and accuracy. (Innovative Problem Solver) *(T1)*
- Solve Problems Effectively: Based on an examination of the problem/situation, initiate a plan, execute it, evaluate and explain the reasonableness of the solution. (Innovative Problem Solver) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Knowing the properties of exponents supports modeling situations and simplifying expressions. (9-12) *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- (8+) How are radicals and exponents related? (U1) *(Q1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

- Recognize that patterns and structures foster efficiency in problem solving. *(U2)*

- (9-12) How can I apply the properties of _____ (i.e exponents, equality, etc.) to solve problems? (U1,2) *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The structure and properties of rational expressions, including equivalent rational expressions and complex fractions. *(K1)*
- The rules and relationships for addition, subtraction, multiplication and division of rational expressions. *(K2)*
- The relationship between rational equations, restrictions on variable values and solutions. *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can add, subtract, multiply, and divide rational expressions accurately. *(S1)*
- I can set up and solve equations involving rational expressions, checking for extraneous solutions. *(S2)*

Unit 3: Exponentials and Logarithms

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Algebra 3	16 Day(s)	10, 11, 12	Mathematics	Hanna Garber, Amanda Manuel, Brittany Torres, William Graber, Bethany Hovan, CHRIS HIGH, Mark Pieters, Dana Keares, Theodora Bevan-Xenelis, Makenna Nicarry

Focus

A meme spreads to twice as many people each day. How many days until half the school sees it? In this unit on exponential and logarithmic functions, students will examine their inverse relationship, key properties, and transformations, while applying them to solve equations and model real-world growth and decay scenarios. Emphasis will be placed on interpreting graphs, using logarithms to solve exponential equations, and connecting concepts to practical applications.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Graph and analyze functions and use their properties to make connections between the different representations. *(CC.2.2.HS.C.2)*
- Construct and compare linear, quadratic and exponential models to solve problems. *(CC.2.2.HS.C.5)*

Mathematical Practices

- Model with mathematics. *(MP4)*
- Use appropriate tools strategically. *(MP5)*
- Attend to precision *(MP6)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Recognize Relationships: Identify patterns and relationships to make sense of mathematical and/or real world situations. (Global Citizen) *(T1)*
- Solve Problems Effectively: Based on an examination of the problem/situation, initiate a plan, execute it, evaluate and explain the reasonableness of the solution. (Innovative Problem Solver) *(T2)*
- Solve Problems Efficiently: Use skills, strategies, models, or manipulatives to increase efficiency and accuracy. (Innovative Problem Solver) *(T3)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Look for and express regularity in repeated reasoning. *(MP8)*

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Analyze the relationship between career choices and career preparation opportunities to choose a path. *(13.1.9-12.A)*
- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Recognize that patterns and structures foster efficiency in problem solving. *(U1)*
- The language of mathematics allows us to communicate in a precise, efficient, and logical manner. *(U2)*
- Effective justifications are based on local mathematical thinking and appropriate representations and/or vocabulary. *(U3)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- (9-12) How can I apply the properties of _____ (i.e exponents, equality, etc.) to solve problems? (U1,2) *(Q1)*
- How do I solve real world problems using money? (U5) *(Q2)*
- (9+) How are functions represented graphically? What are the properties of these graphs? (U1,2) *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The characteristics, components, and properties of exponential functions and exponential equations. *(K1)*
- The characteristics, components, and properties of logarithmic functions and logarithmic equations. *(K2)*
- The concepts of exponential growth and decay, including compound interest and the relationship between initial value, growth or decay factor, rate, and time. *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can graph exponential and logarithmic functions. *(S1)*
- I can solve exponential and logarithmic equations. *(S2)*
- I can solve application problems for exponential functions. *(S3)*



Unit 4: Functions and Their Graphs

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Algebra 3	19 Day(s)	10, 11, 12	Mathematics	Theodora Bevan-Xenelis, Amanda Manuel, Brittany Torres, William Graber, Bethany Hovan, CHRIS HIGH, Mark Pieters, Dana Keares, Hanna Garber, Makenna Nicarry

Focus

Why do sound waves look like ripples when graphed? In this unit, students will explore parent functions, linear through trigonometric, and see how transformations like shifts, stretches, and reflections change their graphs. By the end, they will be able to recognize, compare, and graph a variety of functions to model real-world relationships.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Graph and analyze functions and use their properties to make connections between the different representations. *(CC.2.2.HS.C.2)*
- Interpret the effects transformations have on functions and find the inverses of functions. *(CC.2.2.HS.C.4)*
- Construct and compare linear, quadratic and exponential models to solve problems. *(CC.2.2.HS.C.5)*

Mathematical Practices

- Model with mathematics. *(MP4)*
- Look for and make use of structure. *(MP7)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Solve Problems Efficiently: Use skills, strategies, models, or manipulatives to increase efficiency and accuracy. (Innovative Problem Solver) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Recognize that patterns and structures foster efficiency in problem solving. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do I come up with a solution that can potentially help with this problem? *(Q1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Profile of a CV Learner	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
■ Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*	What facts and basic concepts should students know and be able to recall? Students will know... ■ The characteristics and properties of linear, quadratic, polynomial, rational, exponential, logarithmic, absolute value, and radical functions. *(K1)* ■ The key features of functions and their meanings, including intercepts, zeros, domain, range, intervals of increase and decrease, extrema, asymptotes, and end behavior. *(K2)* ■ The relationships among equations, tables, graphs, intercepts, transformations, and technology representations of functions. *(K3)* ■ The concept of function composition and the relationship between the domains and graphs of composed functions. *(K4)* ■ The concept of inverse functions and the relationship between a function and its inverse, including their graphs and domains. *(K5)*	What discrete skills and processes should students be able to use? Students can... ■ I can find critical points (zeros, extrema and points of inflections) given a graph or equation of a function. *(S1)* ■ I can determine the end behavior and state if a function is continuous. *(S2)* ■ I can test for symmetry of functions and determine even or odd. *(S3)* ■ I can apply transformations (shifts, reflections, stretches, compressions) to parent functions. *(S4)* ■ I can compose functions, find the sum, difference, product, and quotient of functions. *(S5)* ■ I can graph functions (linear, quadratic, polynomial, rational, exponential, logarithmic, absolute value, radical, piecewise). *(S6)* ■ I can graphically and algebraically find the inverse of a function and verify it. *(S7)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/



Unit 5: Trigonometry

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Algebra 3	23 Day(s)	10, 11, 12	Mathematics	Hanna Garber, Amanda Manuel, Brittany Torres, William Graber, Bethany Hovan, CHRIS HIGH, Mark Pieters, Dana Keares, Theodora Bevan-Xenelis, Makenna Nicarry

Focus

If you want to build a skateboard ramp at a 30° angle, how tall should it be for a 10-foot long ramp? In this trigonometry unit, students will explore the relationships between angles and side lengths in right and non-right triangles, learning how to apply trigonometric ratios, identities, and the unit circle to solve equations and model real-world periodic phenomena. The focus will be on building a deep understanding of trigonometric functions and their graphs to prepare for advanced applications in mathematics and science.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Apply trigonometric ratios to solve problems involving right triangles. *(CC.2.3.HS.A.7)*
- Extend the concept of similarity to determine arc lengths and areas of sectors of circles. *(CC.2.3.HS.A.9)*
- Apply geometric concepts to model and solve real world problems. *(CC.2.3.HS.A.14)*

Mathematical Practices

- Model with mathematics. *(MP4)*
- Attend to precision *(MP6)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Work Together: Engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. (Collaborator) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Analyzing someone else's mathematical thinking creates clarity about a problem, its model, and the viability of a solution. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do I explain my ideas or approach to others? How does sharing that inspire my own and others' thinking? *(Q1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Definitions and ratio relationships of the six primary trigonometric functions (Sine, Cosine, Tangent, Cosecant, Secant, and Cotangent) *(K1)*
- Key points, structural characteristics, and features of trigonometric functions and their inverses *(K2)*
- Applied interpretations of trigonometric parameters (amplitude, period, phase shift, and vertical shift) *(K3)*
- Algebraic and graphical proofs, identities, and solutions for trigonometric equations *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can convert between degrees and radians. *(S1)*
- I can use trigonometric functions to solve triangles. *(S2)*
- I can graph trigonometric functions and their inverses. *(S3)*



Unit 1: Transformations of Functions

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Pre-Calculus	5 Day(s)	10, 11, 12	Mathematics	Bethany Hovan, Amanda Manuel, Mark Pieters, CHRIS HIGH, Theodora Bevan-Xenelis, Hanna Garber, Brittany Torres, William Graber, Makenna Nicarry, Dana Keares

Focus

This unit's focus is on using and analyzing transformations of mathematical functions and applying learning to a real world problem as a global climate analyst. Students will use knowledge of function transformations to model changes, predict future impacts, and propose a localized community action plan.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Interpret the effects transformations have on functions and find the inverses of functions. *(CC.2.2.HS.C.4)*

Mathematical Practices

- Look for and make use of structure. *(MP7)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Recognize Relationships: Identify patterns and relationships to make sense of mathematical and/or real world situations. (Global Citizen) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Recognize that patterns and structures foster efficiency in problem solving. *(U1)*
- Every problem can be categorized based on a similar structure and set of characteristics. *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- (9-12) How can I apply the properties of _____ (i.e exponents, equality, etc.) to solve problems? (U1,2) *(Q1)*
- (9+) What are the effects of transformations on functions?(U2) *(Q2)*

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others to responsibly participate in all facets of local and global society. *(PCVL.GC)*	■ Math is embedded across all disciplines and in the world around us. *(U3)* ■ Math: Effective justifications are based on local mathematical thinking and appropriate representations/ vocabulary. *(U4)*	■ (9+) How are functions represented graphically? What are the properties of these graphs? (U1,2) *(Q3)*
	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ The parent functions and the effects of horizontal and vertical translations on their graphs. *(K1)* ■ The relationship between an equation and the graph of a translated function, including the effects of changes to the input and output. *(K2)* ■ Function notation and the meaning of translations represented within function notation. *(K3)*	What discrete skills and processes should students be able to use? Students can... ■ I can graph parent functions and translated parent functions by hand and with a calculator. *(S1)* ■ I can read composition functions with translations. *(S2)*



Unit 2: Conics

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Pre-Calculus	10 Day(s)	10, 11, 12	Mathematics	Bethany Hovan, Amanda Manuel, Mark Pieters, CHRIS HIGH, Theodora Bevan-Xenelis, Hanna Garber, Brittany Torres, William Graber, Makenna Nicarry, Dana Keares

Focus

This unit's focus is on using and understanding how to use and develop the equations for conic sections. We will use conic sections to model a real world problem of creating a deep space satellite network.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Graph and analyze functions and use their properties to make connections between the different representations. *(CC.2.2.HS.C.2)*
- Interpret functions in terms of the situation they model. *(CC.2.2.HS.C.6)*
- Create and graph equations or inequalities to describe numbers or relationships. *(CC.2.2.HS.D.7)*
- Translate between the geometric description and the equation for a conic section. *(CC.2.3.HS.A.10)*

Mathematical Practices

- Reason abstractly and quantitatively. *(MP2)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Work Together: Engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. (Collaborator) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Analyzing someone else's mathematical thinking creates clarity about a problem, its model, and the viability of a solution. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- (9+) How are functions represented graphically? What are the properties of these graphs? (U1,2) *(Q1)*
- How do I determine how to solve this real world problem? How do I know? (U4) *(Q2)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Look for and make use of structure. *(MP7)*

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*

- How can I use the information I have to determine unknown information? (U7) *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The characteristics and structure of general form and standard form equations *(K1)*
- The relationship between the general and standard forms of conic equations and the key features of their graphs *(K2)*
- The characteristics and applications of conic sections in real-world contexts *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can complete the square to convert between general and standard form. *(S1)*
- I can identify the parts (vertex, center, foci, vertices/co-vertices, directrix, radius) of a conic section. *(S2)*
- I can analyze an equation by converting to translated form to easily identify critical parts of the conic and use them to sketch the graph. *(S3)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/



Unit 3: Logarithms and Exponential Functions

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Pre-Calculus	13 Day(s)	10, 11, 12	Mathematics	Bethany Hovan, Amanda Manuel, Mark Pieters, CHRIS HIGH, Theodora Bevan-Xenelis, Hanna Garber, Brittany Torres, William Graber, Makenna Nicarry, Dana Keares

Focus

This unit's focus is on using and understanding how to use logarithms and exponential functions. We will use exponential and logarithmic models to solve real world problems ie: virus outbreaks, compounding interest, and natural disasters.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Apply and extend the properties of exponents to solve problems with rational exponents *(CC.2.1.HS.F.1)*
- Write expressions in equivalent forms to solve problems. *(CC.2.2.HS.D.2)*
- Use reasoning to solve equations and justify the solution method. *(CC.2.2.HS.D.9)*

Mathematical Practices

- Make sense of problems and persevere in solving them. *(MP1)*
- Model with mathematics. *(MP4)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Communicate Mathematically: Communicate effectively in a variety of ways based on purpose, task, and audience, using appropriate vocabulary. (Communicator) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The language of mathematics allows us to communicate in a precise, efficient, and logical manner. *(U1)*
- Knowing the properties of exponents supports modeling situations and simplifying expressions. (9-12) *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do I explain my ideas or approach for a specific purpose and audience? How does sharing that inspire my own and others' thinking? *(Q1)*
- How do I use labels, symbols, units of measure, tables, graphs, and

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Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

- (9+) Expressions, equations and inequalities can be used to represent and solve real-world problems. *(U3)*
- (9+) Expressions, equations and inequalities can be represented in multiple forms. *(U4)*
- (9+) Mathematical reasoning is used to solve equations. *(U5)*

vocabulary to analyze situations and/or share findings? *(Q2)*
- (9-12) How can I apply the properties of _____ (i.e exponents, equality, etc.) to solve problems? (U1,2) *(Q3)*
- (9+) How are functions represented graphically? What are the properties of these graphs? (U1,2) *(Q4)*
- (8+) How does evaluating a function show relationships between quantities? (U1) *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The relationship between exponential and logarithmic forms of equivalent equations *(K1)*
- The properties of logarithms, including the product, quotient, and power properties *(K2)*
- The characteristics and relationships of exponential and logarithmic equations, including their solutions and restrictions *(K3)*
- The characteristics and applications of exponential and logarithmic functions in real-world contexts *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can apply the properties of logs to simplify expressions and solve equations. *(S1)*
- I can change between exponential and logarithmic form. *(S2)*
- I can solve application problems involving exponential and logarithmic functions. *(S3)*

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Unit 4: Sequences and Series / Binomial Theorem

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Pre-Calculus	20 Day(s)	10, 11, 12	Mathematics	Bethany Hovan, Amanda Manuel, Mark Pieters, CHRIS HIGH, Theodora Bevan-Xenelis, Hanna Garber, Brittany Torres, William Graber, Makenna Nicarry, Dana Keares

Focus

This unit's focus is on using, applying, and understanding arithmetic, geometric, and recursive sequences and series, as well as the binomial theorem to expand a binomial. Students connect their learning in a real world application of an actuary helping clients plan for their future by modeling scenarios using arithmetic and geometric sequences and calculating long term risk using the binomial theorem.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Write functions or sequences that model relationships between two quantities. *(CC.2.2.HS.C.3)*
- Write expressions in equivalent forms to solve problems. *(CC.2.2.HS.D.2)*
- Extend the knowledge of arithmetic operations and apply to polynomials. *(CC.2.2.HS.D.3)*

Mathematical Practices

- Make sense of problems and persevere in solving them. *(MP1)*
- Use appropriate tools strategically. *(MP5)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Grow Confidence: Demonstrate perseverance and self-efficacy by making an attempt, using reflection, monitoring progress, and changing course as needed. (Lifelong Learner) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Mathematicians learn by doing – implementing a strategy and reworking as needed. *(U1)*
- Making and growing through mistakes is fundamental to progressing as a

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do I get started when I am looking at this problem/challenge? What are some other ways I might think about this? *(Q1)*

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- Attend to precision *(MP6)*

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*

problem solver and deepening math knowledge. *(U2)*
- (3+) Patterns can be identified, created, and analyzed to understand relationships. *(U3)*
- (9+) Expressions, equations and inequalities can be represented in multiple forms. *(U4)*

- (3+) What rule or pattern can be used to solve problems? How can I use a rule to generate patterns? (U3) *(Q2)*
- (9+) How are solutions justified when solving a problem? (U2,3) *(Q3)*
- (8+) What function best models this data? How do its characteristics help me make predictions? (U1,2) *(Q4)*

Acquisition of Knowledge & Skill

Profile of a CV Learner	Knowledge	Skills
■ Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*	What facts and basic concepts should students know and be able to recall? Students will know... ■ The characteristics and structure of explicit and recursive formulas for sequences *(K1)* ■ The characteristics of arithmetic and geometric sequences and the formulas for their sums *(K2)* ■ The binomial theorem and the relationship between binomial coefficients, exponents, and terms in a binomial expansion *(K3)*	What discrete skills and processes should students be able to use? Students can... ■ I can use and understand how to use summation notation in a sequence. *(S1)* ■ I can recognize a pattern as an arithmetic, geometric, or recursive series. *(S2)* ■ I can substitute values in the appropriate arithmetic, geometric, or recursive formula. *(S3)* ■ I can determine a specific term of a series. *(S4)* ■ I can use the binomial theorem to expand a binomial. *(S5)* ■ I can use the binomial theorem to determine a specific term in a binomial expansion. *(S6)* ■ I can use the counting principle to determine outcomes. *(S7)* ■ I can use permutations and combinations to determine outcomes. *(S8)*



Unit 5: Right and Oblique Triangle Trigonometry

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Pre-Calculus	10 Day(s)	10, 11, 12	Mathematics	Bethany Hovan, Amanda Manuel, Mark Pieters, CHRIS HIGH, Theodora Bevan-Xenelis, Hanna Garber, Brittany Torres, William Graber, Makenna Nicarry, Dana Keares

Focus

This unit's focus is on using and understanding right and oblique triangle trigonometry and connecting learning to a real world application about an island in need of supplies after a natural disaster. Because the points form a triangle, fundamental right trigonometry is used to determine missing distances.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Prove the Pythagorean identity and use it to calculate trigonometric ratios. *(CC.2.2.HS.C.9)*
- Write expressions in equivalent forms to solve problems. *(CC.2.2.HS.D.2)*
- Apply trigonometric ratios to solve problems involving right triangles. *(CC.2.3.HS.A.7)*

Mathematical Practices

- Make sense of problems and persevere in solving them. *(MP1)*
- Look for and make use of structure. *(MP7)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Solve Problems Efficiently: Use skills, strategies, models, or manipulatives to increase efficiency and accuracy. (Innovative Problem Solver) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Recognize that patterns and structures foster efficiency in problem solving. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What do I know? What do I need to find out? How does that help me? *(Q1)*
- What is the best/most efficient way to solve this type of problem? *(Q2)*
- (9+) How are solutions justified when solving a problem? (U2,3) *(Q3)*

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Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

- How do I determine how to solve this real world problem? How do I know? (U4) *(Q4)*
- How can I use the information I have to determine unknown information? (U7) *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The relationship among the sides and angles of right triangles, including the trigonometric ratios sine, cosine and tangent *(K1)*
- The Law of Sines, Law of Cosines, and their relationships to the sides and angles of oblique triangles *(K2)*
- The relationships among trigonometric ratios, triangle measurements, and real-world applications *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can find missing sides and angles of right triangles using Trig Ratios. *(S1)*
- I can find missing sides and angles using Law of Sines and Law of Cosines. *(S2)*
- I can solve application problems using trigonometry. *(S3)*



Unit 6: Circular Trigonometry

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Pre-Calculus	15 Day(s)	10, 11, 12	Mathematics	Bethany Hovan, Amanda Manuel, Mark Pieters, CHRIS HIGH, Theodora Bevan-Xenelis, Hanna Garber, Brittany Torres, William Graber, Makenna Nicarry, Dana Keares

Focus

Circular trigonometry expands our understanding of trigonometric functions from rigid, static right triangles to dynamic, repeating motion along a coordinate plane. By utilizing the unit circle, we can model real-world phenomena that fluctuate in predictable, periodic cycles—such as the changing of tides, sound waves, planetary orbits, and the rotation of mechanical wheels. Rather than focusing solely on static degrees, circular trigonometry introduces radian measures, an intrinsic unit of measurement that directly couples an angle's rotation with physical distance (arc length) and angular velocity. How can we use circular trigonometry to find heights and movements of real life circular examples?

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Apply radian measure of an angle and the unit circle to analyze the trigonometric functions. *(CC.2.2.HS.C.7)*
- Choose trigonometric functions to model periodic phenomena and describe the properties of the graphs. *(CC.2.2.HS.C.8)*
- Create and graph equations or inequalities to describe numbers or relationships. *(CC.2.2.HS.D.7)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Communicate Mathematically: Communicate effectively in a variety of ways based on purpose, task, and audience, using appropriate vocabulary. (Communicator) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Mathematicians work to understand the problem by picturing what is happening and figuring out relevant information and unknowns. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- When I'm listening to an idea or approach, what questions do I have? How do I share them to grow my own and other's thinking? *(Q1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Mathematical Practices

- Model with mathematics. *(MP4)*
- Use appropriate tools strategically. *(MP5)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

- Mathematicians learn by doing – implementing a strategy and reworking as needed. *(U2)*
- Recognize that patterns and structures foster efficiency in problem solving. *(U3)*
- The language of mathematics allows us to communicate in a precise, efficient, and logical manner. *(U4)*
- 5+ Geometric concepts and tools can be used to describe or solve real world problems. *(U5)*
- 5+ mathematical relationships exist within a shape (ex: pythagorean theorem). *(U6)*

- What makes a group effective? How are we working together right now? How can we continue to improve? *(Q2)*
- How do I explain my ideas or approach for a specific purpose and audience? How does sharing that inspire my own and others' thinking? *(Q3)*
- How do I explain my ideas or approach for a specific purpose and audience? How does sharing that inspire my own and others' thinking? *(Q4)*
- (6-7) How do I use mathematics to model this situation? (U1) *(Q5)*
- (6-7) How do I know my answer is reasonable? (U1) *(Q6)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The structure and key components of the unit circle, including the coordinate axes, quadrants, angles, and reference angles *(K1)*
- The relationship between angles on the unit circle and their corresponding sine, cosine, and tangent values *(K2)*
- The fundamental trigonometric identities and the relationships among trigonometric functions and their values *(K3)*
- The characteristics and key features of the graphs of trigonometric functions *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can write the equation for the unit circle. *(S1)*
- I can evaluate the cosine, sine, tangent, secant, cosecant, and cotangent for angle measurements on the unit circle. *(S2)*
- I can simplify trigonometric expressions using trigonometric identities. *(S3)*
- I can solve trigonometric equations. *(S4)*
- I can graph trigonometric equations with translations. *(S5)*

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	■ The relationship among trigonometric functions, geometric measurements, and real-world applications *(K5)*	■ I can solve trigonometric application problems. *(S6)*



Unit 7: Limits

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-19-2025	HS CP Pre-Calculus	11 Day(s)	10, 11, 12	Mathematics	Bethany Hovan, Amanda Manuel, Mark Pieters, CHRIS HIGH, Theodora Bevan-Xenelis, Hanna Garber, Brittany Torres, William Graber, Makenna Nicarry, Dana Keares

Focus

In Unit 7 we will learn how to evaluate limits in multiple ways such as graphically, numerically, and algebraically. Limits take us to the edge of the mathematical universe. Instead of asking *"What happens exactly at this point?"*—which often leads to a dead-end of dividing by zero—limits ask the much more profound question: *"What happens as we get infinitely close?"* It is the mathematics of boundaries, trends, and extreme conditions. By studying limits, we unlock the ability to analyze instantaneous change, predict long-term stability, and bridge the gap between static algebra and dynamic calculus.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Mathematics (2014): 9

- Graph and analyze functions and use their properties to make connections between the different representations. *(CC.2.2.HS.C.2)*
- Write expressions in equivalent forms to solve problems. *(CC.2.2.HS.D.2)*
- Extend the knowledge of rational functions to rewrite in equivalent forms. *(CC.2.2.HS.D.6)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Solve Problems Effectively: Based on an examination of the problem/situation, initiate a plan, execute it, evaluate and explain the reasonableness of the solution. (Innovative Problem Solver) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Mathematicians work to understand the problem by picturing what is

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- (9-12) How can I apply the properties of _____ (i.e exponents, equality, etc.) to solve problems? (U1,2) *(Q1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Mathematical Practices

- Construct viable arguments and critique the reasoning of others. *(MP3)*
- Use appropriate tools strategically. *(MP5)*
- Look for and make use of structure. *(MP7)*

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

happening and figuring out relevant information and unknowns. *(U1)*
- Mathematicians learn by doing – implementing a strategy and reworking as needed. *(U2)*

- (5+) How can I simplify algebraic expressions? How does this make the problem more doable? (U1,2) *(Q2)*
- (3+) What rule or pattern can be used to solve problems? How can I use a rule to generate patterns? (U3) *(Q3)*
- (9+) How do I use what I know about operations, factors, and graphs when making sense of polynomials? (U1,2,3) *(Q4)*
- (9+) How are functions represented graphically? What are the properties of these graphs? (U1,2) *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The concept of a limit and the relationship between graphical, numerical, and algebraic representations of limits *(K1)*
- The relationship between limits and the key features of rational function graphs, including holes, vertical asymptotes, and horizontal asympototes. *(K2)*
- The structure of piecewise functions and the relationship between their graphs, function rules, and limits at a boundary point. *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- Evaluate limits graphically, numerically, algebraically *(S1)*
- Graph rational functions using limits *(S2)*
- Graph piecewise functions and evaluate limits from their graphs *(S3)*



Unit 1: Problem Solving with AI

Draft Date	Course	Duration	Grades	Subjects	Team
06-01-2026	HS Explorations in Computer Science	12 Day(s)	9, 10, 11, 12	Mathematics	William Graber, Amanda Manuel

Focus

As AI becomes increasingly integrated into daily life, students need to move beyond simply using AI tools—they must develop the skills to critically evaluate, refine, and apply AI-generated content in responsible ways. This unit introduces students to AI as a collaborator in analytical and creative work, helping them explore where AI succeeds, where it fails, and how human oversight improves AI-driven problem solving.

This unit blends hands-on AI experimentation with critical evaluation and refinement, guiding students through an iterative cycle of testing, analyzing, and improving AI-generated outputs. Instead of passively accepting AI responses, students will actively investigate AI's reasoning, challenge its assumptions, and refine its outputs through computational thinking and ethical frameworks.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Business, Computer and Information Technology: 9

- **Apply the creative and productive use of emerging technologies for educational and personal success.** *(15.4.12.A)*
- **Evaluate the impact of social, legal, ethical, and safe behaviors on digital citizenship.** *(15.4.12.B)*
- **Create an advanced digital project using sophisticated design and appropriate software/applications.** *(15.4.12.G)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Apply Technology Creatively: Use technology to extend creativity and/or improve problem-solving ability to adapt to the ever-changing world. *(T1)*
- Explore Interrelated Influences: Discover how social, cultural, political, legal, economic, and technological elements intertwine and how their interconnectedness influences the way businesses and/or individuals operate domestically and globally. *(T2)*

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- **Evaluate advanced multimedia work products and make recommendations based on the evaluation.** *(15.4.12.K)*
- **Find and use primary documentation; employ an accepted protocol for citation** *(15.4.12.L)*
- **Evaluate the impact of emerging technologies on various career paths and provide examples of industry certifications within the field.** *(15.4.12.M)*

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Analyze external factors that impact employment opportunities, such as, but not limited to: Competition, Global influences ,Job growth, Job openings, Labor supply, Potential advancement, Potential earnings *(13.1.9-12.C)*
- Use job-specific technologies to accomplish work responsibilities in a productive manner. *(13.2.9-12.D)*
- Identify sources of lifelong learning to strengthen existing skills, develop new skills, and maximize career growth. *(13.3.9-12.B)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- AI makes predictions based on how it is trained and may have bias or make hallucinations to be inaccurate in its responses. *(U1)*
- AI is useful in being efficient for helping problem solve and complete problem-solving tasks in many different career fields globally. *(U2)*
- Refining prompts to get the best and most accurate responses is necessary for AI use. *(U3)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do societies and individuals interact and influence each other? *(Q1)*
- What causes/issues/problems do I care about (local-global)? What are some ways I can affect positive change? *(Q2)*
- How will I know if my learning was successful? What sources of data should I consider? *(Q3)*
- What motivates me to keep learning? What do I still wonder about? How might I transfer what I have learned to another situation? *(Q4)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Types of prompts that improve AI accuracy *(K1)*
- How AI works to provide answers through predictions based on its training *(K2)*
- How training for AI works *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can design and test AI-assisted solutions to real-world challenges, ensuring that AI is used responsibly and with human oversight. *(S1)*
- I can investigate how AI generates responses, using neural networks, transformers, and probabilistic models. *(S2)*
- I can critically evaluate AI-generated outputs, identifying bias,

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■ Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*		misinformation, and hallucinations. *(S3)* ■ I can refine AI-generated content through prompt engineering and debugging techniques. *(S4)* ■ I can explore AI's role in creativity, forecasting, and decision-making, balancing its strengths with ethical considerations. *(S5)*



Unit 2: Foundations of AI Programming

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-01-2026	HS Explorations in Computer Science	18 Day(s)	9, 10, 11, 12	Mathematics	William Graber, Amanda Manuel

Focus

This unit introduces programming, algorithms, and ethical computing, exploring how Python programs are designed, debugged, and influenced by societal considerations. Through hands-on activities, students write, test, and refine programs using sequence, selection, iteration, and modular functions while applying human-centered design for inclusivity. Students analyze the ethical implications of computing, including privacy, fairness, and accessibility, and propose risk mitigation strategies. Career-focused discussions connect programming skills to real-world pathways. Grounded in ethics, inclusivity, and computational thinking, this unit fosters persistence, critical thinking, and curiosity, empowering students to use technology for real-world problem-solving.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Business, Computer and Information Technology: 10

- Evaluate emerging input technologies. *(15.4.12.D)*
- Use programming languages to develop logical thinking and problem solving skills. *(15.4.12.H)*
- Create a complex computer program to solve a problem. *(15.4.12.J)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Solve Problems Effectively: Based on an examination of the problem/situation, initiate a plan, execute it, evaluate and explain the reasonableness of the solution. (Innovative Problem Solver) *(T1)*
- Solve Problems Efficiently: Use skills, strategies, models, or manipulatives to increase efficiency and accuracy. (Innovative Problem Solver) *(T2)*
- Grow Confidence: Demonstrate perseverance and self-efficacy by making an attempt, using reflection, monitoring progress, and changing course as needed. (Lifelong Learner) *(T3)*
- Recognize Relationships: Identify patterns and relationships to make sense of mathematical and/or real world situations. (Global Citizen) *(T4)*
- Apply Technology Creatively: Use technology to extend creativity and/or improve problem-solving ability to adapt to the ever-changing world. *(T5)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Innovative problem-solvers realize that failure is an opportunity to learn and accept constructive feedback to evaluate and revise their thinking. *(U1)*
- Mathematicians learn by doing – implementing a strategy and reworking as needed. *(U2)*
- Recognize that patterns and structures foster efficiency in problem solving. *(U3)*
- Every problem can be categorized based on a similar structure and set of characteristics. *(U4)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do I come up with a solution that can potentially help with this problem? *(Q1)*
- How do I work to design, test, and rework the solution based on feedback from the target audience? *(Q2)*
- What are some strategies I could use to help get me unstuck? How are they working? *(Q3)*
- What is the best/most efficient way to solve this type of problem? *(Q4)*
- What is the pattern/relationship here? How do I describe that? How do I use the pattern to solve this and other problems? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Definition and purpose of algorithms and their applications through the design process of sequence, selection and iteration *(K1)*
- The process for analyzing the functionality of algorithms and proposing improvements *(K2)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can use decomposition and abstraction to problem solve. *(S1)*
- I can write programs using variables of different data types. *(S2)*
- I can work with objects within a coding program. *(S3)*
- I can write and call functions within a coding program. *(S4)*

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	■ Python programs using variables, conditional statements, loops, and functions *(K3)* ■ Python programs: debugging and testing for correctness and reliability *(K4)* ■ Computational thinking principles to design, analyze, and troubleshoot programs while applying abstraction, decomposition, and pattern recognition to solve problems effectively *(K5)*	■ I can write and use while loops within a coding program. *(S5)* ■ I can write and use conditional statements within a coding program. *(S6)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/



Unit 3: AI and the Systems That Power It

Draft Date	Course	Duration	Grades	Subjects	Team
06-01-2026	HS Explorations in Computer Science	15 Day(s)	9, 10, 11, 12	Mathematics	William Graber, Amanda Manuel

Focus

This unit explores how AI and computing systems process information, interact with hardware and software, and integrate emerging technologies like IoT and robotics. Through hands-on activities, students design and troubleshoot systems, analyze AI's societal and ethical impacts, and apply human-centered design to solve real-world problems. AI Chat supports student learning by unpacking system layers, optimizing software, and evaluating AI-generated content for accuracy and fairness. Discussions on bias and debates on AI's role in society encourage creativity, critical thinking, and collaboration. Grounded in ethics, inclusivity, and computational thinking, this unit helps students develop a deeper understanding of AI and its potential for equitable solutions.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Business, Computer and Information Technology: 10

- Develop criteria for analyzing hardware options to meet defined needs. *(15.4.12.C)*
- Evaluate emerging input technologies. *(15.4.12.D)*
- Analyze the different operating systems and recommend the appropriate system for specific user needs. *(15.4.12.E)*
- Create an advanced digital project using sophisticated design and appropriate software/applications. *(15.4.12.G)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Think Critically and Solve Problems: Use critical thinking and problem-solving skills to respond to changing societal and economic conditions based on various roles as citizens, consumers, workers, and/or entrepreneurs. *(T1)*
- Apply Technology Creatively: Use technology to extend creativity and/or improve problem-solving ability to adapt to the ever-changing world. *(T2)*

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- Find and use primary documentation; employ an accepted protocol for citation *(15.4.12.L)*
- Evaluate the impact of emerging technologies on various career paths and provide examples of industry certifications within the field. *(15.4.12.M)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Innovative problem-solvers realize that failure is an opportunity to learn and accept constructive feedback to evaluate and revise their thinking. *(U1)*
- Computational systems process data using hardware and software, and operating systems collaborate to perform tasks. *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What is the problem, and why does this problem exist and need solving? *(Q1)*
- How do I come up with a solution that can potentially help with this problem? *(Q2)*
- How do I work to design, test, and rework the solution based on feedback from the target audience? *(Q3)*
- What motivates me to keep learning? What do I still wonder about? How might I transfer what I have learned to another situation? *(Q4)*
- What are some strategies I could use to help get me unstuck? How are they working? *(Q5)*
- What is the best/most efficient way to solve this type of problem? *(Q6)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Computing system optimization strategies *(K1)*
- Computing solutions that integrate hardware and software to collect and exchange data *(K2)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify and understand different hardware parts of a computer. *(S1)*
- I can troubleshoot and optimize systems (hardware and software). *(S2)*
- I can identify and use different types of data on a computer. *(S3)*

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	■ Societal and ethical implications of AI and emerging technologies, including issues related to privacy, fairness, and accessibility *(K3)* ■ The role of data in AI applications and how different types of data (e.g., audio, visual, environmental) are collected and used computationally *(K4)* ■ Use of AI tools investigate problems, generate solutions, and evaluate the accuracy, fairness, and reliability of outputs. *(K5)*	■ I can test and analyze different emerging technology systems for its uses in daily life. *(S4)* ■ I can identify and understand different software on a computer. *(S5)*



Weather and Sun

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
02-25-2026	(Draft) Kindergarten English Language Arts, Kindergarten Science	16 Day(s)	K	English Language Arts, Science	Ashleigh Harbeck, Jill Koser

Focus

Have you ever lost your jacket during the day or wondered why birds lay their eggs at certain times of the year? In this unit, we will explore the answers to these questions and more about storms and severe weather and how it affects our daily life. Kindergartners will learn about the characteristics of weather (wind, clouds, temperature, and precipitation) and how sunlight warms the Earth's surface.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts: K

- Identify parts of a book (title, author) and parts of a text (beginning, end, details). *(CC.1.2.K.E)*
- With prompting and support, ask and answer questions about unknown words in a text. *(CC.1.2.K.F)*
- Answers questions to describe the relationship between illustrations and the text in which they appear. *(CC.1.2.K.G)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*
- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Sunlight warms earth's surfaces. *(U1)*
- Living things need water, air, and resources from the land, and they live in places that have the things they

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How does sunlight affect earth's surfaces? (3.2.K.C and 3.2.K.D) *(Q1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Science (2023): K Standards

- Make observations to determine the effect of sunlight on Earth's surface.

  Clarifying Statement: Examples of Earth's surface could include sand, soil, rocks, and water.

  Assessment Boundary: Assessment of temperature is limited to relative measures such as warmer/cooler. *(3.2.K.C)*
- Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.

  Clarifying Statement: Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.

  Assessment Boundary: N/A *(3.2.K.D)*
- Use and share observations of local weather conditions to describe patterns over time.

  Clarifying Statement: Examples of qualitative observations could include descriptions of the weather (such as sunny, cloudy, rainy, and warm); examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could

need. Humans use natural resources for everything they do. *(U2)*
- Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. *(U3)*
- Plants and animals, including humans, can change their environment. *(U4)*
- Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. *(U5)*
- Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. *(U6)*
- Asking questions, making observations, and gathering information are helpful in thinking about problems. *(U7)*
- Effective readers can determine and analyze the meaning of words and phrases used by authors in text to enhance comprehension. *(U8)*
- Authors use a variety of features to help readers identify the organized text structure. *(U9)*

- What regulates weather and climate? (3.3.K.A) *(Q2)*
- How do living organisms alter Earth's processes and structures? (3.3.K.B) *(Q3)*
- How do natural hazards affect individuals and societies? (3.3.K.D) *(Q4)*
- How am I making meaning of unknown words to support my reading? *(Q5)*
- How does the way this information is organized help me understand the text? *(Q6)*

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include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.

Assessment Boundary: Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler. *(3.3.K.A)*

- Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

Clarifying Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.

Assessment Boundary: N/A *(3.3.K.B)*

- Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.

Clarifying Statement: Emphasis is on local forms of severe weather.

Assessment Boundary: N/A *(3.3.K.D)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall?
Students will know...

- The sun warms the earth. *(K1)*
- Sunlight is a form of energy. *(K2)*
- Blocking the sun reduces the sun's warming effect. *(K3)*
- How to collect and record daily weather conditions. *(K4)*
- Weather impacts our daily activities and changes throughout the year. *(K5)*
- Plants and animals can change the land and how it looks. *(K6)*
- Extreme weather exists. *(K7)*
- There are strategies I can use when I don't know what a word is in a text. *(K8)*
- Books have important parts that help me understand what I read. *(K9)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can observe how the sunlight impacts earth's surfaces. *(S1)*
- I can use tools and materials to create a structure to block the sun from warming Earth's surface. *(S2)*
- I can make observations to collect data that can be used to make comparisons and describe patterns in the natural world. *(S3)*
- I can explain how plants and animals can change the environment. *(S4)*
- I can ask questions about severe weather. *(S5)*
- I can ask questions about words I don't know in a book. *(S6)*
- I can find the title, author, and beginning, end, and details in a book. *(S7)*

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practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*	

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Push and Pull

Draft Date	Course	Duration	Grades	Subjects	Team
02-25-2026	(Draft) Kindergarten English Language Arts, Kindergarten Science	10 Day(s)	K	English Language Arts, Science	Ashleigh Harbeck, Jill Koser

Focus

In this unit, we will learn about pushes and pulls and how they affect the motion of objects. We will observe and investigate the effects of what happens when the strength or direction of those pushes and pulls are changed.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts: K

- With prompting and support, identify the main idea and retell key details of text. *(CC.1.2.K.A)*
- With prompting and support, identify basic similarities and differences between two texts (read or read aloud) on the same topic. *(CC.1.2.K.I)*

Pennsylvania Academic Standards

Science (2023): K Standards

- Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T2)*
- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can one predict an object's continued motion, changes in motion, or stability? (3.2.K.A) *(Q1)*

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or a pull.

Clarifying Statement: Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.

Assessment Boundary: Assessment does not include friction as a mechanism for change in speed. *(3.2.K.A)*

- Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.

Clarifying Statement: Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball, and two objects colliding and pushing on each other.

Assessment Boundary: Assessment is limited to different relative strengths or different directions, but not both at the same time. Assessment does not include non-contact pushes or pulls such as those produced by magnets. *(3.2.K.B)*

- Pushes and pulls can have different strengths and directions. *(U2)*
- Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. *(U3)*
- When objects touch or collide, they push on one another and can change motion. *(U4)*
- A bigger push or pull makes things speed up or slow down more quickly. *(U5)*
- Effective readers identify key details of informational texts to determine main ideas. *(U6)*

- What underlying forces explain the variety of interactions observed? (3.2.K.B) *(Q2)*
- What details help me find the main idea? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Pushing and pulling are forces. *(K1)*
- Pushing moves things away from us and pulling moves thing towards us. *(K2)*
- Force makes an object move or stop moving. *(K3)*
- Engineering creates solutions to problems by designing ways to move objects from place to place. *(K4)*
- Objects colliding can change the motion of the object. *(K5)*
- Strength and direction of force affects the movement of the object. *(K6)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can plan and conduct an investigation in collaboration with peers. *(S1)*
- I can explain how force affects the movement of an object. *(S2)*
- I can explain if my tests of an object works as intended. *(S3)*
- I can use details to help me find the main idea. *(S4)*

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Profile of a CV Learner		
■ Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*	■ The main idea is the most important point from the text/book. *(K7)*	

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Living Things

Draft Date	Course	Duration	Grades	Subjects	Team
02-25-2026	(Draft) Kindergarten English Language Arts, Kindergarten Science	12 Day(s)	K	English Language Arts, Science	Ashleigh Harbeck, Jill Koser

Focus

Did you know animals and plants need certain things to survive? In this unit, we will use observations to understand the basic needs of animals. We will explore how animals need things to eat and a safe place to live, and also how animals can change their environments to meet those needs. We will also use observations to understand the basic needs of plants, such as water and sunlight. We will also observe young plants and the changes they undergo as they grow from seed to seedling.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts: K

- With prompting and support, answer questions about key details in a text. *(CC.1.2.K.B)*
- With prompting and support, make a connection between two individual, events, ideas, or pieces of information in a text. *(CC.1.2.K.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*
- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- All animals need food in order to live and grow. They obtain their food from

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Pennsylvania Academic Standards

Science (2023): K Standards

- Use observations to describe patterns of what plants and animals (including humans) need to survive.

  Clarifying Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.

  Assessment Boundary: N/A *(3.1.K.A)*
- Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

  Clarifying Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.

  Assessment Boundary: N/A *(3.3.K.B)*
- Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

  Clarifying Statement: Examples of relationships could include that deer eat plants or from other animals. Plants need water and light to live and grow. *(U1)*
- Plants and animals can change their environment. *(U2)*
- Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. *(U3)*
- Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. *(U4)*
- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. *(U5)*
- Effective readers identify key details of informational texts to determine main ideas. *(U6)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do organisms obtain and use the matter and energy they need to live and grow? (3.1.K.A) *(Q1)*
- How do living organisms alter Earth's processes and structures? (3.3.K.B) *(Q2)*
- How do Earth's surface processes and human activities affect each other? (3.3.K.C) *(Q3)*
- How do humans depend on Earth's resources? (3.3.K.C) *(Q4)*
- How do humans change the planet? (3.3.K.E) *(Q5)*
- What details help me find the main idea? *(Q6)*
- What do I need to know to retell/ summarize this text? *(Q7)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Living things need sunlight, food, and water to survive. *(K1)*
- Plants and animals can change the land and how it looks. *(K2)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain what living things need to survive. *(S1)*
- I can give examples of how plants and animals, including humans, change the environment to meet their needs. *(S2)*

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buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.

Assessment Boundary: N/A *(3.3.K.C)*

- Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

Clarifying Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.

Assessment Boundary: N/A *(3.3.K.E)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

- Humans change the environment and it can negatively impact the air, water, or land, which can hurt plants and animals. *(K3)*
- Humans need nature, like trees and rivers, to live well, and nature needs humans to help protect it. *(K4)*
- Earth provides us with important things like water, air, and food that we need to live. *(K5)*
- It is important to take care of Earth's resources so we have what we need now and in the future. *(K6)*
- Details can help me find the main idea. *(K7)*

- I can show the relationship between the needs of living things and where they live. *(S3)*
- I can give examples of natural resources humans need to survive. *(S4)*
- I can give examples of how humans may impact the environment and possible solutions to negative impacts. *(S5)*
- I can name the details that help me find the main idea. *(S6)*

Exploring Animal and Plant Superpowers

Draft Date	Course	Duration	Grades	Subjects	Team
02-06-2026	(Draft) Grade 1 English Language Arts, Grade 1 Science	15 Day(s)	1	English Language Arts	Jackie Castleman, Becky France, Katharine (Katie) Koch, Leed Lindsay, Ashleigh Harbeck, Brittany Haines

Focus

Our first grade students will first explore three main topics about animals: how different animals use their body parts and senses in different ways to survive, how the behavior of different animal parents and offspring help the offspring survive, and the similarities and differences among individual animals of the same kind. They will then also explore the different parts of plants and how those parts are essential for plant survival.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts: 1

- Key Ideas and Details - Main Idea *(402156)*
- **Demonstrate a grade appropriate command of the conventions of standard English grammar and spelling. Capitalize dates and names of people. Use end punctuation; use commas in dates and words in series. Spell words drawing on common spelling patterns, phonemic awareness and spelling conventions.** *(CC.1.4.1.R)*
- **Participate in individual or shared research and writing projects.** *(CC.1.4.1.V)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T2)*
- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T3)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Science (2023): 1 Standards

- Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

  Clarifying Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.

  Assessment Boundary: N/A *(3.1.1.A)*
- Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

  Clarifying Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring resemble, but are not identical to, their parents. *(U1)*
- Effective readers identify key details of informational texts to determine main ideas. *(U2)*
- Effective readers can determine and analyze the meaning of words and phrases used by authors in text to enhance comprehension. *(U3)*
- Readers use strategies to determine and clarify unknown words in content to develop their ability to independently and effectively handle unfamiliar words. *(U4)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How and why do organisms interact with their environment and what are the effects of these interactions? *(Q1)*
- How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings have different characteristics? *(Q2)*
- How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms? *(Q3)*
- How do organisms live, grow, respond to their environment, and reproduce? *(Q4)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, and move from place to place, and to seek, find,

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain how animals use different body parts to survive. *(S1)*
- I can describe the connection between two individuals, events, ideas, or pieces of information in a text. *(S2)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Assessment Boundary: N/A *(3.1.1.B)*

- Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Clarifying Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.

Assessment Boundary: Assessment does not include inheritance or animals that undergo metamorphosis or hybrids. *(3.1.1.C)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

and take in food, water, and air. *(K1)*

- Adult animals can have young, and the parents engage in behaviors that help the offspring survive. *(K2)*
- Animals have body parts that capture and convey different kinds of information needed for growth and survival. *(K3)*
- Different animals respond to different behaviors to help them survive. *(K4)*
- Individuals of the same kind of animal are recognizable as similar but also vary in many ways. *(K5)*
- Plants require different amounts of water and sun to grow. *(K6)*
- Young plants have similar patterns to their parent plants . *(K7)*

- I can use the illustrations and details in a text to describe its key ideas. *(S3)*
- I can explain how the behavior of different animal parents and offspring help the offspring survive. *(S4)*
- I can explain the similarities and differences among individual animals of the same kind. *(S5)*
- I can understand the different parts of plants and how those parts are essential for plant survival. *(S6)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Exploring Light, Sound and Communication

Draft Date	Course	Duration	Grades	Subjects	Team
02-06-2026	(Draft) Grade 1 English Language Arts, Grade 1 Science	15 Day(s)	1	English Language Arts	Jackie Castleman, Becky France, Katharine (Katie) Koch, Leed Lindsay, Ashleigh Harbeck, Brittany Haines

Focus

In this first grade physical science unit, students will investigate light and sound! They explore how materials vibrate and how vibrating materials can make sounds. They also investigate light and illumination and use those investigations to create simple devices that allow them to communicate across a distance.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts: 1

- Identify the main idea and retell key details of text. *(CC.1.2.1.A)*
- **Write informative/ explanatory texts to examine a topic and convey ideas and information.** *(CC.1.4.1.A)*
- **Identify and write about one specific topic.** *(CC.1.4.1.B)*
- **Develop the topic with two or more facts.** *(CC.1.4.1.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Waves are a repeating pattern of motion that transfers energy from

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What is the problem, and why does this problem exist and need solving? *(Q1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Science (2023): 1 Standards

- **Physical Science** *(1111319042)*
- **Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.**

  Clarifying Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.

  Assessment Boundary: N/A *(3.2.1.A)*
- **Make observations to construct an evidence-based account that objects can be seen only when illuminated.**

  Clarifying Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.

  Assessment Boundary: N/A *(3.2.1.B)*
- **Plan and conduct an investigation to determine the effect of placing objects**

place to place without overall displacement of matter. *(U1)*
- Meaningful change in a community requires looking at a problem from multiple angles with curiosity and a willingness to challenge and deepen one's thinking. *(U2)*
- Effective readers identify key details of informational texts to determine main ideas. *(U3)*
- Effective writers make deliberate and strategic choices when considering purpose and audience to convey information clearly about a topic. *(U4)*
- Effective writers choose organizational structures and transitions to logically connect ideas and information. *(U5)*

- How do I come up with a solution that can potentially help with this problem? *(Q2)*
- How are waves used to transfer energy and information? *(Q3)*
- What details help me find the main idea? *(Q4)*
- What do I need to know to retell/ summarize this text? *(Q5)*
- How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q6)*
- What is the best way to organize this information? *(Q7)*

Acquisition of Knowledge & Skill

Knowledge	Skills
What facts and basic concepts should students know and be able to recall? Students will know... ■ Sound waves comes from vibrations *(K1)* ■ Details help me find the main idea in a text. *(K2)* ■ Writing about a science topic involves organization of important facts. *(K3)*	What discrete skills and processes should students be able to use? Students can... ■ I can describe how sound waves come from vibrations. *(S1)* ■ I can tell about details in a text. *(S2)* ■ I can organize important facts to write a report. *(S3)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

made with different materials in the path of a beam of light.

Clarifying Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).

Assessment Boundary: Assessment does not include the speed of light. *(3.2.1.C)*

- **Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.**

Clarifying Statement: Examples of devices could include a light source to send signals, paper cup and string "telephones," and a pattern of drum beats.

Assessment Boundary: Assessment does not include technological details for how communication devices work. *(3.2.1.D)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Exploring the Universe: The Sky's the Limit

Draft Date	Course	Duration	Grades	Subjects	Team
02-06-2026	(Draft) Grade 1 English Language Arts, Grade 1 Science	20 Day(s)	1	English Language Arts	Jackie Castleman, Becky France, Katharine (Katie) Koch, Leed Lindsay, Ashleigh Harbeck, Brittany Haines

Focus

Our first grade explorers will learn about the sun, moon and stars while listening to and reading both fiction and non-fiction stories. They will explore answers to the questions about their location, make- up, importance and patterns within our universe.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts: 1

- **Explain major differences between books that tell stories and books that give information, drawing on a wide reading or range of text types.** *(CC.1.3.1.E)*
- **Write informative/ explanatory texts to examine a topic and convey ideas and information.** *(CC.1.4.1.A)*
- **Identify and write about one specific topic.** *(CC.1.4.1.B)*
- **Develop the topic with two or more facts.** *(CC.1.4.1.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Effective readers recognize various styles, organization, and features of print as they read or listen/view someone else's read aloud. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How does the way this information is organized help me understand the text? *(Q1)*
- How does this text (ex. Illustration, table, a video clip) help me understand the topic? *(Q2)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Pennsylvania Academic Standards

Science (2023): 1 Standards

- **Earth and Space Science** *(1111319050)*
- Use observations of the sun, moon, and stars to describe patterns that can be predicted.

  Clarifying Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.

  Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day. *(3.3.1.A)*
- Make observations at different times of year to relate the amount of daylight to the time of year.

  Clarifying Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.

  Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight. *(3.3.1.B)*

- Effective readers identify key details of informational texts to determine main ideas. *(U2)*
- Authors use a variety of features to help readers identify the organized text structure. *(U3)*
- Readers notice how elements of a story impact and influence other elements to enhance their understanding of the text. *(U4)*
- Authors use visuals and text features to enhance their message. *(U5)*
- Effective writers choose organizational structures and transitions to logically connect ideas and information. *(U6)*
- Effective writers choose organizational structures to logically sequence ideas and events. *(U7)*

- How do the illustrations and structure of the text help me better understand the story? *(Q3)*
- How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q4)*
- What is the best way to organize this information? *(Q5)*
- How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? *(Q6)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Important facts about the sun, moon and stars :
  - Where they are located?
  - What they are?
  - Why they are important?
  - Patterns

  (K1)
- Transfer the knowledge of the sun, moon and stars into their writing *(K2)*
- Non- Fiction books will help them learn facts and information about a

Skills

What discrete skills and processes should students be able to use? Students can...

- I can determine the difference between fiction and non fiction books. *(S1)*
- I can use information/facts learned about the sun, moon and stars to write about them stating 2 or more facts *(S2)*
- I can identify a book as fiction or non-fiction. *(S3)*
- I can focus on one topic when recalling information they have learned. *(S4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Science (2023): 1 Crosscutting Concepts

- **Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.** *(CCC.K-2.C1.A)*

Science (2023): 1 Disciplinary Core Ideas

- **Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.** *(DCI.1.ESS1.A.1)*

Profile of a CV Learner

- **Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures.** *(PCVL.CM)*

topic and are supported by pictures, tables etc. *(K3)*

- Fiction books are stories made up by the author using their imagination . *(K4)*



Work of Water

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
02-06-2026	(Draft) Grade 2 English Language Arts, Grade 2 Science	7 Week(s)	2	English Language Arts	Amanda Schlee, Amanda Schlee, Kathy Nonthakan, Campbell Nicole, Brubaker Khristine, Linton Shelly, Ashleigh Harbeck, Kendra Schreffler, Brittany Haines

Focus

Now that we've spent some time learning about countries in our world, it's time to continue our journey of learning about the Earth, but this time from a science perspective. In this unit, we'll explore how water shapes the Earth's surface. We'll read about soil and erosion and we'll construct and use models of mountains to show how water flows downhill, breaking down huge rocks into the tiny grains of sand you find at the beach. You'll also build and use model hills to investigate the causes of erosion and design solutions to address problems caused by erosion. At the end of the unit, you'll work with your classmates to discover and brainstorm solutions to problems caused by erosion right at your own school!

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts: 2

- Identify the main idea of a multi-paragraph text as well as the focus of specific paragraphs within the text. *(CC.1.2.2.A)*
- Ask and answer questions such as who, what, where, when, why, and how to demonstrate understanding of key details in a text. *(CC.1.2.2.B)*
- **Explain how graphic representations contribute to and clarify a text.** *(CC.1.2.2.G)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Speaking and Listening: Effectively utilize appropriate speaking techniques (volume, inflection, pace, etc.) and vocabulary in a variety of settings to clearly communicate ideas and information. *(T3)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Write opinion pieces on familiar topics or texts. *(CC.1.4.2.G)*
- Identify the topic and state an opinion. *(CC.1.4.2.H)*
- Support the opinion with reasons that include details connected to the opinion. *(CC.1.4.2.I)*
- Create an organizational structure that includes reasons and includes a concluding statement. *(CC.1.4.2.J)*
- **Use a variety of words and phrases to appeal to the audience.** *(CC.1.4.2.K)*
- **Demonstrate a grade appropriate command of the conventions of standard English grammar and spelling.** *(CC.1.4.2.L)*
- With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing. *(CC.1.4.2.T)*
- **Participate in individual or shared research and writing projects.** *(CC.1.4.2.V)*
- **Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.** *(CC.1.5.2.C)*

Pennsylvania Academic Standards

Science (2023): 2 Standards

- Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- EU1: Effective readers identify key details of informational texts to determine main ideas. *(U1)*
- EU2: Diverse media that features a range of perspectives on a given topic helps individuals deepen and challenge their thinking. *(U2)*
- EU3: Effective writers make deliberate and strategic choices when considering purpose and audience to prove an opinion/claim about a topic. *(U3)*
- EU4: Effective writers choose appropriate/relevant evidence from text(s) to support their opinion. *(U4)*
- EU5: Including accurate facts and relevant, descriptive details in oral reports and storytelling enhances the credibility, depth and focus of communication. *(U5)*
- EU6: Engaging in collaborative discussions allows students to learn from each other, deepen their understanding of topics and gain new perspectives. *(U6)*
- EU7: Earth is often called the water planet because of the abundance of liquid water on its surface and because water's unique combination of physical

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- EQ1A: What details help me find the main idea? *(Q1)*
- EQ1B: What do I need to know to retell/summarize this text? *(Q2)*
- EQ2: How does this text (for example, illustration, table, video clip) help me understand the topic? *(Q3)*
- EQ3: How does who I am writing for impact the way I am supporting my opinion about the topic? *(Q4)*
- EQ4: How do I choose relevant information to include in my writing? How does that help support my claim? *(Q5)*
- EQ5: How do I stay focused when sharing information or telling a story? How do I make sure my information is accurate? How do I choose interesting details when I talk about something or tell a story? *(Q6)*
- EQ6: How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? *(Q7)*
- EQ7: How do the properties and movements of water shape Earth's surface and affect its systems? *(Q8)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Clarifying Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and erosion of rocks, which occurs slowly.

Assessment Boundary: Assessment does not include quantitative measurements of timescales. *(3.3.2.A)*

- Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.

Clarifying Statement: Examples of solutions could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land.

Assessment Boundary: N/A *(3.3.2.B)*

- Develop a model to represent the shapes and kinds of land and bodies of water in an area.

Clarifying Statement: N/A

Assessment Boundary: Assessment does not include quantitative scaling in models. *(3.3.2.C)*

- Obtain information to identify where water is found on Earth and that it can be solid or liquid.

Clarifying Statement: N/A

and chemical properties is central to Earth's dynamics. *(U7)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Water is found in lakes, rivers, ponds and the ocean in solid and liquid forms. Water has an effect on the shape of landforms and these changes to Earth's surface can happen quickly or slowly over time. *(K1)*
- Changes to the Earth's surface due to water movement can be prevented through natural and man-made means. *(K2)*
- Graphic representations of information can provide main ideas and key details about a topic *(K3)*
- Writers make deliberate choices about how to share information with a specific audience for the purpose of solving an erosion problem in the community. *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can use graphic representation(s) in a variety of ways: to interpret the meaning of the information being presented, to identify the important details being described, to identify and describe an extension of the written text. *(S1)*
- I can collaborate with peers to craft an opinion on the best way to solve a community problem, preparing a shared written product using the writing process. The final opinion will be thoughtfully shared with an audience through speaking. *(S2)*
- I can engage in dialogue with the intended audience during the sharing of the class opinion on the topic, asking and answering questions to enhance the sharing of information. *(S3)*
- I can describe evidence from observation (firsthand or from text/ visuals). I can use my observations to collaborate with my peers in designing a model that presents a solution to an erosion issue in the local community. *(S4)*

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Assessment Boundary: N/A *(3.3.2.D)*

Profile of a CV Learner
■ Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

■ I can develop models of various landforms and bodies of water to identify and describe relationships between the Earth and water. *(S5)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

States of Matter

Draft Date	Course	Duration	Grades	Subjects	Team
08-07-2025	Grade 2 Science	5 Day(s)	2	Science	Jill Koser, Ashleigh Harbeck

Focus

In this unit, students delve into the fascinating world of solid and liquid states of matter. They investigate how water exists in various forms around the globe and how it can transition into solid ice through freezing. Additionally, students explore the properties of a variety of materials, making observations to build explanations regarding the changes induced by heating and cooling. They will learn to differentiate between reversible changes, such as melting and freezing, and irreversible changes, enhancing their understanding of physical transformations.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 2 Standards

- Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

  Clarifying Statement: Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.

  Assessment Boundary: Assessment of quantitative measurements is limited to length. *(3.2.2.B)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can one explain the structure, properties, and interactions of matter? *(Q1)*
- How can one explain and predict interactions between objects within systems? *(Q2)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

  Clarifying Statement: Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf, and heating paper.

  Assessment Boundary: N/A *(3.2.2.D)*
- Obtain information to identify where water is found on Earth and that it can be solid or liquid.

  Clarifying Statement: N/A

  Assessment Boundary: N/A *(3.3.2.D)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- When some things are mixed or changed, they can turn into something new with different properties. *(K1)*
- How to describe how things change when they are mixed or heated, and how to make good predictions about what will happen next. *(K2)*
- That all matter is made of tiny particles that can combine in different ways to make many different materials. *(K3)*
- Water can change the land through moving, freezing, and melting. It can shape the Earth by washing away soil, making rivers and lakes, and helping plants grow. *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- Observe and describe how materials change when they are mixed or changed. *(S1)*
- Explain how a new substance is different from what I started with. *(S2)*
- Describe what happens when materials are heated or mixed. *(S3)*
- Make predictions about how materials will change before testing them *(S4)*
- Explain that everything is made of tiny parts called particles. *(S5)*
- Sort and describe materials based on how their parts are put together. *(S6)*
- Describe how water moves and changes. *(S7)*
- Explain how water can change the land and help plants grow. *(S8)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/



Material Magic

Draft Date	Course	Duration	Grades	Subjects	Team
02-06-2026	(Draft) Grade 2 English Language Arts, Grade 2 Science	4 Week(s)	2	English Language Arts	Amanda Schlee, Amanda Schlee, Kathy Nonthakan, Campbell Nicole, Brubaker Khristine, Linton Shelly, Ashleigh Harbeck, Kendra Schreffler, Brittany Haines

Focus

As we continue to journey around the world, we haven't yet taken the time to understand what the objects we've seen so far are made of. In this next unit, we will explore the properties of materials and matter. We will describe and classify different types of materials by properties like hardness, flexibility, and absorbency and investigate how those properties are useful in meeting basic needs such as clothing and cooking. We will also investigate how heating and cooling affect the properties of materials. After learning about the basic properties of matter, we will extend our learning to focus on bridges. We'll compare and contrast concrete and steel bridges to determine the unique features of each material and how these features affect how bridges are designed and how they function each day.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts: 2

- Identify the main idea of a multi-paragraph text as well as the focus of specific paragraphs within the text. *(CC.1.2.2.A)*
- Ask and answer questions such as who, what, where, when, why, and how to demonstrate understanding of key details in a text. *(CC.1.2.2.B)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T3)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- **Describe how reasons support specific points the author makes in a text.** *(CC.1.2.2.H)*
- **Write opinion pieces on familiar topics or texts.** *(CC.1.4.2.G)*
- Identify the topic and state an opinion. *(CC.1.4.2.H)*
- Support the opinion with reasons that include details connected to the opinion. *(CC.1.4.2.I)*
- **Create an organizational structure that includes reasons and includes a concluding statement.** *(CC.1.4.2.J)*
- Use a variety of words and phrases to appeal to the audience. *(CC.1.4.2.K)*
- Demonstrate a grade appropriate command of the conventions of standard English grammar and spelling. *(CC.1.4.2.L)*

Pennsylvania Academic Standards

Science (2023): 2 Standards

- Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

  Clarifying Statement: Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.

  Assessment Boundary: N/A *(3.2.2.A)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- EU1: Effective readers identify key details of informational texts to determine main ideas. *(U1)*
- EU2: Strong inferences are based on specific text details that lead to a broader topic, point or conclusion. *(U2)*
- EU3: Effective readers evaluate the style, tone and use of evidence that an author chooses to include in the text to convey an idea. *(U3)*
- EU4: Effective writers make deliberate and strategic choices when considering purpose and audience to convey information clearly about a topic. *(U4)*
- EU1: All forms of matter exist as a result of the combination or rearrangement of atoms. *(U5)*
- EU2: The atoms of some substances combine or rearrange to form new substances that have different properties. *(U6)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- EQ1A: What details help me find the main idea? *(Q1)*
- EQ1B: What do I need to know to retell/summarize this text? *(Q2)*
- EQ2: What is the author trying to tell me based on the evidence used? How does this connect to what I already know and believe? *(Q3)*
- EQ3: How does the author support their argument? *(Q4)*
- EQ4A: How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q5)*
- EQ4B: What is the best way to **organize this information?** *(Q6)*
- EQ1: How do particles combine to form the variety of matter one observes? *(Q7)*
- EQ2: How do substances combine or change (react) to make new substances? *(Q8)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

  Clarifying Statement: Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.

  Assessment Boundary: Assessment of quantitative measurements is limited to length. *(3.2.2.B)*
- Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.

  Clarifying Statement: Examples of pieces could include blocks, building bricks, or other assorted small objects.

  Assessment Boundary: N/A *(3.2.2.C)*
- Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

  Clarifying Statement: Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf, and heating paper.

  Assessment Boundary: N/A *(3.2.2.D)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall?
Students will know...

- Authors have a purpose for writing informational text (to inform, persuade, or entertain). *(K1)*
- Authors make choices about the order of reasons provided in the text to share multiple key points about a topic. *(K2)*
- Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. *(K3)*
- Different properties of matter are suited to different purposes. *(K4)*
- A great variety of objects can be built from a small set of pieces. *(K5)*
- Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. *(K6)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify the author's purpose for writing the text and explain how the key points are important to the topic. *(S1)*
- I can explain how the order of reasons/details, inclusion of specific text features and author's word choice supports the purpose and key points. *(S2)*
- I can write in response to my reading and analyze the author's strategic choices about a topic. *(S3)*
- I can plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. *(S4)*
- I can make observations (firsthand or from media) to construct an evidence-based account for natural phenomena, and I can use these observations to make a claim about different materials/types of matter. *(S5)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Profile of a CV Learner	
■ Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*	

This unit was designed using Eduplanet21 - https://eduplanet21.com/



Animal and Plant Adventures

Draft Date	Course	Duration	Grades	Subjects	Team
02-06-2026	(Draft) Grade 2 English Language Arts, Grade 2 Science	5 Week(s)	2	English Language Arts	Amanda Schlee, Kathy Nonthakan, Campbell Nicole, Amanda Schlee, Brubaker Khristine, Linton Shelly, Ashleigh Harbeck, Kendra Schreffler, Brittany Haines

Focus

As we continue our journey around the world, we turn our focus to the plant and animal habitats that surround us. In this unit, you will get an opportunity to read texts and make observations about plants and animals in particular habitats, which is what real scientists do every day in their jobs. Scientists also write reports to share their findings. A report is a specific structure for writing that includes facts from your learning and observations (what you can see and hear). During this unit, you'll get to choose an animal to research and share information about so others can learn from you!

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts: 2

- Identify the main idea of a multi-paragraph text as well as the focus of specific paragraphs within the text. *(CC.1.2.2.A)*
- Ask and answer questions such as who, what, where, when, why, and how to demonstrate understanding of key details in a text. *(CC.1.2.2.B)*
- **Describe the connection between a series of events, concepts, or steps in a procedure within a text.** *(CC.1.2.2.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T3)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- **Use various text features and search tools to locate key facts or information in a text efficiently.** *(CC.1.2.2.E)*
- Write informative/ explanatory texts to examine a topic and convey ideas and information clearly. *(CC.1.4.2.A)*
- Identify and introduce the topic. *(CC.1.4.2.B)*
- Develop the topic with facts and/or definitions *(CC.1.4.2.C)*
- **Group information and provide a concluding statement or section.** *(CC. 1.4.2.D)*
- Choose words and phrases for effect. *(CC. 1.4.2.E)*
- Demonstrate a grade appropriate command of the conventions of standard English grammar and spelling. Capitalize proper nouns. Use commas and apostrophes appropriately. Spell words drawing on common spelling patterns. Consult reference material as needed. *(CC. 1.4.2.F)*
- **Participate in individual or shared research and writing projects.** *(CC.1.4.2.V)*

Pennsylvania Academic Standards

Science (2023): 2 Standards

- Plan and conduct an investigation to determine if plants need sunlight and water to grow.

Clarifying Statement: N/A

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- EU1: Effective readers identify key details of informational texts to determine main ideas. *(U1)*
- EU2: Authors use a variety of features to help readers identify the organized text structure. *(U2)*
- EU3: Effective writers make deliberate and strategic choices when considering purpose and audience to convey information clearly about a topic. *(U3)*
- EU4: Strategic researchers gather information from a variety of reliable resources to answer a specific research question or explore a topic. *(U4)*
- EU5: Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment. *(U5)*
- EU6: Biodiversity - the multiplicity of genes, species, and ecosystems - provides humans with renewable resources, such as food, medicines and clean water. *(U6)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- EQ1A: What details help me find the main idea? *(Q1)*
- EQ1B: What do I need to know to retell/ summarize this text? *(Q2)*
- EQ2: How does the way this information is organized help me understand the text? *(Q3)*
- EQ3A: How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q4)*
- EQ3B: What is the best way to **organize this information?** *(Q5)*
- EQ4: How do I find reliable and useful sources for my research? How do I compare information found from multiple sources to figure out what is accurate? *(Q6)*
- EQ5A: How do organisms interact with the living and nonliving environments to obtain matter and energy? *(Q7)*
- EQ6: What is biodiversity, how do humans affect it, and how does it affect humans? *(Q8)*

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Assessment Boundary: Assessment is limited to testing one variable at a time. *(3.1.2.A)*

- Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

Clarifying Statement: N/A

Assessment Boundary: N/A *(3.1.2.B)*

- Make observations of plants and animals to compare the diversity of life in different habitats.

Clarifying Statement: Emphasis is on the diversity of living things in each of a variety of different habitats.

Assessment Boundary: Assessment does not include specific animal and plant names in specific habitats. *(3.1.2.C)*

Environmental Literacy & Sustainability (2023): K-2 Environmental Literacy & Sustainability

- Categorize ways people harvest, redistribute, and use natural resources. *(3.4.K-2.A)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Facts about three different types of habitats around the world (rainforest, desert, temperate forest) *(K1)*
- Scientists can research and gain information from both reading and observation *(K2)*
- How to structure an informational animal report using both details from text and observations *(K3)*
- Plants depend on sunlight and water to grow *(K4)*
- Plants depend on animals for pollination or to move their seeds around *(K5)*
- There are many different kind of living things in any area and they exist in different places on land and in water *(K6)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can use informational text features to efficiently locate information in a text that helps me understand a topic. *(S1)*
- I can make connections between details in a text to determine the main ideas. *(S2)*
- I can read informational text to research a specific topic with the end goal of writing an animal report. I can group similar ideas together as I organize my writing. *(S3)*
- I can plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. *(S4)*
- I can develop a simple model based on evidence to represent a proposed object or tool. *(S5)*
- I can make observations (firsthand or from media) to collect data which can be used to make comparisons. *(S6)*

Life Cycles: Circle of Life

Draft Date	Course	Duration	Grades	Subjects	Team
07-16-2024	Grade 3 Science	8 Day(s)	3	Science	Sarah Wertz, Jill Koser, Heather Yarnell, Gina Georgallis, Reylek Nicole, Susan Brunk

Focus

In this unit, students compare and contrast the life cycles of both animals and plants. Students create models to build an understanding that all organisms share certain stages in their life cycles: birth, growth, reproduction, and death. Students also explore how an understanding of life cycles can aid in solving problems that occur when there are too many or too few organisms in a particular environment.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 3 Standards

- Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

  Clarifying Statement: Changes organisms go through during their life form a pattern.

  Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction. *(3.1.3.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. *(U1)*
- When the environment changes in ways that affect a place's physical characteristics, temperature, or

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do the structures of organisms enable life's functions? *(Q1)*
- What is biodiversity, how do humans affect it, and how does it affect humans? *(Q2)*

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- Make a claim supported by evidence about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

  Clarifying Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.

  Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change. *(3.1.3.H)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. *(U2)*
- Populations live in a variety of habitats, and change in those habitats affects the organisms living there. *(U3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The different parts of plants and animals have special jobs that help them stay alive. *(K1)*
- Biodiversity means the variety of plants, animals, and other living things in the world. *(K2)*

Skills

What discrete skills and processes should students be able to use? Students can...

- Identify and explain the jobs of different parts of plants and animals, like roots, leaves, hearts, and lungs, that help them stay alive and healthy. *(S1)*
- Describe how humans can change biodiversity by building cities, cutting down forests, and polluting. I understand that biodiversity helps us have clean air, food to eat, and medicine to stay healthy." *(S2)*



Storm Stories: Adventures in Dark Skies

Draft Date	Course	Duration	Grades	Subjects	Team
02-06-2026	(Draft) Grade 3 English Language Arts, Grade 3 Science	14 Day(s)	3	English Language Arts	Heather Yarnell, Sarah Wertz, Gina Georgallis, Jill Koser, Reylek Nicole, Susan Brunk

Focus

By celebrating our differences, we can work together like the citizens in "Storm Stories: Adventures in Dark Skies". We will investigate and predict the weather by observing clouds and wind, learning about weather and climate, and using models to understand global climate patterns!

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 3

- Determine the main idea of a text; recount the key details and explain how they support the main idea. *(CC.1.2.3.A)*
- Ask and answer questions about the text and make inferences from text; refer to text to support responses. *(CC.1.2.3.B)*
- **Explain how a series of events, concepts, or steps in a procedure is connected within a text, using language that pertains to time, sequence, and cause/effect.** *(CC.1.2.3.C)*
- Acquire and use accurately grade-appropriate conversational, general

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T2)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T3)*

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academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships. *(CC.1.2.3.J)*

- **Write informative/ explanatory texts to examine a topic and convey ideas and information clearly.** *(CC.1.4.3.A)*
- Identify and introduce the topic. *(CC.1.4.3.B)*
- Develop the topic with facts, definitions, details, and illustrations, as appropriate. *(CC.1.4.3.C)*
- Create an organizational structure that includes information grouped and connected logically with a concluding statement or section. *(CC.1.4.3.D)*
- Determine the main ideas and supporting details of a text read aloud or information presented in diverse media formats, including visually, quantitatively, and orally. *(CC.1.5.3.B)*
- **Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly with adequate volume, appropriate pacing, and clear pronunciation.** *(CC.1.5.3.D)*

Pennsylvania Academic Standards

Science (2023): 3 Standards

- **Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.**

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. *(U1)*
- Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. *(U2)*
- A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. *(U3)*
- Effective writers make deliberate and strategic choices when considering purpose and audience to convey information clearly about a topic. *(U4)*
- Authors use a variety of features to help readers identify the organized text structure. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What regulates weather and climate? (3.3.3.A and 3.3.3.B) *(Q1)*
- How do natural hazards affect individuals and societies? (3.3.3.C) *(Q2)*
- How do I choose relevant information to include in my writing? How does that help support my explanation? *(Q3)*
- How does the way this information is organized help me understand the text? *(Q4)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- How clouds are formed. Where the water is before it forms a cloud and

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain how clouds are formed. Where the water is before it

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Clarifying Statement: Examples of data could include average temperature, precipitation, and wind direction.

Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change. *(3.3.3.A)*

- **Obtain and combine information to describe climates in different regions of the world.**

Clarifying Statement: N/A

Assessment Boundary: N/A *(3.3.3.B)*

- **Make a claim supported by evidence about the merit of a design solution that reduces the impacts of a weather-related hazard.**

Clarifying Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs, and lightning rods.

Assessment Boundary: N/A *(3.3.3.C)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand

what forms the water takes as it becomes a cloud. *(K1)*

- How to describe the four different types of clouds by providing "look for" information and their names . *(K2)*
- How weather patterns can be used to make predictions about future weather and climate. They will explore different regions and their climate . *(K3)*
- The impact that wind has on weather and the different types of storms that may result from the wind patterns. *(K4)*
- The characteristics of fiction and nonfiction texts, including their purposes, features, and how to tell them apart. *(K5)*

forms a cloud and What forms the water takes as it becomes a cloud. *(S1)*

- I can describe what to look for in the four different types of clouds . *(S2)*
- I can explain how weather patterns can be used to make predictions about future weather and climate. *(S3)*
- I can explain how wind impacts weather and the different types of storms . *(S4)*
- I can identify a text's structure by how it is organized. *(S5)*

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other perspectives, viewpoints, and cultures. *(PCVL.CM)*	

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Forceful Stories: Adventures in Motion

Draft Date	Course	Duration	Grades	Subjects	Team
02-06-2026	(Draft) Grade 3 English Language Arts, Grade 3 Science	19 Day(s)	3	English Language Arts	Heather Yarnell, Sarah Wertz, Gina Georgallis, Jill Koser, Reylek Nicole, Susan Brunk

Focus

Just like in storm stories where powerful forces are at play, we'll explore the forces all around us in the unit "Forceful Stories: Adventures in Motion" by investigating balanced and unbalanced forces, how bridges work with pushes and pulls, and the effects of gravity and friction on moving objects, while also discovering the power of magnets and designing solutions to everyday problems!

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 3

- Determine the main idea of a text; recount the key details and explain how they support the main idea. *(CC.1.2.3.A)*
- Ask and answer questions about the text and make inferences from text; refer to text to support responses. *(CC.1.2.3.B)*
- **Explain how a series of events, concepts, or steps in a procedure is connected within a text, using language that pertains to time, sequence, and cause/effect.** *(CC.1.2.3.C)*
- Determine the meaning of words and phrases as they are used in grade level

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Interactions of objects or systems of objects can be predicted and explained using the concept of transfer of energy from one object or system of objects to another. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can one predict an object's continued motion, changes in motion, or stability? *(Q1)*
- What underlying forces explain the variety of interactions observed? *(Q2)*
- What is this author trying to tell me based on the evidence used? *(Q3)*

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text, distinguishing literal from non-literal meaning as well as shades of meaning among related words. *(CC.1.2.3.F)*

- Use information gained from text features to demonstrate understanding of a text. *(CC.1.2.3.G)*
- **Describe how an author connects sentences and paragraphs in a text to support particular points.** *(CC.1.2.3.H)*
- Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships. *(CC.1.2.3.J)*
- Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on grade level reading and content; choosing flexibly from a range of strategies and tools. *(CC.1.2.3.K)*
- **Write informative/ explanatory texts to examine a topic and convey ideas and information clearly.** *(CC.1.4.3.A)*
- Identify and introduce the topic. *(CC.1.4.3.B)*
- Develop the topic with facts, definitions, details, and illustrations, as appropriate. *(CC.1.4.3.C)*
- Create an organizational structure that includes information grouped and connected logically with a concluding statement or section. *(CC.1.4.3.D)*
- Demonstrate a grade appropriate command of the conventions of standard English grammar and spelling *(CC.1.4.3.F)*
- Determine the main ideas and supporting details of a text read aloud or information presented in diverse media formats,

- Strong inferences are based on specific text details that lead to a broader topic, point, or conclusion. *(U2)*
- Diverse media that features a range of perspectives on a given topic helps individuals to deepen and challenge their thinking. *(U3)*

- How does this text (ex. Illustration, table, a video clip) help me understand the topic? *(Q4)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- How to predict whether an object will continue to move, change its motion, or remain stable by applying know of forces, observing patterns in motion, and conducting simple experiments to test their predictions. *(K1)*
- Different forces like pushing, pulling, and gravity explain why things interact in different ways, such as sticking together, bouncing, or changing direction. *(K2)*
- what causes and effects are and how they are related *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can predict whether an object will keep moving, change its motion, or stay still by using what I know about forces, watching how it moves, and trying different experiments to see what happens. *(S1)*
- I can explain how pushing, pulling, and gravity cause objects to interact in various ways. *(S2)*
- I can identify and explain cause and effect relationships in a text. *(S3)*

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including visually, quantitatively, and orally. *(CC.1.5.3.B)*

Pennsylvania Academic Standards

Science (2023): 3 Standards

- Make and communicate observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

  Clarifying Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl, and two children on a see-saw.

  Assessment Boundary: Assessment does not include technical terms such as period and frequency. *(3.2.3.A)*
- Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

  Clarifying Statement: Examples could include an unbalanced force on one side of a ball can make it start moving; and, balanced forces pushing on a box from both sides will not produce any motion at all.

  Assessment Boundary: Assessment is limited to one variable at a time: number,

size, or direction of forces. Assessment does not include quantitative force size, only qualitative and relative. Assessment is limited to gravity being addressed as a force that pulls objects down. *(3.2.3.B)*

- Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.

  Clarifying Statement: Examples of an electric force could include the force on hair from an electrically charged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets, the force between an electromagnet and steel paper clips, and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause and effect relationships could include how the distance between objects affects strength of the force and how the orientation of magnets affects the direction of the magnetic force.

  Assessment Boundary: Assessment is limited to forces produced by objects that can be manipulated by students, and electrical interactions are limited to static electricity. *(3.2.3.C)*

- Define a simple design problem that can be solved by applying scientific ideas about magnets.

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Clarifying Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.

Assessment Boundary: N/A *(3.2.3.D)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Fossils & Changing Environment: Animals Through Time

Draft Date	Course	Duration	Grades	Subjects	Team
07-15-2024	Grade 3 Science	8 Day(s)	3	Science	Sarah Wertz, Jill Koser, Heather Yarnell, Gina Georgallis, Reylek Nicole, Susan Brunk

Focus

In this unit, students develop an understanding of how animals and their environments have changed through time. Fossils provide a window into the animals and habitats of the past. Analyzing the traits of animals that are alive today and comparing them to fossils, provides evidence of how these ancient organisms and environments of the past may have appeared.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 3 Standards

- Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.

  Clarifying Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.

  Assessment Boundary: Assessment does not include identification of specific fossils

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Some kinds of plants and animals that once lived on Earth are no longer found anywhere. *(U1)*
- Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What evidence shows that different species are related? *(Q1)*

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or present plants and animals. Assessment is limited to major fossil types and relative ages. *(3.1.3.E)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Scientists use clues like how animals look, their DNA, and old bones to see how different animals are related to each other. *(K1)*

Skills

What discrete skills and processes should students be able to use? Students can...

- Explain how scientists use clues such as animal appearances, DNA, and fossils to understand how different animals are related to each other. *(S1)*

Survival Stories: Exploring the Secrets to Survival

Draft Date	Course	Duration	Grades	Subjects	Team
02-06-2026	(Draft) Grade 3 English Language Arts, Grade 3 Science	12 Day(s)	3	English Language Arts	Heather Yarnell, Sarah Wertz, Gina Georgallis, Jill Koser, Reylek Nicole, Susan Brunk

Focus

In this exciting science unit, Survival Stories, students will explore how plants and animals survive in the world around them. We'll learn about traits and how some are inherited from parents while others are learned over time. Students will discover how traits can change, how people sometimes help with these changes, and how living things are better able to survive when their traits match their environment. Get ready to dive into amazing survival stories from nature!

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 3

- Ask and answer questions about the text and make inferences from text; refer to text to support responses. *(CC.1.2.3.B)*
- **Use text features and search tools to locate and interpret information.** *(CC.1.2.3.E)*
- **Use information gained from text features to demonstrate understanding of a text.** *(CC.1.2.3.G)*
- Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How does the way this information is organized help me understand the text? *(Q1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

phrases, including those that signal spatial and temporal relationships. *(CC.1.2.3.J)*
- Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on grade level reading and content; choosing flexibly from a range of strategies and tools. *(CC.1.2.3.K)*
- **Write opinion pieces on familiar topics or texts.** ***(CC.1.4.3.G)***
- Introduce the topic and state an opinion on the topic. *(CC.1.4.3.H)*
- Support an opinion with reasons. *(CC.1.4.3.I)*
- Create an organizational structure that includes reasons linked in a logical order with a concluding statement or section. *(CC.1.4.3.J)*
- Demonstrate a grade appropriate command of the conventions of standard English grammar and spelling *(CC.1.4.3.L)*
- Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade level reading standards for literature and informational texts *(CC.1.4.3.S)*
- Engage effectively in a range of collaborative discussions on grade level topics and texts, building on others' ideas and expressing their own clearly. *(CC.1.5.3.A)*

Pennsylvania Academic Standards

Science (2023): 3 Standards

- Construct an argument that some animals form groups that help members survive.

via genes, and explains why offspring resemble, but are not identical to, their parents. *(U1)*
- Effective writers create organizational structures to support their opinions. *(U2)*
- Engaging in collaborative discussions allows students to learn from each other, deepen their understanding of topics, and gain new perspectives. *(U3)*
- Strong inferences are based on specific text details that lead to a broader topic, point, or conclusion. *(U4)*
- Effective readers identify key details of informational texts to determine main ideas. *(U5)*

- How does this text (ex. Illustration, table, a video clip) help me understand the topic? *(Q2)*
- How do I choose relevant information to include in my writing? How does that help support my claim? *(Q3)*
- How do I learn from others in group discussions? How do I build on others' ideas? How do I share my thoughts clearly? How do I show others I am listening? *(Q4)*
- How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings have different characteristics? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge	Skills
What facts and basic concepts should students know and be able to recall? Students will know... ■ How to use text features to locate information. *(K1)* ■ Animal traits are inherited and have changed over time through both artificial and natural selection. *(K2)* ■ Write a claim, support with evidence, and explain thinking with reasoning. *(K3)*	What discrete skills and processes should students be able to use? Students can... ■ I can use text features to locate important information. *(S1)* ■ I can explain how animal traits are inherited and how they have changed over time through natural and artificial selection. *(S2)* ■ I can write a claim, support it with evidence, and explain my thinking with reasoning. *(S3)*

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Clarifying Statement: N/A

Assessment Boundary: N/A *(3.1.3.B)*

- Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

  Clarifying Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.

  Assessment Boundary: Assessment does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples. *(3.1.3.C)*
- Use evidence to support the explanation that traits can be influenced by the environment.

  Clarifying Statement: Examples of the environment affecting a trait could include normally tall plants grown with insufficient water are stunted; and, a pet dog that is given too much food and little exercise may become overweight.

  Assessment Boundary: N/A *(3.1.3.D)*
- Use evidence to construct an explanation for how the variations in characteristics

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among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

Clarifying Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.

Assessment Boundary: N/A *(3.1.3.F)*

- Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

Clarifying Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.

Assessment Boundary: N/A *(3.1.3.G)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their

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writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*	

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Human Machine

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2025	Grade 4 Science	8 Day(s)	4	Science	Susan Brunk, Patty Cardina, Jill Koser, Amber Lizak, Cassie Rumbaugh, Trent Zook

Focus

In this unit, students investigate structures and functions of the human body. Students explore how our bones and muscles are interconnected, how our eyes interact with light and impact our vision, and how our brain responds to stimuli in our environment.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 4 Standards

- Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

  Clarifying Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.

  Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems. *(3.1.4.A)*
- Use a model to describe that animals receive different types of information

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- All organisms are made of cells and can be characterized by common aspects of their structure and functioning. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do organisms live, grow, respond to their environment, and reproduce? *(Q1)*

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through their senses, process the information in their brain, and respond to the information in different ways.

Clarifying Statement: Emphasis is on systems of information transfer.

Assessment Boundary: Assessment does not include the mechanisms by which the brain stores and recalls information or the mechanisms of how sensory receptors function. *(3.1.4.B)*

- Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.

Clarifying Statement: N/A

Assessment Boundary: Assessment does not include knowledge of specific colors reflected and seen, the cellular mechanisms of vision, or how the retina works. *(3.2.4.F)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Organisms detect and respond to environmental information using specialized structures that help them survive and adapt. *(K1)*
- The structures of organisms are designed to carry out specific functions that support survival, growth, and reproduction. *(K2)*

Skills

What discrete skills and processes should students be able to use? Students can...

- Construct an argument that plants and animals have internal and external structures that help them survive, grow, behave, and reproduce. *(S1)*
- Use a model to show how animals use their senses to receive information, how their brains process it, and how they respond in different ways. *(S2)*

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Waves of Sound: Sound, Waves and Communication

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 4 Science	8 Day(s)	4	Science	Amber Lizak, Jill Koser, Cassie Rumbaugh, Patty Cardina, Trent Zook, Susan Brunk

Focus

In this unit, students investigate the science of sound. Students construct physical devices to feel the vibrations that allow us to communicate across distances. Students also use digital devices to visualize the characteristics of different sound waves that cause us to hear different things.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 4 Standards

- Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.

  Clarifying Statement: Examples of models could include diagrams, analogies, and physical models using wire to illustrate wavelength and amplitude of waves.

  Assessment Boundary: Assessment does not include interference effects, electromagnetic waves, non-periodic

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Waves are regular patterns of motion. *(U1)*
- Waves of the same type can differ in amplitude (height of the wave) and wavelength (distance between wave peaks). *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What are the characteristics, properties and behaviors of sound waves? *(Q1)*
- How are instruments used to transfer and detect sound waves? *(Q2)*

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waves, or quantitative models of amplitude and wavelength. *(3.2.4.E)*

- Generate and compare multiple solutions that use patterns to transfer information.

Clarifying Statement: Examples of solutions could include drums sending coded information through sound waves, using a grid of 1's and 0's representing black and white to send information about a picture, and using Morse code to send text.

Assessment Boundary: N/A *(3.2.4.G)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

- A variety of instruments can be used to transfer and detect waves. *(U3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Sounds waves are vibrations that travel through air, water and other materials. *(K1)*
- Amplitude (the height of the wave) determines volume. *(K2)*
- Wavelength (the distance between wave peaks) determines pitch. *(K3)*
- Devices allow information to be transferred over long distances. *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can develop a model of waves. *(S1)*
- I can describe patterns of waves in terms of amplitude and wavelength. *(S2)*
- I understand that waves can cause objects to move. *(S3)*
- I can name devices that transfer sound over long distances. *(S4)*
- I can explain how sound is transferred over distances. *(S5)*

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Electricity, Light and Heat

Draft Date	Course	Duration	Grades	Subjects	Team
07-15-2024	Grade 4 Science	7 Day(s)	4	Science	Amber Lizak, Jill Koser, Cassie Rumbaugh, Patty Cardina, Trent Zook, Susan Brunk

Focus

In this unit, students investigate the different forms of energy! Students obtain information about how heat energy, solar energy, wind energy, and water energy can be transformed into electrical energy. They also construct devices that convert energy from one form into another, such as heat into motion and electricity into light.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 4 Standards

- Make and communicate observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.

  Clarifying Statement: N/A

  Assessment Boundary: Assessment does not include quantitative measurements of energy. *(3.2.4.B)*
- Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Interactions of objects or systems of objects can be predicted and explained using the concept of transfer of energy from one object or system of objects to another. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What is meant by conservation of energy? *(Q1)*
- How is energy transferred between objects or systems? *(Q2)*
- How do scientists design, test, and refine a device that converts one form

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Clarifying Statement: Examples of devices could include electric circuits that convert electrical energy into motion energy of a vehicle, light, or sound; and, a passive solar heater that converts light into heat. Examples of constraints could include the materials, cost, or time to design the device.

Assessment Boundary: Devices should be limited to those that convert motion energy to electric energy or use stored energy to cause motion or produce light or sound. *(3.2.4.D)*

- Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Clarifying Statement: Examples of renewable energy resources could include wind energy, water behind dams, and sunlight; non-renewable energy resources are fossil fuels and fissile materials. Examples of environmental effects could include loss of habitat due to dams, loss of habitat due to mining, and air pollution from burning of fossil fuels.

Assessment Boundary: N/A *(3.3.4.D)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking

of energy to another? *(Q3)*
- How does electricity flow? *(Q4)*
- How do earth's surface processes and human activities affect each other? *(Q5)*
- How do humans depend on Earth's resources? *(Q6)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Conservation is the prevention of wasteful use of resources. *(K1)*
- Energy can be transferred between objects or systems through movement, heat, light or sound. *(K2)*
- Devices can be designed to convert energy from one form to another. *(K3)*
- Electricity flows on a path or circuit. *(K4)*
- Humans need natural resources to live well and nature needs humans to help protect it. *(K5)*
- Humans use Earth's resources for various purposes like energy, air, water and food. *(K6)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify ways to conserve reources. *(S1)*
- I can transfer energy between objects. *(S2)*
- I can name devices that convert energy from one form to another. *(S3)*
- I can create a model that converts energy from one form to another. *(S4)*
- I can build or draw a circuit for energy to travel. *(S5)*
- I can describe ways humans use and help protect nature. *(S6)*
- I can identify and list different resources from Earth that humans use, such as water, air, energy, and wind. *(S7)*

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growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*	

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Energy All Around

Draft Date	Course	Duration	Grades	Subjects	Team
02-25-2026	(Draft) Grade 4 English Language Arts, Grade 4 Science	12 Day(s)	4	English Language Arts, Science	Dave Paul, Jill Koser, Amber Lizak, Cassie Rumbaugh, Patty Cardina, Tara Meyer, Daphne Taraborelli, Trent Zook, Souders Vicki, Brittany Haines, Elizabeth LoVerso

Focus

In this science-based interdisciplinary unit, we explore the world of energy. In the first half of the unit, we learn what energy is, the different ways that energy is transferred from place to place, and the ways energy can be converted from one type to another. We will then apply our science learning to read informational texts to summarize main ideas and details. Finally, our 4th grade scientists will engage in the Marble Collision Investigation to create an official lab report of their learning.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 4

- Determine the main idea of a text and explain how it is supported by key details; summarize the text. *(CC.1.2.4.A)*
- **Explain events, procedures, ideas, or concepts in a text, including what happened and why, based on specific information in the text.** *(CC.1.2.4.C)*
- **Write informative/ explanatory texts to examine a topic and convey ideas and information clearly.** *(CC.1.4.4.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Speaking and Listening: Demonstrate interest in and acknowledgement of diverse perspectives by asking probing questions and providing respectful verbal and non-verbal feedback. *(T3)*
- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T4)*

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- **Identify and introduce the topic clearly.** *(CC.1.4.4.B)*
- **Conduct short research projects that build knowledge through investigation of different aspects of a topic.** *(CC.1.4.4.V)*

Pennsylvania Academic Standards

Science (2023): 4 Standards

- Use evidence to construct an explanation relating the speed of an object to the energy of that object.

  Clarifying Statement: N/A

  Assessment Boundary: Assessment does not include quantitative measures of changes in the speed of an object or on any precise or quantitative definition of energy. *(3.2.4.A)*
- Ask questions and predict outcomes about the changes in energy that occur when objects collide.

  Clarifying Statement: Emphasis is on the change in the energy due to the change in speed, not on the forces, as objects interact.

  Assessment Boundary: Assessment does not include quantitative measurements of energy. *(3.2.4.C)*
- Apply scientific ideas to design, test, and refine a device that converts energy from

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Effective readers identify key details of informational texts to determine the main ideas (U1). *(U1)*
- All forces between objects arise from a few types of interactions: gravity, electromagnetism, and the strong and weak nuclear interactions. *(U2)*
- Interactions of objects or systems of objects can be predicted and explained using the concept of transfer of energy from one object or system of objects to another. *(U3)*
- Effective writers make deliberate and strategic choices when considering purpose and audience to convey information clearly about a topic. *(U4)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What details help me figure out the central idea? *(Q1)*
- What is energy? *(Q2)*
- How are forces related to energy? *(Q3)*
- How do scientists design, test, and refine a device that converts one form of energy to another? *(Q4)*
- How does who I am writing for (audience) impact the way I am sharing information about the topic? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Energy is the capacity or power to do work and exists in many forms. *(K1)*
- Energy is present whenever there are moving objects, sound, light, or heat. *(K2)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can define and give examples of energy. *(S1)*
- I can show the more energy something has, the faster it moves. *(S2)*
- I can create a model that converts energy from one form to another. *(S3)*

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one form to another.

Clarifying Statement: Examples of devices could include electric circuits that convert electrical energy into motion energy of a vehicle, light, or sound; and, a passive solar heater that converts light into heat. Examples of constraints could include the materials, cost, or time to design the device.

Assessment Boundary: Devices should be limited to those that convert motion energy to electric energy or use stored energy to cause motion or produce light or sound. *(3.2.4.D)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

- The faster a given object is moving, the more energy it possesses. *(K3)*
- When objects collide, energy can be transferred from one object to another, thereby changing their motion. *(K4)*
- Devices can be designed to convert energy from one form to another. *(K5)*
- Using nonfiction text features helps readers access information from the text. *(K6)*
- Students can explain the steps in a procedure described in a text and discuss why each step is important. *(K7)*

- I can identify text features to learn more about topics in a nonfiction text. *(S4)*
- I can summarize each step in the text and highlight the main actions required. *(S5)*



The Birth of Rocks: Earth's Features and Processes

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 4 Science	10 Day(s)	4	Science	Amber Lizak, Jill Koser, Cassie Rumbaugh, Patty Cardina, Trent Zook, Susan Brunk

Focus

In this unit, students investigate features and processes of the Earth's surface. Students explore the rapid process of volcanic eruptions! In contrast, students also explore the gradual Earth processes of weathering and erosion. Students apply their knowledge and design solutions to mitigate the impacts of these processes on humans.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 4 Standards

- Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.

  Clarifying Statement: Examples of evidence from patterns could include rock layers with marine shell fossils above rock layers with plant fossils and no shells, indicating a change from land to water over time; and, a canyon with different rock layers in the walls and a river in the bottom, indicating that over time a river cut through the rock.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Explain how the natural and designed worlds are interrelated and the application of scientific knowledge and technology can have beneficial, detrimental, or unintended consequences. (Global Citizen, Communicator) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The Earth's surface processes affect and are affected by human activities. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do people reconstruct and date events in Earth's planetary history? *(Q1)*
- How and why is Earth constantly changing? *(Q2)*

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Assessment Boundary: Assessment does not include specific knowledge of the mechanism of rock formation or memorization of specific rock formations and layers. Assessment is limited to relative time. *(3.3.4.A)*

- Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.

Clarifying Statement: Examples of variables to test could include angle of slope in the downhill movement of water, amount of vegetation, speed of wind, relative rate of deposition, cycles of freezing and thawing of water, cycles of heating and cooling, and volume of water flow.

Assessment Boundary: Assessment is limited to a single form of weathering or erosion. *(3.3.4.B)*

- Analyze and interpret data from maps to describe patterns of Earth's features.

Clarifying Statement: Maps can include topographic maps of Earth's land and ocean floor, as well as maps of the locations of mountains, continental boundaries, volcanoes, and earthquakes.

Assessment Boundary: N/A *(3.3.4.C)*

- Why do the continents move, and what causes earthquakes and volcanoes? *(Q3)*
- How do natural hazards affect individuals and societies? *(Q4)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. *(K1)*
- The presence and location of certain fossil types indicate the order in which rock layers were formed. *(K2)*
- Rainfall helps to shape the land and affects the types of living things found in a region. *(K3)*
- Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. *(K4)*
- The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. *(K5)*
- Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. *(K6)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can plot locations of volcanos on a map and find patterns. *(S1)*
- I can explain why volcanos explode. *(S2)*
- I can explain how weathering affects rocks. *(S3)*
- I can explain how environments and landscapes on Earth have changed over time. *(S4)*
- I can use engineering to solve problems caused by natural hazards. *(S5)*

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- Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

  Clarifying Statement: Examples of solutions could include designing an earthquake resistant building and improving monitoring of volcanic activity.

  Assessment Boundary: Assessment is limited to earthquakes, floods, tsunamis, and volcanic eruptions. *(3.3.4.E)*

- Major mountain chains form inside continents or near their edges. *(K7)*
- Maps can help locate the different land and water feature areas of Earth. *(K8)*
- A variety of hazards result from natural processes (e.g., earthquakes, tsunamis, volcanic eruptions). *(K9)*
- Humans cannot eliminate the hazards but can take steps to reduce their impacts. *(K10)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

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Amazing Adaptations

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
02-25-2026	(Draft) Grade 4 English Language Arts, Grade 4 Science	30 Day(s)	4	English Language Arts, Science	Patty Cardina, Jill Koser, Amber Lizak, Cassie Rumbaugh, Trent Zook, Susan Brunk

Focus

In this module, we will discover how plants and animals use adaptations to survive in different ecosystems.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 4

- Determine the main idea of a text and explain how it is supported by key details; summarize the text. *(CC.1.2.4.A)*
- **Explain events, procedures, ideas, or concepts in a text, including what happened and why, based on specific information in the text.** *(CC.1.2.4.C)*
- **Use text structure to interpret information (e.g., chronology, comparison, cause/ effect, problem/ solution).** *(CC.1.2.4.E)*
- Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade level reading standards for literature and informational texts. *(CC.1.4.4.S)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What questions do I have as I read this text? *(Q1)*

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- With guidance and support form peers and adults, develop and strengthen writing as needed by planning, revising, and editing. *(CC.1.4.4.T)*

Pennsylvania Academic Standards

Science (2023): 4 Standards

- Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

  Clarifying Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.

  Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems. *(3.1.4.A)*
- Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

  Clarifying Statement: Emphasis is on systems of information transfer.

  Assessment Boundary: Assessment does not include the mechanisms by which the brain stores and recalls information or the other organisms and the physical environment. *(U1)*
- Effective readers identify key details of informational texts to determine main ideas. *(U2)*
- Authors use a variety of features to help readers identify the organized text structure. *(U3)*
- (3+) Effective writers critically engage with literature or informative texts through analysis, reflection, and research to find evidence to support their ideas. *(U4)*
- Effective writers strengthen their writing through the process of revising and editing. *(U5)*
- Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth. *(U6)*

- How does this text (ex. Illustration, table, a video clip) help me understand the topic? *(Q2)*
- How does the way this information is organized help me understand the text? *(Q3)*
- What details help me find the main idea? What do I need to know to retell/ summarize this text? *(Q4)*
- How do I choose relevant information to include in my writing? How does that help support an analysis of text(s)? *(Q5)*
- How do I play with words and phrases to communicate my ideas more powerfully? *(Q6)*
- How do the structures of organisms enable life's functions? *(Q7)*
- How do organisms detect, process, and use information about the environment? *(Q8)*

Acquisition of Knowledge & Skill

Knowledge	Skills
What facts and basic concepts should students know and be able to recall? Students will know...	What discrete skills and processes should students be able to use? Students can...
■ Animals and plants use specific adaptations to enhance their chances of survival. *(K1)* ■ Nonfiction text features like headings, captions, diagrams, and tables help me find information quickly and understand the text better. *(K2)*	■ I can independently read nonfiction text and identify the main idea and supporting details. *(S1)* ■ I can organize my ideas to get ready for writing. *(S2)* ■ I can revise and edit a piece to include strong words to enhance my writing. I can choose relevant information to support my analysis of a text. *(S3)*

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mechanisms of how sensory receptors function. *(3.1.4.B)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

- The main idea is the most important point of a text, and supporting details are the facts, examples, or information that explain or back up the main idea. *(K3)*
- Authors of nonfiction text intentionally utilize specific words and phrases to capture their readers' attention. *(K4)*
- Organisms have structures that help them live and respond to their environment. *(K5)*

- I can explain how authors use words and phrases to capture a reader's attention in nonfiction text. *(S4)*
- I can explain how animals and plants use adaptations to survive in their environment. *(S5)*
- I can recognize and explain how authors use nonfiction text features. *(S6)*
- I can take a stance on nonfiction text by connecting my own ideas using evidence from the text to support my thinking. *(S7)*
- I can describe how the parts of an organism help it survive, grow, and stay healthy. *(S8)*
- I can explain how organisms use their senses and brain to gather and respond to information around them. *(S9)*

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Earth and Space Patterns: Spaceship Earth

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 5 Science	2 Week(s)	5	Science	Susan Brunk, Jill Koser, Hannah Leicht, Souders Vicki

Focus

In this unit, students explore patterns of the Earth, Sun, Moon, and stars. They investigate how shadows change throughout the day, how the Sun's position changes throughout the year, and how stars change throughout the seasons. They also create Earth, Sun, and Moon models to explore Moon patterns. Students explore our solar system! They investigate how bright the Sun appears from each planet in our solar system in addition to stars of other solar systems in galaxies far away. They also investigate gravity on Earth and gravity on other planets to discover patterns of this incredible force.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 5 Standards

- Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

  Clarifying Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What are the predictable patterns caused by Earth's movement in the solar system? *(Q1)*

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Assessment Boundary: Assessment does not include causes of seasons. *(3.3.5.B)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. *(U1)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Students will understand the predictable patterns caused by Earth's movement in the solar system, including phenomena such as day and night, seasons, and why the Sun and stars seem to move across the sky. *(K1)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify and explain the predictable patterns caused by Earth's movement in the solar system. *(S1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/



Stars and Planets

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
07-22-2024	Grade 5 Science	1 Week(s)	5	Science	Susan Brunk, Jill Koser, Hannah Leicht, Souders Vicki

Focus

In this unit, students explore our solar system! They investigate how bright the Sun appears from each planet in our solar system in addition to stars of other solar systems in galaxies far away. They also investigate gravity on Earth and gravity on other planets to discover patterns of this incredible force.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 5 Standards

- Support an argument that the gravitational force exerted by Earth on objects is directed down.

  Clarifying Statement: "Down" is a local description of the direction that points toward the center of the spherical Earth.

  Assessment Boundary: Assessment does not include mathematical representation of gravitational force. *(3.2.5.F)*
- Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The universe is composed of a variety of different objects, which are organized into systems, each of which develops according to accepted physical processes and laws. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What is the universe, and what is Earth's place in it? *(Q1)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Clarifying Statement: N/A

Assessment Boundary: Assessment is limited to relative distances, not sizes, of stars. Assessment does not include other factors that affect apparent brightness (such as stellar masses, age, stage). *(3.3.5.A)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- We can infer information about stars and planets based on observations we make from Earth. *(K1)*
- All forces between objects, regardless of size or direction, arise from only a few types of interactions. *(K2)*

Skills

What discrete skills and processes should students be able to use? Students can...

- Support an argument that the apparent brightness of the Sun is dependent upon an observer's distance from the Sun *(S1)*
- Support an argument that gravity exists on all planets and moons, but the amount of gravity is different because it depends on how massive the object is *(S2)*

Watery Planet

Draft Date	Course	Duration	Grades	Subjects	Team
02-09-2026	(Draft) Grade 5 English Language Arts, Grade 5 Science	5 Week(s)	5	English Language Arts	Jill Koser, SYSTEM USER, Kelly Galbraith, Lind Raymond

Focus

Interdisciplinary Science Unit: In this unit, students consider the profound importance of water as a natural resource. Students investigate the distribution of water, how it cycles through Earth's systems, and explore how it affects human societies. In addition, students will create an infographic detailing a strategy that could be used to conserve water in their community or context. Finally, students will extend their learning by applying their knowledge of science principles to novels and grade level texts.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 5

- **Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a text based on specific information in the text.** *(CC.1.2.5.C)*
- Determine a theme of a text from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text. *(CC.1.3.5.A)*
- Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent. *(CC.1.3.5.D)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Read to gain knowledge, build critical thinking skills, and spark curiosity and interest. *(T1)*
- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T2)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T3)*
- Speaking and Listening: Effectively utilize appropriate speaking techniques (volume, inflection, pace, etc.) and vocabulary in a variety of settings to clearly communicate ideas and information. *(T4)*
- Science: Explain how the natural and designed worlds are interrelated and the application of scientific knowledge and technology can have beneficial, detrimental, or unintended consequences. (Global Citizen, Communicator) *(T5)*

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- **Explain how a series of chapters, scenes or stanzas fits together to provide the overall structure of a particular story, drama, or poem.** *(CC.1.3.5.E)*
- **Write informative/ explanatory texts to examine a topic and convey ideas and information clearly.** *(CC.1.4.5.A)*
- Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic; include illustrations and multimedia when useful to aiding comprehension. *(CC.1.4.5.C)*
- Group related information logically linking ideas within and across categories of information using words, phrases, and clauses; provide a concluding statement or section; include formatting when useful to aiding comprehension. *(CC.1.4.5.D)*
- Include multimedia components and visual displays in presentations when appropriate to enhance the development of main ideas or themes. *(CC.1.5.5.F)*

Pennsylvania Academic Standards

Science (2023): 5 Standards

- Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

  Clarifying Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate;

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- **Strong inferences are based on specific text details that lead to a broader topic, point, or conclusion. (RI and RL)** *(U1)*
- Readers notice how elements of a story impact and influence other elements to enhance their understanding of the text. (RL) *(U2)*
- The perspective of the narrator impacts how the reader interprets the plot and meaning of the text. (RL) *(U3)*
- Effective writers choose organizational structures and transitions to logically connect ideas and information. (Info Writing) *(U4)*
- **The Earth's surface processes affect and are affected by human activities. (Science)** *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do the details help me find the theme or lesson (Literature) and main idea (Info Text)? *(Q1)*
- How do the elements of a story work together to help me understand the big picture? (RL) *(Q2)*
- How do I know who is telling the story? (RL) *(Q3)*
- How do I use organizational structure to connect my ideas and information logically? (W) *(Q4)*
- Science: How can we solve problems in the environment? *(Q5)*
- Science: How much water is on Earth, and how is it distributed between saltwater and freshwater? *(Q6)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Using specific evidence from the text helps to explain what the text is about. (RI) *(K1)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can use information and details from the text to explain important relationships/interactions. (RI) *(S1)*

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the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.

Assessment Boundary: Assessment is limited to the interactions of two systems at a time. *(3.3.5.C)*

- Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

Clarifying Statement: N/A

Assessment Boundary: Assessment is limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere. *(3.3.5.D)*

- Generate and design possible solutions to a current environmental issue, threat, or concern.

Clarifying Statement: This could include but is not limited to topics such as biodiversity, watersheds, invasive species, natural resources, etc.

Assessment Boundary: N/A *(3.3.5.F)*

- The narrator's point of view influences how events are described. (RL) *(K2)*
- Use facts, examples, and details to support what they are writing about. (W) *(K3)*
- Gather information about a topic from various resources and make decisions about what is best to include in their writing. (W-Content) *(K4)*
- Use headings, subheadings, and other text features to organize their writing so it is easy to follow. (W-Organization) *(K5)*
- Science: Students will know that water is distributed on the earth in different ways. *(K6)*
- Science: Students will know about current issues, threats or concerns in the environment. *(K7)*

- I can describe the narrator's point of view and how their purpose is conveyed in the text. (RL) *(S2)*
- I can organize my writing to share important ideas and facts clearly. (W-Info) *(S3)*
- I can use percentages and data to graph water on earth. (Science) *(S4)*
- I can create and design solutions to the environmental issues using the design process. (Science) *(S5)*

Profile of a CV Learner

- **Global Citizenship: Students will be able to mindfully and respectfully seek to**

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understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*	

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Chemical Magic

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
07-15-2024	Grade 5 Science	2 Week(s)	5	Science	Susan Brunk, Jill Koser, Hannah Leicht, Souders Vicki

Focus

In this unit, students investigate the properties of matter by dissolving everyday chemicals to make solutions and by exploring simple yet surprising chemical reactions. Through these investigations, students begin to build conceptual models for the particulate nature of matter.In this unit, students investigate the properties of matter by dissolving everyday chemicals to make solutions and by exploring simple yet surprising chemical reactions. Through these investigations, students begin to build conceptual models for the particulate nature of matter.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 2 Standards

- Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.

  Clarifying Statement: Examples of pieces could include blocks, building bricks, or other assorted small objects.

  Assessment Boundary: N/A *(3.2.2.C)*

Science (2023): 5 Standards

- Develop a model to describe that matter is made of particles too small to be seen.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Communicate Mathematically: Communicate effectively in a variety of ways based on purpose, task, and audience, using appropriate vocabulary. (Communicator) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do particles combine to form the variety of matter one observes? (Science) *(Q1)*
- How do substances combine or change (react) to make new substances? (Science) *(Q2)*

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Clarifying Statement: Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water.

Assessment Boundary: Assessment does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles. *(3.2.5.A)*

- Make and communicate observations and measurements to identify materials based on their properties.

Clarifying Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.

Assessment Boundary: Assessment does not include density or distinguishing mass and weight. *(3.2.5.B)*

- Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.

Clarifying Statement: Examples of reactions or changes could include phase

space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects. *(U1)*

- Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic- scale mechanism of evaporation and condensation.) *(U2)*
- Measurements of a variety of properties can be used to identify materials. *(U3)*
- The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. *(U4)*
- No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) *(U5)*
- When two or more different substances are mixed, a new substance with different properties may be formed. *(U6)*
- The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. *(U7)*
- No matter what reaction or change in properties occurs, the total weight of the substances does not change.

- How can we describe and understand chemical reactions and predict what will happen? (Science) *(Q3)*

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changes, dissolving, and mixing that form new substances.

Assessment Boundary: Assessment does not include distinguishing mass and weight. *(3.2.5.D)*

- Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Clarifying Statement: N/A

Assessment Boundary: N/A *(3.2.5.E)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

(Boundary: Mass and weight are not distinguished at this grade level.) *(U8)*

- When two or more different substances are mixed, a new substance with different properties may be formed. *(U9)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Matter is made of particles too small to be seen. *(K1)*
- In a chemical reaction, the atoms in the starting substances (reactants) rearrange to form new substances (products). *(K2)*
- In a chemical reaction, the total amount of matter stays the same. (conservation of matter) *(K3)*
- Common signs of a chemical reaction include fizzing or bubbling, a change in color, a change in temperature, and the formation of a solid or gas. These signs help us know that a chemical reaction is taking place. *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can create a model to show that matter is made up of particles too small to be seen. *(S1)*
- I can investigate how two substances can combine to create a new one without changing the amount of matter. *(S2)*
- I can describe the change in properties during a chemical reaction and how that helps me understand what is taking place. *(S3)*

Web of Life

Draft Date	Course	Duration	Grades	Subjects	Team
02-09-2026	(Draft) Grade 5 English Language Arts, Grade 5 Science	4 Week(s)	5	English Language Arts	Jill Koser, SYSTEM USER, Kelly Galbraith, Lind Raymond

Focus

Interdisciplinary Science Unit: In this unit, students explore how organisms depend on one another and form an interconnected ecosystem. Students investigate food chains, food webs, and the importance of producers, consumers, and decomposers. Students will analyze how pollution impacts the ecosystems through informational text analysis. Students then explore a variety of solutions for reducing plastic waste and reducing the amount of plastic that ends up in the ocean.

In this informational text unit, students will be challenged to explain the relationship between two or more scientific ideas, noticing how authors use description, sequence, or cause- and-effect paragraph structure to help readers notice and explain the connections between events. Students will also analyze how authors use a variety of reasons and evidence to support their points, depending on their purpose for writing the text. Throughout the unit, students learn how to prepare for class discussions, determining which evidence best supports a particular idea and how to elaborate on that evidence.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

English Language Arts (2014): 5

- **Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a text based on specific information in the text.** *(CC.1.2.5.C)*
- Use text structure, in and among texts, to interpret information (e.g., chronology,

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Reading Informational Text / Reading Literature: Explore text and other media to seek understanding of multiple perspectives and cultures. *(T1)*
- Writing: Communicate information and ideas clearly to address task, purpose, and intended audience. *(T2)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T3)*

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comparison, cause/effect, problem/solution). *(CC.1.2.5.E)*
- Determine how an author supports particular points in a text through reasons and evidence. *(CC.1.2.5.H)*
- Integrate information from several texts on the same topic to demonstrate understanding of that topic. *(CC.1.2.5.I)*
- Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade level reading and content, choosing flexibly from a range of strategies and tools. *(CC.1.2.5.K)*
- **Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade level reading standards for literature and informational texts.** *(CC.1.4.5.S)*

Pennsylvania Academic Standards

Science (2023): 5 Standards

- Support an argument that plants get the materials they need for growth chiefly from air and water.

  Clarifying Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.

  Assessment Boundary: N/A *(3.1.5.A)*
- Develop a model to describe the movement of matter among plants, animals, decomposers, and the

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Authors use a variety of features to help readers identify the organized text structure. *(U1)*
- **Effective readers identify key details of informational texts to determine main ideas. (RI)** *(U2)*
- Strategic readers investigate how multiple authors and texts on a specific topic are situated in a particular place and time. These choices affect the way their work is understood. (RI) *(U3)*
- Readers use strategies to determine and clarify unknown words in grade level content to develop their ability to independently and effectively handle unfamiliar words encountered in the content they are reading. (RI-Vocab) *(U4)*
- **Effective writers critically engage with literature or informative texts through analysis, reflection, and research to find evidence to support their ideas. (TDA)** *(U5)*
- Plants acquire their material for growth chiefly from air and water. (Life Science) *(U6)*
- Matter that is not food (air, water, decomposed materials in soil) is

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- **How does the author use evidence to explain ideas? (RI)** *(Q1)*
- How does the way this information is organized help me understand the text? *(Q2)*
- How is this text similar and different from other texts? (RI) *(Q3)*
- What should I do when I read a word that I don't know? (RI-Vocab) *(Q4)*
- **How do I choose relevant information to include in my writing? How does that help support an analysis of text(s)? (TDA)** *(Q5)*
- How do organisms detect, process, and use information about the environment? (Life Science) *(Q6)*
- How do organisms interact with the living and nonliving environments to obtain matter and energy? (Life Science) *(Q7)*

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environment.

Clarifying Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.

Assessment Boundary: Assessment does not include molecular explanations. *(3.1.5.B)*

- Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

Clarifying Statement: Examples of models could include diagrams, and flow charts.

Assessment Boundary: N/A *(3.2.5.G)*

- Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Clarifying Statement: N/A

Assessment Boundary: N/A *(3.3.5.E)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a

changed by plants into matter that is food. (Life Science) *(U7)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- **Key ideas and details in the text help me understand what I am reading by making connections between concepts. (RI)** *(K1)*
- Students can use text structure of a paragraph to notice the connection between the type of details within a paragraph. *(K2)*
- Connections within, between, and among texts help me understand the main ideas. (RI) *(K3)*
- There are specific strategies to use when coming across a science word that is unfamiliar. (RI-Vocab) *(K4)*
- **Students comprehend the texts they read and analyze the author's use of elements and structure to communicate their understanding in an well-written essay. (TDA)**
    1. Reading Comprehension
    2. Analysis of an author's use of literary devices (elements), text structure, or other choices made by the author
    3. Well-written essay to communicate this understanding

(K5)

Skills

What discrete skills and processes should students be able to use? Students can...

- **I can explain the relationships between two ideas or concepts in a science text based on specific details in the text. (RI)** *(S1)*
- I can identify and use the text structure to help me identify key ideas and details in Informational Texts. *(S2)*
- I can put together (integrate) information from several texts to show I understand the science topic. (RI) *(S3)*
- I can use context, morphology, or other strategies to figure out the meaning of new science vocabulary words. (RI-Vocab) *(S4)*
- **I can use what I know about informational texts and structures to analyze and present my ideas. (TDA)** *(S5)*
- I can describe where plant matter comes from. *(S6)*
- I can explain how matter moves within different types of ecosystems. *(S7)*

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willingness to accept constructive feedback. *(PCVL.IPS)*	■ Plant matter comes mostly from air and water, not from the soil *(K6)* ■ Matter moves among plants, animals, decomposers, and the environment. *(K7)*	

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Structure, States, and Properties of Matter

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 6 Science	7 Week(s)	6	Science	Tom Richard, Allison Zmuda, Marinkov Monica, Bo Miller, Mark Klucharich

Focus

We introduce a study of chemistry by looking at atomic structure and arrangement.

We analyze the reactivity and stability of molecules and substances as well as determining characteristics of acids and bases.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Develop models to describe the atomic composition of simple molecules and extended structures.

  Clarifying Statement: Emphasis is on developing models of molecules that vary in complexity. Examples of simple molecules could include ammonia and methanol. Examples of extended structures could include sodium chloride or diamonds. Examples of molecular-level models could include drawings, 3D ball and stick structures, or computer representations showing different molecules with different types of atoms.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do particles combine to form a variety of matter one observes? *(Q1)*
- How do particles combine to form the variety of matter one observes? *(Q2)*
- How do substances combine or change (react) to make new substances? *(Q3)*

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Assessment Boundary: Assessment does not include valence electrons and bonding energy, discussing the ionic nature of subunits of complex structures, or a complete description of all individual atoms in a complex molecule or extended structure is not required. *(3.2.6-8.A)*

- Develop a model that predicts and describes changes in the particle motion, temperature, and state of a pure substance when thermal energy is added or removed.

Clarifying Statement: Emphasis is on qualitative molecular-level models of solids, liquids, and gases to show that adding or removing thermal energy increases or decreases kinetic energy of the particles until a change of state occurs. Examples of models could include drawing and diagrams. Examples of particles could include molecules or inert atoms. Examples of pure substances could include water, carbon dioxide, and helium.

Assessment Boundary: N/A *(3.2.6-8.B)*

- Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

Clarifying Statement: Examples of reactions could include burning sugar or steel wool, fat reacting with sodium hydroxide, and mixing zinc with hydrogen chloride.

- How does one characterize and explain these reactions and make predictions about them? *(Q4)*
- How do substances combine or change (react) to make new substances? *(Q5)*
- How does one characterize and explain these reactions and make predictions about them? *(Q6)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Atoms can be visualized as building blocks. *(K1)*
- Protons, electrons, and neutrons are found within atoms. *(K2)*
- Protons determine the atomic number. *(K3)*
- We can calculate the atomic mass based on protons and neutrons. *(K4)*
- Molecules are two or more atoms bonded together. *(K5)*
- Elements are pure substances made of one type of atom. *(K6)*
- Matter can have different characteristics when found in various states (solids, liquids, gases). *(K7)*
- Physical changes do not result in new matter. *(K8)*
- Chemical changes result in new matter. *(K9)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can write chemical formulas based on simple models. *(S1)*
- I can draw/build molecules based on simple chemical formulas. *(S2)*
- I can identify types of changes (physical/chemical). *(S3)*

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Assessment Boundary: Assessment is limited to analysis of the following properties: density, melting point, boiling point, solubility, flammability, and odor. *(3.2.6-8.D)*

- Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.

Clarifying Statement: Emphasis is on law of conservation of matter and on physical models or drawings, including digital forms, that represent atoms.

Assessment Boundary: Assessment does not include the use of atomic masses, balancing symbolic equations, or intermolecular forces. *(3.2.6-8.E)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*



Properties and Effects of Forces and Motion

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 6 Science	10 Week(s)	6	Science	Tom Richard, Allison Zmuda, Marinkov Monica, Bo Miller, Mark Klucharich

Focus

We look at specific forces and force characteristics including inertia, gravitational force, and velocity, and where we can observe these concepts in the world around us.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.

  Clarifying Statement: Examples of practical problems could include the impact of collisions between two cars, between a car and stationary objects, and between a meteor and a space vehicle.

  Assessment Boundary: Assessment is limited to vertical or horizontal interactions in one dimension. *(3.2.6-8.G)*
- Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- All forces between objects arise from a few types of interactions: gravity, electromagnetism, and the strong and weak nuclear interactions. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can one predict an object's continued motion, changes in motion, or stability? *(Q1)*
- What underlying forces explain the variety of interactions observed? *(Q2)*
- What are kinetic and potential energy? *(Q3)*
- What is meant by the conservation of energy? *(Q4)*

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object and the mass of the object.

Clarifying Statement: Emphasis is on balanced (Newton's First Law) and unbalanced forces in a system, qualitative comparisons of forces, mass and changes in motion (Newton's Second Law), frame of reference, and specification of units.

Assessment Boundary: Assessment is limited to forces and changes in motion in one-dimension in an inertial reference frame and to change in one variable at a time. Assessment does not include the use of trigonometry. *(3.2.6-8.H)*

- Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.

Clarifying Statement: Examples of devices that use electric and magnetic forces could include electromagnets, electric motors, or generators. Examples of data could include the effect of the number of turns of wire on the strength of an electromagnet, or the effect of increasing the number or strength of magnets on the speed of an electric motor.

Assessment Boundary: Assessment about questions that require quantitative answers is limited to proportional reasoning and algebraic thinking. *(3.2.6-8.I)*

- Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and

- How is energy transferred between objects or systems? *(Q5)*
- How are forces related to energy? *(Q6)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- An object at rest may have potential energy. *(K1)*
- Objects in motion have kinetic energy. *(K2)*
- The changing ratio of potential to kinetic energy as an object moves *(K3)*
- Balanced and unbalanced forces contribute to the motion and/or stability/instability of an object. *(K4)*
- Magnetic forces, electromagnetic forces, and gravitational forces *(K5)*
- Energy can neither be created nor destroyed. *(K6)*
- The relationship between mass and kinetic energy *(K7)*
- The effects of colliding masses *(K8)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can demonstrate the transition between kinetic and potential energy based on position. *(S1)*
- I can create can explain demonstrations of Newton's Third Law of Motion. *(S2)*
- I can demonstrate the difference between balanced and unbalanced forces. *(S3)*
- I can use magnets (and/or electromagnets) to solve problems or perform tasks. *(S4)*

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depend on the masses of interacting objects.

Clarifying Statement: Examples of evidence for arguments could include data generated from simulations or digital tools; and charts displaying mass, strength of interaction, distance from the Sun, and orbital periods of objects within the solar system.

Assessment Boundary: Assessment does not include Newton's Law of Gravitation or Kepler's Laws. *(3.2.6-8.J)*

- Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.

Clarifying Statement: Examples of this phenomenon could include the interactions of magnets, electrically-charged strips of tape, and electrically-charged pith balls. Examples of investigations could include first-hand experiences or simulations.

Assessment Boundary: Assessment is limited to electric and magnetic fields, and limited to qualitative evidence for the existence of fields. *(3.2.6-8.K)*

- Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass and speed of an object.

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Clarifying Statement: Emphasis is on descriptive relationships between kinetic energy and mass separately from kinetic energy and speed. Examples could include riding a bicycle at different speeds, rolling different sizes of rocks downhill, and getting hit by a wiffle ball versus a tennis ball.

Assessment Boundary: N/A *(3.2.6-8.L)*

- Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.

Clarifying Statement: Examples of experiments could include comparing final water temperatures after different masses of ice melted in the same volume of water with the same initial temperature, the temperature change of samples of different materials with the same mass as they cool or heat in the environment, or the same material with different masses when a specific amount of energy is added.

Assessment Boundary: Assessment does not include calculating the total amount of thermal energy transferred. *(3.2.6-8.N)*

- Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

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Clarifying Statement: Examples of empirical evidence used in arguments could include an inventory or other representation of the energy before and after the transfer in the form of temperature changes or motion of object.

Assessment Boundary: Assessment does not include calculations of energy. *(3.2.6-8.O)*

- Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.

Clarifying Statement: Emphasis is on relative amounts of potential energy, not on calculations of potential energy. Examples of objects within systems interacting at varying distances could include: the Earth and either a roller coaster cart at varying positions on a hill or objects at varying heights on shelves, changing the direction/orientation of a magnet, and a balloon with static electrical charge being brought closer to a classmate's hair. Examples of models could include representations, diagrams, pictures, and written descriptions of systems.

Assessment Boundary: Assessment is limited to two objects and electric, magnetic, and gravitational interactions. *(3.2.6-8.P)*

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Profile of a CV Learner	
■ Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*	

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Energy Transfer

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 6 Science	6 Week(s)	6	Science	Tom Richard, Allison Zmuda, Marinkov Monica, Bo Miller, Mark Klucharich

Focus

We examine thermal energy, electricity, and electrical circuits and the transfer of energy.

We discover how light and other waves behave.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.

  Clarifying Statement: Emphasis is on the design, controlling the transfer of energy to the environment, and modification of a device using factors such as type and concentration of a substance. Examples of designs could involve chemical reactions such as dissolving ammonium chloride or calcium chloride.

  Assessment Boundary: Assessment is

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Interactions of objects or systems of objects can be predicted and explained using the concept of transfer of energy from one object or system of objects to another. *(U1)*
- Waves are a repeating pattern of motion that transfers energy from

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What is light? How can one explain the varied effects that involve light? What other forms of electromagnetic radiation are there? *(Q1)*
- How are instruments that transmit and detect waves used to extend human senses? *(Q2)*

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limited to the criteria of amount, time, and temperature of substance in testing the device. *(3.2.6-8.F)*

- Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.

  Clarifying Statement: Examples of devices that use electric and magnetic forces could include electromagnets, electric motors, or generators. Examples of data could include the effect of the number of turns of wire on the strength of an electromagnet, or the effect of increasing the number or strength of magnets on the speed of an electric motor.

  Assessment Boundary: Assessment about questions that require quantitative answers is limited to proportional reasoning and algebraic thinking. *(3.2.6-8.I)*
- Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.

  Clarifying Statement: Examples of devices could include an insulated box, a solar cooker, and a Styrofoam cup.

  Assessment Boundary: Assessment does not include calculating the total amount of thermal energy transferred. *(3.2.6-8.M)*
- Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is

place to place without overall displacement of matter. *(U2)*

Acquisition of Knowledge & Skill

Knowledge	Skills
What facts and basic concepts should students know and be able to recall? Students will know... ■ Energy can be transferred from one object or place to another. *(K1)* ■ Energy can be transferred through matter or space in repeating movements known as waves. *(K2)* ■ Waves with greater energy will have higher amplitude than waves with less energy. *(K3)*	What discrete skills and processes should students be able to use? Students can... ■ I can create and label diagrams of waves with high energy and low energy. *(S1)* ■ I can demonstrate amplitude using a rope/string. *(S2)* ■ I can demonstrate and draw a representation of how a light can be reflected. *(S3)* ■ I can demonstrate how light travels at different speeds as it passes through different materials. *(S4)*

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related to the energy in a wave.

Clarifying Statement: Emphasis is on describing waves with both qualitative and quantitative thinking.

Assessment Boundary: Assessment does not include electromagnetic waves and is limited to standard repeating waves. *(3.2.6-8.Q)*

- Develop and use a model to describe how waves are reflected, absorbed, or transmitted through various materials.

Clarifying Statement: Emphasis is on both light and mechanical waves. Examples of models could include drawings, simulations, and written descriptions.

Assessment Boundary: Assessment is limited to qualitative applications pertaining to light and mechanical waves. *(3.2.6-8.R)*

- Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.

Clarifying Statement: Emphasis is on a basic understanding that waves can be used for communication purposes. Examples could include using fiber optic cable to transmit light pulses, radio wave pulses in wifi devices, and conversion of stored binary patterns to make sound or

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text on a computer screen.

Assessment Boundary: Assessment does not include binary counting. Assessment does not include the specific mechanism of any given device. *(3.2.6-8.S)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

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Resource Sustainability

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 6 Science	7 Week(s)	6	Science	Tom Richard, Allison Zmuda, Marinkov Monica, Bo Miller, Mark Klucharich

Focus

We look at the impact of the way we use natural resources and our environment on the ability to produce food and energy in a sustained way.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Gather and make sense of information to describe how synthetic materials come from natural resources and impact society.

  Clarifying Statement: Emphasis is on natural resources that undergo a chemical process to form the synthetic material. Examples of new materials could include new medicine, foods, and alternative fuels.

  Assessment Boundary: Assessment is limited to qualitative information. *(3.2.6-8.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The Earth's surface processes affect and are affected by human activities. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do regional and local conditions impact the environment? *(Q1)*
- How do food systems function? *(Q2)*

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Environmental Literacy & Sustainability (2023): 6-8 Environmental Literacy & Sustainability

- Develop a model to describe how agricultural and food systems function, including the sustainable use of natural resources and the production, processing, and management of food, fiber, and energy. *(3.4.6-8.A)*
- Construct an explanation that describes regional environmental conditions and their implications on environmental justice and social equity. *(3.4.6-8.I)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Not everyone has access to natural resources (clean air, water, soil). *(K1)*
- There is a need to preserve and use resources responsibly. *(K2)*
- Modern farming practices allow food production to be much more efficient and sustainable surpassing traditional farming methods. *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain how agricultural and food systems function. *(S1)*
- I can explain the sustainable use of natural resources in the production of food, fiber and energy. *(S2)*
- I can explain how regional location and climate directly affect resource availability. *(S3)*
- I can care for vegetables growing in hydroponic gardens and the fish that are part of the same system. *(S4)*



U1 - Characteristics of Life and Cells

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 7 Science	46 Day(s)	7	Science	Kerry Risser, Allison Zmuda, Ramon Rivera, Alexis Harmon, Wesley Maloney

Focus

Did you ever wonder how trees, dogs, and even tiny bacteria are all alive? Get ready for an electrifying journey in class where we will unravel the mystery of what makes something truly alive! We will dive into the fascinating world of cells, using thrilling tools like microscopes to explore the building blocks of life up close and personal.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Conduct an investigation to provide evidence that living things are made of cells, either one cell or many different numbers and types of cells.

  Clarifying Statement: Emphasis is on developing evidence that living things are made of cells, distinguishing between living and non-living things, and understanding that living things may be made of one cell or many and varied cells.

  Assessment Boundary: N/A *(3.1.6-8.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T2)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- All organisms are made of cells and can be characterized by common aspects of their structure and functioning. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do the structures of organisms enable life's functions? *(Q1)*

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- Develop and use a model to describe the function of a cell as a whole and the ways that parts of cells contribute to the function.

  Clarifying Statement: Emphasis is on the cell functioning as a whole system and the primary role of identified parts of the cell, specifically the nucleus, chloroplasts, mitochondria, cell membrane, and cell wall.

  Assessment Boundary: Assessment of organelle structure/function relationships is limited to the cell wall and cell membrane. Assessment of the function of the other organelles is limited to their relationship to the whole cell. Assessment does not include the biochemical function of cells or cell parts. *(3.1.6-8.B)*
- Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

  Clarifying Statement: Emphasis is on the conceptual understanding that cells form tissues and tissues form organs specialized for particular body functions. Examples could include the interaction of subsystems within a system and the normal functioning of those systems.

  Assessment Boundary: Assessment does not include the mechanism of one body system independent of others. Assessment is limited to the circulatory, excretory,

- Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment. *(U2)*

- How do organisms obtain and use the matter and energy they need to live and grow? *(Q2)*
- How do organisms detect, process, and use information about the environment? *(Q3)*
- What is the significance of cellular respiration in providing energy for living organisms? *(Q4)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- All living things are made up of **cells**, which is the smallest unit of life. (A) *(K1)*
- An organism may consist of one single cell (**unicellular**) or many different numbers and types of cells (**multicellular**). (A) *(K2)*
- Within cells, special structures are responsible for particular functions, and the **cell membrane** forms the boundary that controls what enters and leaves the cell. (B) *(K3)*
- Groups of similar cells form **tissues**, such as muscle or nervous tissues. (C) *(K4)*
- Multiple tissues combine to create **organs**, like the heart or liver, each with distinct roles crucial to the body's functioning. (C) *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can establish how the cell structures of organisms enable life's functions. *(S1)*
- I can apply how organisms obtain and use the matter and energy they need to live and grow. *(S2)*
- I can discover how organisms detect, process, and use information about the environment. *(S3)*
- I can explain the importance of cell membranes in maintaining homeostasis. *(S4)*
- I can describe the process of cellular respiration and its role in energy production. *(S5)*

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digestive, respiratory, muscular, and nervous systems. *(3.1.6-8.C)*

- Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

  Clarifying Statement: Emphasis is on tracing movement of matter and flow of energy.

  Assessment Boundary: Assessment does not include the biochemical mechanisms of photosynthesis. *(3.1.6-8.F)*
- Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.

  Clarifying Statement: Emphasis is on describing that molecules are broken apart and put back together and that in this process, energy is released.

  Assessment Boundary: Assessment does not include details of the chemical reactions for photosynthesis or respiration. *(3.1.6-8.G)*
- Gather and synthesize information about how sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

  Clarifying Statement: N/A

- Organs are organized into **organ systems**, such as the circulatory or digestive systems, which coordinate complex processes and activities across the body. (C) *(K6)*
- Integrated organ systems form an **organism**, which is a complete living entity capable of growth, reproduction, and response to the environment. (C) *(K7)*
- Photosynthesis occurs in the **chloroplasts** of **plant cells**, where the pigment chlorophyll captures sunlight. (F) *(K8)*
- **Cellular respiration**, a process where organisms break down glucose to release stored energy, returning carbon dioxide and water to the environment, which are then reused in photosynthesis. (F) *(K9)*
- **Photosynthesis** is the process by which plants make their own food by converting light energy into **chemical energy**, producing glucose and oxygen from carbon dioxide and water. (F & G) *(K10)*
- Within individual organisms, food moves through a series of chemical reactions where is it broken down and rearranged to form new molecules. (G) *(K11)*
- **Cellular respiration** in plants and animals involve chemical reactions with oxygen that release energy. (G) *(K12)*

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Assessment Boundary: Assessment does not include mechanisms for the transmission of this information. *(3.1.6-8.H)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

- Each sensor receptor responds to different inputs (**electromagnetic**, **mechanical**, **chemical**), transmitting them as signals that travel along nerve cells to the brain resulting in immediate behaviors or memories. (H) *(K13)*
- Brain signals are processed and result in immediate behaviors or memories. (H) *(K14)*

U2 - Genetics and Variation

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 7 Science	23 Day(s)	7	Science	Kerry Risser, Allison Zmuda, Ramon Rivera, Alexis Harmon, Wesley Maloney

Focus

How can unlocking the secrets of our genetic code pave the way for curing diseases, enhancing human abilities, and discovering our ancestral past? Genetics is the key to discovering the mysteries of life itself, revealing the intricate blueprint that shapes every living organism and offering groundbreaking insights that have the potential to revolutionize medicine, agriculture, and our understanding of human inheritance and diversity.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

  Clarifying Statement: Examples of local environmental conditions could include availability of food, light, space, and water. Examples of genetic factors could include large breed cattle and species of grass affecting growth of organisms. Examples of evidence could include drought decreasing plant growth, fertilizer increasing plant

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do organisms grow and develop? *(Q1)*

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growth, different varieties of plant seeds growing at different rates in different conditions, and fish growing larger in large ponds than they do in small ponds.

Assessment Boundary: Assessment does not include genetic mechanisms, gene regulation, or biochemical processes. *(3.1.6-8.E)*

- Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

Clarifying Statement: Emphasis is on conceptual understanding that changes in genetic material may result in making different proteins.

Assessment Boundary: Assessment does not include specific changes at the molecular level, mechanisms for protein synthesis, or specific types of mutations. *(3.1.6-8.M)*

- Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.

Clarifying Statement: Emphasis is on using models such as Punnett squares, diagrams, and simulations to describe the cause and effect relationship of gene transmission

resemble, but are not identical to, their parents. *(U1)*
- Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment. *(U2)*

- How are the characteristics of one generation related to the previous generation? *(Q2)*
- Why do individuals of the same species vary in how they look, function, and behave? *(Q3)*
- How does genetic variation among organisms affect survival and reproduction? *(Q4)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Genetic factors as well as local conditions affect the growth of the organism. (E) *(K1)*
- **Genes** are located in the **chromosomes** of cells, with each chromosome pair containing two variants of each of many distinct genes. (M) *(K2)*
- Each distinct gene controls the production of specific proteins, which affects the trait of the individual. (M) *(K3)*
- Changes (**mutations**) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits. (M) *(K4)*
- Organisms reproduce, either **sexually** or **asexually**, and transfer their genetic information to their **offspring**. (N) *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can establish how organisms grow and develop. *(S1)*
- I can describe the characteristics of one generation related to a previous generation *(S2)*
- I can assess how the individuals of the same species vary in how they look, function, and behave. *(S3)*
- I can determine how individuals of the same species vary in how they look, function, and behave. *(S4)*
- I can describe how genetic variation among organisms affects survival and reproduction. *(S5)*

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from parent(s) to offspring and resulting genetic variation.

Assessment Boundary: N/A *(3.1.6-8.N)*

- Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.

Clarifying Statement: Emphasis is on synthesizing information from reliable sources about the influence of humans on genetic outcomes in artificial selection (such as genetic modification, animal husbandry, gene therapy); and, on the impacts these technologies have on society as well as the technologies leading to these scientific discoveries.

Assessment Boundary: N/A *(3.1.6-8.R)*

- Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

Clarifying Statement: Emphasis is on using simple probability statements and proportional reasoning to construct explanations.

Assessment Boundary: N/A *(3.1.6-8.S)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully

- Variations of inherited traits between parent and offspring arise from genetic differences that result form the subset of chromosomes. (N) *(K6)*
- In artificial selection, humans have the capacity to influence certain characteristics of organisms by selective breeding. (R) *(K7)*
- Natural selection leads to the predominance of certain traits in a population, and the suppression of others. (S) *(K8)*

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contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)* ■ Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*	

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U3 - Taxonomy and Evolution

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 7 Science	77 Day(s)	7	Science	Kerry Risser, Allison Zmuda, Ramon Rivera, Alexis Harmon, Wesley Maloney

Focus

What amazing secrets could we uncover by exploring the dazzling variety of life on Earth? Uncover the secrets of life's grand design, where every species, from the tiniest microbe to the majestic blue whale, is intricately connected in a mesmerizing tapestry of adaptation and survival. Dive into the adventure of understanding how life diversifies, adapts, and flourishes, revealing the awe-inspiring story of our shared biological heritage.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

  Clarifying Statement: Emphasis is on the conceptual understanding that cells form tissues and tissues form organs specialized for particular body functions. Examples could include the interaction of subsystems within a system and the normal functioning of those systems.

  Assessment Boundary: Assessment does

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do organisms grow and develop? *(Q1)*
- What evidence supports that different species are related? *(Q2)*

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not include the mechanism of one body system independent of others. Assessment is limited to the circulatory, excretory, digestive, respiratory, muscular, and nervous systems. *(3.1.6-8.C)*

- Use arguments based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants, respectively.

Clarifying Statement: Examples of behaviors that affect the probability of animal reproduction could include nest building to protect young from cold, herding of animals to protect young from predators, and vocalization of animals and colorful plumage to attract mates for breeding. Examples of animal behaviors that affect the probability of plant reproduction could include transferring pollen or seeds, and creating conditions for seed germination and growth. Examples of plant structures could include bright flowers attracting butterflies that transfer pollen, flower nectar and odors that attract insects that transfer pollen, and hard shells on nuts that squirrels bury.

Assessment Boundary: N/A *(3.1.6-8.D)*

- Apply scientific ideas to construct an explanation for anatomical similarities and differences among modern organisms and between modern and fossil organisms to

- Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring resemble, but are not identical to, their parents. *(U2)*

- How do scientists classify and organize living organisms, and what criteria are used in the classification process? *(Q3)*
- What evidence supports the theory of evolution, and how has our understanding of evolution changed over time? *(Q4)*
- How do fossils or embryos provide evidence for evolutionary change, and what can they tell us about ancient life forms? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Animals engage in characteristic behaviors that increase the odds of reproduction. (D) *(K1)*
- Anatomical similarities and differences between various organisms living today and between them and organisms in the fossil record, enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent. (P) *(K2)*
- Comparison of the embryological development of different species also reveals similarities that show relationships not evident in the fully formed anatomy. (Q) *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can describe how organisms grow and develop. *(S1)*
- I have researched evidence that supports how different species are related. *(S2)*
- I can explain the principles and importance of taxonomy in organizing and classifying living organisms. *(S3)*
- I can classify organisms based on their physical characteristics and genetic relationships. *(S4)*
- I can describe evidence for evolution, including fossil records, comparative anatomy, and molecular biology. *(S5)*
- I can explain how environmental factors and changes influence evolutionary processes. *(S6)*

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infer evolutionary relationships.

Clarifying Statement: Emphasis is on explanations of the evolutionary relationships among organisms in terms of similarity or differences of the gross appearance of anatomical structures.

Assessment Boundary: N/A *(3.1.6-8.P)*

- Analyze displays of pictorial data to compare patterns of similarities in anatomical structures across multiple species to identify relationships not evident in the fully formed anatomy.

Clarifying Statement: Emphasis is on inferring general patterns of relatedness among embryos of different organisms by comparing the macroscopic appearance of diagrams or pictures.

Assessment Boundary: Assessment of comparisons is limited to gross appearance of anatomical structures in embryological development. *(3.1.6-8.Q)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*



U4 - Ecology and Environmental Issues

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 7 Science	34 Day(s)	7	Science	Kerry Risser, Allison Zmuda, Ramon Rivera, Alexis Harmon, Wesley Maloney

Focus

How do living organisms interact with each other and their environment to shape the world around us? Embark on an adventure into the fascinating world of ecology, where you'll explore the interconnected web of life that sustains our planet! Uncover the secrets of ecosystems, witness the wonders of nature, and become inspired to protect and preserve the incredible diversity of life around us.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- **Use arguments based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants, respectively.**

  Clarifying Statement: Examples of behaviors that affect the probability of animal reproduction could include nest building to protect young from cold, herding of animals to protect young from predators, and vocalization of animals and

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T1)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment. *(U1)*
- Biological evolution explains both the unity and diversity of species and

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do organisms interact with the living and nonliving environments to obtain matter and energy? *(Q1)*
- How do matter and energy move through an ecosystem? *(Q2)*
- How does a change in environment impact ecosystems? *(Q3)*

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colorful plumage to attract mates for breeding. Examples of animal behaviors that affect the probability of plant reproduction could include transferring pollen or seeds, and creating conditions for seed germination and growth. Examples of plant structures could include bright flowers attracting butterflies that transfer pollen, flower nectar and odors that attract insects that transfer pollen, and hard shells on nuts that squirrels bury.

Assessment Boundary: N/A *(3.1.6-8.D)*

- **Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.**

Clarifying Statement: Emphasis is on cause and effect relationships between resources and growth of individual organisms and the numbers of organisms in ecosystems during periods of abundant and scarce resources.

Assessment Boundary: N/A *(3.1.6-8.I)*

- **Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.**

Clarifying Statement: Emphasis is on predicting consistent patterns of interactions in different ecosystems in terms of the relationships among and between organisms and abiotic

provides a unifying principle for the history and diversity of life on Earth. *(U2)*
- Watersheds and wetlands function as interconnected systems that support, impact, and are influenced by living things. *(U3)*
- Human actions impact the functions of watersheds and wetlands. *(U4)*
- Human actions improve environmental quality, sustainability, and community well-being. *(U5)*

- How does the environment influence populations of organisms over multiple generations? *(Q4)*
- How do humans affect biodiversity, and how does it affect humans? Mutually impact? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Organisms and populations are dependent on their environmental interactions both with other living things (**biotic**) and with nonliving (**abiotic**) factors. (I) *(K1)*
- In any **ecosystem**, **organisms** and **populations** with similar requirements for food, water, oxygen, or other resources may compete with each other for **limited resources**, access to which consequently constrains their growth and reproduction. (I) *(K2)*
- **Predatory** interactions may reduce the number of organisms or eliminate whole populations of organisms. (J) *(K3)*
- In ecosystems, organisms fulfill various roles or niches, including different

Skills

What discrete skills and processes should students be able to use? Students can...

- I can figure out and describe how organisms interact with the living and nonliving environments to obtain matter and energy. *(S1)*
- I can show how matter and energy move through an ecosystem. *(S2)*
- I can show how a change in environment impacts ecosystems. *(S3)*
- I can describe how the environment influences populations of organisms over multiple generations. *(S4)*
- I can show how humans affect biodiversity and how it affects humans. *(S5)*

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components of ecosystems. Examples of types of interactions could include competitive, predatory, and mutually beneficial.

Assessment Boundary: N/A *(3.1.6-8.J)*

- **Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.**

Clarifying Statement: Emphasis is on describing the conservation of matter and flow of energy into and out of various ecosystems, and on defining the boundaries of the system.

Assessment Boundary: Assessment does not include the use of chemical reactions to describe the processes. *(3.1.6-8.K)*

- **Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.**

Clarifying Statement: Emphasis is on recognizing patterns in data and making warranted inferences about changes in populations, and on evaluating empirical evidence supporting arguments about changes to ecosystems.

Assessment Boundary: N/A *(3.1.6-8.L)*

- **Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations**

types of symbiotic relationships and ecological roles such as producers, consumers, and decomposers, all of which contribute to the balance and functioning of the environment. *(K4)*

- Species involved in **competitive**, **predatory**, and mutually beneficial interactions vary across ecosystems. (J) *(K5)*
- Decomposers recycle nutrients from dead plant or animal matter back into the soil in terrestrial environments or water in aquatic environments, with transfers of matter occurring at every level of the energy diagram, and food webs serving as models to demonstrate how matter and energy flow between producers, consumers, and decomposers. *(K6)*
- The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem. (K) *(K7)*
- Ecosystems are dynamic in nature; their characteristics can vary over time. (L) *(K8)*
- Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations. (L) *(K9)*
- **Adaptation** over generations is one important process by which species change over time in response to changes in environmental conditions. (T) *(K10)*

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over time.

Clarifying Statement: Emphasis is on using mathematical models, probability statements, and proportional reasoning to support explanations of trends in changes to populations over time.

Assessment Boundary: Assessment does not include Hardy Weinberg calculations. *(3.1.6-8.T)*

- **Evaluate competing design solutions for maintaining biodiversity and ecosystem services.**

Clarifying Statement: Examples of ecosystem services could include water purification, nutrient recycling, and prevention of soil erosion. Examples of design solution constraints could include scientific, economic, and social considerations.

Assessment Boundary: N/A *(3.1.6-8.U)*

Environmental Literacy & Sustainability (2023): 6-8 Environmental Literacy & Sustainability

- **Develop a model to describe how watersheds and wetlands function as systems, including the roles and functions they serve.** *(3.4.6-8.C)*
- **Obtain and communicate information on how integrated pest management could improve indoor and outdoor environments.** *(3.4.6-8.F)*

- Traits that support successful survival and reproduction in the new environment become more common; those that do not become less common, thus, the distribution of traits in a population changes. (T) *(K11)*
- Changes in **biodiversity** can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on. (U) *(K12)*

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- **Design a solution to an environmental issue in which individuals and societies can engage as stewards of the environment.** *(3.4.6-8.H)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

U1 - Astronomy

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 8 Science	8 Week(s)	8	Science	Lindsay Kabakjian, Allison Zmuda, Curtis Catwood, Savannah Byers, Wesley Maloney

Focus

What is the universe, and where does Earth fit in? In this unit, we will explore the origins of the solar system through the Big Bang Theory and investigate the properties of objects in space. We'll examine how gravity affects everything, from our planet to distant galaxies. Focusing on our local "neighborhood" — the Sun, Earth, and Moon system — we will create models to explain moon phases, eclipses, and seasons. Through hands-on activities, we'll discover how these celestial events impact life on Earth and our understanding of the universe.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.

  Clarifying Statement: Examples of models can be physical, graphical, or conceptual.

  Assessment Boundary: N/A *(3.3.6-8.A)*
- Develop and use a model to describe the role of gravity in the motion within galaxies and the solar system.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The universe is composed of a variety of different objects, which are organized into systems, each of which

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What is the universe, and what goes on in stars? (B & C) *(Q1)*

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Clarifying Statement: Emphasis for the model is on gravity as the force that holds together the solar system and Milky Way galaxy and controls orbital motions within them. Examples of models can be physical (such as the analogy of distance along a football field or computer visualizations of elliptical orbits) or conceptual (such as mathematical proportions relative to the size of familiar objects such as students' school or state).

Assessment Boundary: Assessment does not include Kepler's Laws of orbital motion or the apparent retrograde motion of the planets as viewed from Earth. *(3.3.6-8.B)*

- Analyze and interpret data to determine scale properties of objects in the solar system.

Clarifying Statement: Emphasis is on the analysis of data from Earth-based instruments, space-based telescopes, and spacecraft to determine similarities and differences among solar system objects. Examples of scale properties include the sizes of an object's layers (such as crust and atmosphere), surface features (such as volcanoes), and orbital radius. Examples of data include statistical information, drawings and photographs, and models.

Assessment Boundary: Assessment does not include recalling facts about properties of the planets and other solar system bodies. *(3.3.6-8.C)*

develops according to accepted physical processes and laws. *(U1)*

- What are the predictable patterns caused by Earth's movement in the solar system? (A) *(Q2)*
- What is the universe, and what is Earth's place in it? (B & C) *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Relationship between the Earth's axial tilt and the changing seasons. (A) *(K1)*
- Sun angle changes throughout the year. (A) *(K2)*
- The length of day and night varies depending on the time of year. (A) *(K3)*
- Eight main lunar phases. (A & C) *(K4)*
- Relative position of the Earth, Sun, and Moon to one another. (A) *(K5)*
- Solar and lunar eclipses do not occur every new and full moon. (A & C) *(K6)*
- The alignment of the Earth, Sun, and Moon causes eclipses. (A) *(K7)*
- The fundamental role of gravity is to govern the motion of celestial bodies within the solar system and galaxies. (B) *(K8)*
- Celestial bodies have gravity that acts on each other. (B) *(K9)*
- The Milky Way Galaxy is the home of the Solar System. (B) *(K10)*
- The objects in the Solar System orbit the Sun. (B) *(K11)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can make a model of the Earth, Sun, and Moon to show how they move. (A) *(S1)*
- I can use my model to explain why we have moon phases. (A) *(S2)*
- I can use my model to explain why solar and lunar eclipses happen. (A) *(S3)*
- I can describe how Earth's tilt and orbit cause the seasons. (A) *(S4)*
- I can create a model to show how gravity affects how planets and stars move. (B) *(S5)*
- I can explain how gravity keeps planets in orbit around the Sun. (B) *(S6)*
- I can describe how gravity works in galaxies and the solar system. (B) *(S7)*
- I can look at data and determine the size and distance of objects in space. (C) *(S8)*
- I can compare the sizes of planets, moons, and the Sun. (C) *(S9)*
- I can explain how far apart things are in our solar system using models or data. (C) *(S10)*

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Profile of a CV Learner		
■ Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)* ■ Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*	■ The Big Bang Theory is the likely origin of the Universe and our Solar System. (B) *(K12)* ■ A protoplanetary disk is composed of materials like gas and dust that led to the formation of the Sun and other objects in the Solar System. (B) *(K13)* ■ Orbits are elliptical. (C) *(K14)* ■ Scientists use different wavelengths of light to study the universe (C) *(K15)*	■ I can explain how different wavelengths of light are used to study the universe. (C) *(S11)*

U2 - Earth's History & Processes

Draft Date	Course	Duration	Grades	Subjects	Team
07-15-2024	Grade 8 Science	6 Week(s)	8	Science	Allison Zmuda, Lindsay Kabakjian, Curtis Catwood, Savannah Byers, Wesley Maloney

Focus

How and why is Earth constantly changing? In this unit, we will uncover the dynamic processes that shape our planet, exploring how Earth's surface has evolved over time. We will model the movement of materials and energy through Earth's systems, showing how these interconnected spheres work together to support life. As we dive deeper into Earth's history, we will investigate fossils, rocks, and seafloor structures to learn about plate tectonics and Earth's 4.6 billion-year evolution. Through hands-on activities and inquiry, we will unravel the mysteries of Earth's geologic history and understand how past events have shaped the world we live in today.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.

  Clarifying Statement: Emphasis is on finding patterns of changes in the level of complexity of anatomical structures in organisms and the chronological order of fossil appearance in the rock layers.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere)

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do people reconstruct and date events in Earth's planetary history? *(Q1)*

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Assessment Boundary: Assessment does not include the names of individual species or geological eras in the fossil record. *(3.1.6-8.O)*

- Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year old history.

Clarifying Statement: Emphasis is on how analyses of rock formations and the fossils they contain are used to establish relative ages of major events in Earth's history. Examples of Earth's major events could range from being very recent (such as the last Ice Age or the earliest fossils of homo sapiens) to very old (such as the formation of Earth or the earliest evidence of life). Examples can include the formation of mountain chains and ocean basins, the evolution or extinction of particular living organisms, or significant volcanic eruptions.

Assessment Boundary: Assessment does not include recalling the names of specific periods or epochs and events within them. *(3.3.6-8.D)*

- Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

Clarifying Statement: Emphasis is on how processes change Earth's surface at time that interact over a wide range of temporal and spatial scales. *(U1)*

- How and why is Earth constantly changing? *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Earth is approximately 4.6 billion years old, and scientists determine this through the study of rocks and fossils. (D) *(K1)*
- The geologic time scale is used to organize Earth's history into eons, eras, periods, and epochs based on significant geologic and biological events. (D) *(K2)*
- Fossils and rock strata provide evidence for major events in Earth's history, such as mass extinctions and evolutionary changes. (D) *(K3)*
- Scientists use relative dating (superposition, cross-cutting relationships, and index fossils) and absolute dating (radiometric dating) to determine the age of rocks and events in Earth's history. (D) *(K4)*
- The rock cycle describes how Earth's materials continuously change through processes like melting, crystallization, weathering, deformation, and sedimentation. (F) *(K5)*
- Igneous rocks form from cooled magma or lava, sedimentary rocks form from compacted and cemented sediments,

Skills

What discrete skills and processes should students be able to use? Students can...

- I can describe how Earth's history is divided into different time periods using the geologic time scale. (D) *(S1)*
- I can use rock layers and fossils to explain the order of events in Earth's history. (D) *(S2)*
- I can explain how scientists use rock strata to figure out which events happened first. (D) *(S3)*
- I can give examples of major events in Earth's past and where they fit on the geologic time scale. (D) *(S4)*
- I can create a model to show how rocks move through the rock cycle. (F) *(S5)*
- I can describe how Earth's internal heat and the sun's energy power Earth's material cycles. (F) *(S6)*
- I can explain how materials like rocks, water, and gases move between Earth's systems (geosphere, atmosphere, hydrosphere, and biosphere). (F) *(S7)*
- I can show how energy flow connects to melting, erosion, and weathering processes. (F) *(S8)*

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and spatial scales that can be large (such as slow plate motions or the uplift of large mountain ranges) or small (such as rapid landslides or microscopic geochemical reactions), and how many geoscience processes (such as earthquakes, volcanoes, and meteor impacts) usually behave gradually but are punctuated by catastrophic events. Examples of geoscience processes include surface weathering and deposition by the movements of water, ice, and wind. Emphasis is on geoscience processes that shape local geographic features, where appropriate.

Assessment Boundary: N/A *(3.3.6-8.E)*

- Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

Clarifying Statement: Emphasis is on the processes of melting, crystallization, weathering, deformation, and sedimentation, which act together to form minerals and rocks through the cycling of Earth's materials.

Assessment Boundary: Assessment does not include the identification and naming of minerals. *(3.3.6-8.F)*

- Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions.

and metamorphic rocks form from heat and pressure. (F) *(K6)*

- The cycling of Earth's materials is driven by energy from the Earth's interior (heat from radioactive decay and mantle convection) and the Sun (weathering, erosion, and sedimentation). (F) *(K7)*
- Weathering, erosion, and deposition constantly reshape Earth's surface over different time scales. (E) *(K8)*
- Weathering (mechanical and chemical) breaks down rocks, and erosion moves sediments by wind, water, ice, and gravity. (E) *(K9)*
- Deposition occurs when sediments are dropped in new locations, eventually leading to the formation of sedimentary rocks. (F) *(K10)*
- Geologic catastrophes, such as asteroid impacts, supervolcanic eruptions, and massive earthquakes, have caused major shifts in Earth's history, sometimes leading to extinctions. (E) *(K11)*
- Scientists study local rock formations, fossils, and geologic structures to understand how specific geoscience processes have shaped different regions. (E) *(K12)*
- Models are used to represent and explain the cycling of materials and the energy flow within Earth's system, helping scientists visualize complex processes. (F) *(K13)*

- I can describe how fast changes like earthquakes and volcanoes shape Earth's surface. (E) *(S9)*
- I can explain how slow processes like erosion and plate movement change the land over long periods. (E) *(S10)*
- I can compare the effects of geoscience processes that happen quickly with those that happen slowly. (E) *(S11)*
- I can construct evidence-based explanations for how specific geoscience processes have shaped local geographic features. (E) *(S12)*
- I can use evidence to show how natural processes have shaped different landforms over time. (E) *(S13)*
- I can use fossil and rock data to show how continents have moved over time. (G) *(S14)*
- I can explain how the shapes of continents and ocean floor features support the idea of plate movement. (G) *(S15)*
- I can use maps and data to describe where Earth's plates move and what happens at those boundaries. (G) *(S16)*
- I can identify patterns in seafloor spreading and how they support the theory of plate tectonics. (G) *(S17)*
- I can analyze fossil data to see how life on Earth has changed over time. (O) *(S18)*

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Clarifying Statement: Examples of data include similarities of rock and fossil types on different continents, the shapes of the continents (including continental shelves), and the locations of ocean structures (such as ridges, fracture zones, and trenches).

Assessment Boundary: Paleomagnetic anomalies in oceanic and continental crust are not assessed. *(3.3.6-8.G)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

- The inner core is solid due to extreme pressure, while the outer core is liquid, generating Earth's magnetic field. (D, F) *(K14)*
- Seismic waves provide evidence for Earth's layered structure, with S-waves only traveling through solids and P-waves traveling through both solids and liquids. (D, F) *(K15)*
- The shapes of continents (like how South America and Africa seem to fit together) provide evidence of continental drift. *(K16)*
- Fossils of the same species found on different continents suggest the continents were once connected. *(K17)*
- Similar rock layers and mountain ranges found on different continents support the idea of past plate movement. *(K18)*
- Seafloor spreading at mid-ocean ridges is evidence of plates moving apart. *(K19)*
- The age of oceanic crust increases as you move away from mid-ocean ridges. (G) *(K20)*
- Features like trenches, mountains, and earthquakes often occur near plate boundaries. (G) *(K21)*
- Fossils are the preserved remains or traces of organisms from the past. (O) *(K22)*
- The fossil record shows patterns of life appearing, evolving, and going extinct over time. (O) *(K23)*

- I can explain extinction patterns and the appearance of new life forms in the fossil record. (O) *(S19)*
- I can describe how scientists use fossils to learn about past environments and ecosystems. (O) *(S20)*
- I can explain how natural laws (like sedimentation) help us understand what fossils tell us about Earth's history. (O) *(S21)*

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	■ Extinction is a natural part of Earth's history and can be seen in the fossil record. (O) *(K24)* ■ Certain fossils, called index fossils, help scientists date the rock layers in which they are found. (O) *(K25)* ■ Similar fossils found in different locations can provide clues about past environments and continental positions. (O) *(K26)* ■ Fossil evidence supports the idea that life has changed gradually over millions of years. (O) *(K27)*	



U3 - Natural Hazards

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 8 Science	4 Week(s)	8	Science	Lindsay Kabakjian, Allison Zmuda, Curtis Catwood, Savannah Byers, Wesley Maloney

Focus

How do we prepare for natural hazards? In this unit, we will explore the causes and impacts of natural hazards, starting with the 2011 Tōhoku earthquake and tsunami. We'll use maps, simulations, and data to understand how tsunamis form, where they occur, and which areas are at risk. Students will design and evaluate engineering solutions to reduce damage, and explore communication strategies to prepare and protect communities. By the end, we will apply these ideas to respond to various natural hazards and learn how to design safer communities to save lives.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

  Clarifying Statement: Emphasis is on how some natural hazards, such as volcanic eruptions and severe weather, are preceded by phenomena that allow for reliable predictions, but others, such as earthquakes, occur suddenly and with no notice, and thus are not yet predictable.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere)

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do natural hazards affect individuals and societies? (L) *(Q1)*

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Examples of natural hazards can be taken from interior processes (such as earthquakes and volcanic eruptions), surface processes (such as mass wasting and tsunamis), or severe weather events (such as hurricanes, tornadoes, and floods). Examples of data can include the locations, magnitudes, and frequencies of the natural hazards. Examples of technologies can be global (such as satellite systems to monitor hurricanes or forest fires) or local (such as building basements in tornado-prone regions or reservoirs to mitigate droughts).

Assessment Boundary: N/A *(3.3.6-8.L)*

Technology & Engineering (2023): 6-8 Technology & Engineering

- Interpret the accuracy of information collected. *(3.5.6-8.O)*
- Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. *(3.5.6-8.P)*
- Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. *(3.5.6-8.W)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully

that interact over a wide range of temporal and spatial scales. *(U1)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Natural hazards include events like earthquakes, floods, hurricanes, droughts, and tornadoes. (L) *(K1)*
- Scientists use data from past events to predict the likelihood of future natural disasters. (L) *(K2)*
- The difference between a natural hazard and a catastrophic event. (L) *(K3)*
- Certain areas are more prone to specific natural hazards due to geography and climate. (L) *(K4)*
- Forecasting catastrophic events relies on data such as weather patterns, seismic activity, and historical trends. (L) *(K5)*
- Technologies like satellites, weather radar, and seismographs help monitor and predict natural hazards. (L) *(K6)*
- Technology development can reduce the damage caused by natural hazards (e.g., earthquake-resistant buildings, levees). (L) *(K7)*
- Communication of hazard risks and safety plans is a key part of disaster preparedness. (L) *(K8)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can study data about natural disasters like tsunamis, floods, hurricanes, and earthquakes. (L) *(S1)*
- I can use data to predict when and where natural hazards might happen. (L) *(S2)*
- I can explain how technology can help protect people and property from natural hazards. (L) *(S3)*
- I can describe how we can prepare for and reduce the impact of natural disasters. (L) *(S4)*

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contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)* ■ Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)* ■ Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*	



U4 - Weather & Climate

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 8 Science	9 Week(s)	8	Science	Lindsay Kabakjian, Allison Zmuda, Curtis Catwood, Savannah Byers, Wesley Maloney

Focus

How are local weather patterns linked to global climate? In this unit, we will explore how energy from the Sun and the force of gravity drive the movement of water through Earth's systems. We will investigate how these movements shape weather in our local communities and connect to global climate patterns. Through hands-on models, data analysis, and discussions, we will see how water and energy cycle through the air, land, and oceans. We'll also explore how humans impact these systems and how we can work toward protecting Earth's climate for the future.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

  Clarifying Statement: Emphasis is on the ways water changes its state as it moves through the multiple pathways of the hydrologic cycle. Examples of models can be conceptual or physical.

  Assessment Boundary: A quantitative understanding of the latent heats of

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere)

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What regulates weather and climate? *(Q1)*

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vaporization and fusion is not assessed. *(3.3.6-8.H)*

- Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

  Clarifying Statement: Emphasis is on how patterns vary by latitude, altitude, and geographic land distribution. Emphasis of atmospheric circulation is on the sunlight-driven latitudinal banding, the Coriolis effect, and resulting prevailing winds; emphasis of ocean circulation is on the transfer of heat by the global ocean convection cycle, which is constrained by the Coriolis effect and the outlines of continents. Examples of models can be diagrams, maps and globes, or digital representations.

  Assessment Boundary: Assessment does not include the dynamics of the Coriolis effect. *(3.3.6-8.I)*

- Collect data to provide evidence for how the motion and complex interactions of air masses result in changes in weather conditions.

  Clarifying Statement: Emphasis is on how air masses flow from regions of high pressure to low pressure, causing weather (defined by temperature, pressure, humidity, precipitation, and wind) at a fixed location to change over time, and how

that interact over a wide range of temporal and spatial scales. *(U1)*

- How do the properties and movements of water shape Earth's surface and affect its systems? *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Water moves through Earth's systems in a continuous cycle, including processes like evaporation, condensation, precipitation, and runoff. (H) *(K1)*
- The sun's energy drives the water cycle by providing heat that causes evaporation from bodies of water. (H) *(K2)*
- Gravity plays a key role in the movement of water, such as pulling precipitation back to Earth and creating runoff into rivers and oceans. (H) *(K3)*
- Water in the atmosphere can form clouds, which then release water as precipitation. (H) *(K4)*
- Regional climates are influenced by atmospheric circulation patterns caused by uneven heating of the Earth's surface. (I) *(K5)*
- Earth's rotation affects the movement of air and ocean currents, leading to different climate patterns around the world. (I) *(K6)*
- Atmospheric circulation is driven by the difference in temperature and pressure at different latitudes on Earth. (I) *(K7)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can make a model to show how water moves through Earth's systems. (H) *(S1)*
- I can explain how the Sun's energy and gravity help move water in the water cycle. (H) *(S2)*
- I can describe the steps of the water cycle like evaporation, condensation, precipitation, and runoff. (H) *(S3)*
- I can use a model to show how the Sun heats Earth unevenly. (I) *(S4)*
- I can explain how Earth's rotation and heating cause wind and ocean currents. (I) *(S5)*
- I can describe how these patterns affect weather and climate in different regions. (I) *(S6)*
- I can collect and use weather data to learn about air masses. (J) *(S7)*
- I can explain how the movement of air masses causes weather changes. (J) *(S8)*
- I can describe how cold fronts, warm fronts, and pressure systems affect the weather. (J) *(S9)*
- I can collect and study data about the environment around me. (Env-E) *(S10)*

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sudden changes in weather can result when different air masses collide. Emphasis is on how weather can be predicted within probabilistic ranges. Examples of data can be provided to students (such as weather maps, diagrams, and visualizations) or obtained through laboratory experiments (such as with condensation).

Assessment Boundary: Assessment does not include recalling the names of cloud types or weather symbols used on weather maps or the reported diagrams from weather stations. *(3.3.6-8.J)*

Environmental Literacy & Sustainability (2023): 6-8 Environmental Literacy & Sustainability

- Collect, analyze, and interpret environmental data to describe a local environment. *(3.4.6-8.E)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

- Warm air rises near the equator and cool air sinks at the poles, creating convection currents in the atmosphere. (I) *(K8)*
- Air masses form over specific regions and can influence local weather patterns, such as dry, warm air from deserts or moist, cool air from oceans. (J) *(K9)*
- Air masses interact at fronts, leading to weather changes like storms, rain, or temperature shifts. (J) *(K10)*
- Changes in air pressure, temperature, and humidity contribute to the development of different weather conditions. (J) *(K11)*
- Local environments can be studied by collecting and analyzing data, such as temperature, humidity, and air quality. (Env-E) *(K12)*
- The characteristics of a local environment, like the presence of forests, rivers, or urban areas, influence the ecosystem and local climate. (Env-E) *(K13)*
- Human activities can affect local environments, such as through pollution, deforestation, or land development. (Env-E) *(K14)*
- Analyzing environmental data can help identify trends and predict future environmental changes. (Env-E) *(K15)*
- Environmental data can be used to inform decisions on resource management and sustainability. (Env-E) *(K16)*

- I can describe what I notice about my local environment using facts and data. (Env-E) *(S11)*
- I can explain how environmental changes affect plants, animals, and people nearby. (Env-E) *(S12)*

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U5 - Earth's Resources

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	Grade 8 Science	7 Week(s)	8	Science	Lindsay Kabakjian, Allison Zmuda, Curtis Catwood, Savannah Byers, Wesley Maloney

Focus

How do changes in Earth's systems impact our communities, and what can we do about it? In this unit, we will explore how rising temperatures are linked to events like floods, droughts, and wildfires. We will analyze data, build models, and investigate how changes in Earth's water and carbon systems affect people and places. As we uncover how human activity contributes to climate change, we will evaluate real-world solutions that balance community needs with reducing greenhouse gases and building more resilient communities.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 6-8 Standards

- Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

  Clarifying Statement: Emphasis is on how these resources are limited and typically non-renewable, and how their distributions are significantly changing as a result of removal by humans. Examples of uneven distributions of resources as a result of past processes include but are not limited

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Explain how the natural and designed worlds are interrelated and the application of scientific knowledge and technology can have beneficial, detrimental, or unintended consequences. (Global Citizen, Communicator) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The Earth's surface processes affect and are affected by human activities. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do Earth's processes and human activities impact each other and alter the planet? *(Q1)*

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to petroleum (locations of the burial of organic marine sediments and subsequent geologic traps), metal ores (locations of past volcanic and hydrothermal activity associated with subduction zones), and soil (locations of active weathering and/or deposition of rock).

Assessment Boundary: N/A *(3.3.6-8.K)*

- Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.

Clarifying Statement: Examples of the design process include examining human environmental impacts, assessing the kinds of solutions that are feasible, and designing and evaluating solutions that could reduce that impact. Examples of human impacts can include water usage (such as the withdrawal of water from streams and aquifers or the construction of dams and levees), land usage (such as urban development, agriculture, or the removal of wetlands), and pollution (such as of the air, water, or land).

Assessment Boundary: N/A *(3.3.6-8.M)*

- Construct an argument supported by evidence for how increases in human population and per capita consumption of natural resources impact Earth's systems.

Clarifying Statement: Examples of evidence include grade-appropriate databases on human populations and the

- How do humans rely on and manage Earth's resources across cultures? *(Q2)*
- How do human cultures interact with, value, and express beliefs about the environment? *(Q3)*
- How can local field investigations help address environmental issues and support solutions on a larger scale? *(Q4)*
- How do actions and regulations ensure equitable resource availability for current and future generations? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Earth's natural resources like minerals, fossil fuels, and groundwater are not evenly distributed across the planet. (K) *(K1)*
- Past geologic events like volcanic activity, tectonic plate movement, and glaciation affect where resources are found. (K) *(K2)*
- Current geoscience processes, like erosion and sedimentation, also influence where resources collect. (K) *(K3)*
- The availability of resources affects where people live and how economies develop. (K) *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can describe how Earth's processes (like volcanoes or earthquakes) helped create where resources are found today. (K) *(S1)*
- I can use evidence to show how past events, like glacier movement, affect where we find resources now. (K) *(S2)*
- I can design a way to reduce human impact on the environment using science ideas. (M) *(S3)*
- I can devise a plan to monitor my community's pollution, waste, or resource use. (M) *(S4)*
- I can use what I know about science to help protect the Earth. (M) *(S5)*
- I can explain how more people and resource use affect Earth's systems. (N) *(S6)*

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rates of consumption of food and natural resources (such as freshwater, mineral, and energy). Examples of impacts can include changes to the appearance, composition, and structure of Earth's systems as well as the rates at which they change. The consequences of increases in human populations and consumption of natural resources are described by science, but science does not make the decisions for the actions society takes.

Assessment Boundary: N/A *(3.3.6-8.N)*

- Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Clarifying Statement: Examples of factors include human activities (such as fossil fuel combustion, cement production, and agricultural activity) and natural processes (such as changes in incoming solar radiation or volcanic activity). Examples of evidence can include tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities. Emphasis is on the major role that human activities play in causing the rise in global temperatures.

Assessment Boundary: N/A *(3.3.6-8.O)*

- Locating and using natural resources depends on understanding Earth's history and processes. (K) *(K5)*
- Human activities like deforestation, pollution, and fossil fuel use affect the environment. (M) *(K6)*
- Scientific methods can be used to monitor things like air and water quality. (M) *(K7)*
- Humans can reduce their impact by using renewable resources and conserving energy and water. (M) *(K8)*
- Solutions like recycling, green energy, and reducing emissions help protect ecosystems. (M) *(K9)*
- Designing sustainable practices involves using science to balance human needs with environmental health. (M) *(K10)*
- As the human population grows, so does the demand for natural resources like water, energy, and food. (N) *(K11)*
- Increased resource use can lead to pollution, habitat destruction, and climate change. (N) *(K12)*
- "Per capita consumption" means how much each person uses on average. (N) *(K13)*
- Overconsumption can cause long-term damage to Earth's systems. (N) *(K14)*
- Using evidence is important to explain how human actions affect the planet. (N) *(K15)*
- Earth's average temperature has risen over the past century. (O) *(K16)*

- I can use evidence to show how human actions like building, farming, and using energy impact the environment. (N) *(S7)*
- I can create an argument with facts about how we are changing the planet. (N) *(S8)*
- I can ask good questions about what's causing global warming. (O) *(S9)*
- I can use evidence to learn why Earth's temperature is rising. (O) *(S10)*
- I can explain how human activities and natural processes affect climate change. (O) *(S11)*
- I can compare how different societies use natural resources. (Env-B) *(S12)*
- I can explain how culture and economics affect how people manage the environment. (Env-B) *(S13)*
- I can look at how resource use is different around the world. (Env-B) *(S14)*
- I can gather and understand information about environmental problems in Pennsylvania. (Env-D) *(S15)*
- I can explain how these problems affect both people and nature in my state. (Env-D) *(S16)*
- I can use different sources to learn about PA's environment and what we can do to help. (Env-D) *(S17)*
- I can find and share information about how people use and protect natural resources. (Env-G) *(S18)*

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Environmental Literacy & Sustainability (2023): 6-8 Environmental Literacy & Sustainability

- Analyze and interpret data about how different societies (economic and social systems) and cultures use and manage natural resources differently. *(3.4.6-8.B)*
- Gather, read, and synthesize information from multiple sources to investigate how Pennsylvania environmental issues affect Pennsylvania's human and natural systems. *(3.4.6-8.D)*
- Obtain and communicate information to describe how best resource management practices and environmental laws are designed to achieve environmental sustainability. *(3.4.6-8.G)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

- Greenhouse gases like carbon dioxide trap heat in the atmosphere. (O) *(K17)*
- Human activities, especially burning fossil fuels, contribute to the rise in global temperatures. (O) *(K18)*
- Scientists use data from ice cores, temperature records, and satellite images to study climate change. (O) *(K19)*
- Asking scientific questions helps us understand complex issues like global warming. (O) *(K20)*
- Different societies and cultures use and manage natural resources in different ways. (B) *(K21)*
- Social, economic, and environmental values influence how resources are used. (B) *(K22)*
- Some cultures rely heavily on natural resources while others focus on conservation and sustainability. (B) *(K23)*
- Comparing resource use can help us understand global environmental challenges. (B) *(K24)*
- Pennsylvania faces environmental challenges such as water pollution, habitat loss, and fracking, which affect both people and ecosystems. (D) *(K25)*
- Gathering and evaluating information from different sources helps us understand these issues. (D) *(K26)*
- Informed citizens can take action to solve local environmental problems. (D) *(K27)*

- I can explain how laws and rules help take care of the environment. (Env-G) *(S19)*
- I can describe ways to use resources wisely so they don't run out. (Env-G) *(S20)*
- I can talk about how we can keep the Earth healthy for the future. (Env-G) *(S21)*

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	■ Best management practices (BMPs) help reduce human impact on the environment. (G) *(K28)* ■ Environmental laws are made to protect air, water, land, and wildlife. (G) *(K29)* ■ Sustainability means meeting our needs without harming future generations. (G) *(K30)* ■ Laws and practices like recycling, conservation, and pollution limits support sustainability. (G) *(K31)* ■ People can work together to make responsible choices that help the environment. (G) *(K32)*	

Constant Velocity

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	HS H/CP/GEN Principles of Science	3 Week(s)	9	Science	Allison Zmuda, Casey Banh, Marshall Edens

Focus

This topic of constant velocity starts off our journey of objects in motion. Constant velocity isn't just about moving steadily—it is the exhilarating essence of unbroken motion in physics, where objects move with speed and flawless consistency, and embodying the thrill of seamless progression towards infinite horizons.

We will continue to use our graphical skills to represent and predict an object's motion.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Apply scientific and engineering ideas to design, evaluate and refine a device that minimizes the force on a macroscopic object during a collision.

  Clarifying Statement: Examples of evaluation and refinement could include determining the success of the device at protecting an object from damage and modifying the design to improve it. Examples of a device could include a

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- All forces between objects arise from a few types of interactions: gravity,

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can one predict an object's continued motion, changes in motion,

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football helmet or a parachute.

Assessment Boundary: Assessment is limited to qualitative evaluations and/or algebraic manipulations. *(3.2.9-12.K)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

electromagnetism, and the strong and weak nuclear interactions. *(U1)*

or stability? *(Q1)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Velocity is speed AND direction. *(K1)*
- Speed is slope on a position vs time graph. *(K2)*
- Position v time graphs represent the motion of an object. *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can use the appropriate equation to predict constant velocity motion. *(S1)*
- I can determine where along a position vs time graph the object is fastest/slowest/not moving. *(S2)*
- I can calculate speed based from a position vs time graph. *(S3)*
- I can determine direction the object is moving. *(S4)*
- I can identify the reference point. *(S5)*



Forces

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	HS H/CP/GEN Principles of Science	2 Week(s)	9	Science	Allison Zmuda, Casey Banh, Marshall Edens

Focus

Some objects accelerate, as we saw in the previous unit. But the underlying reason for this has been unexplained. Forces are the invisible superheroes of the physical world. They're the dynamic agents that push, pull, and twist all objects in the universe. From the gentle touch of gravity holding us to Earth to the explosive power of engines propelling us forward.

We will learn that forces are the drivers behind acceleration. Newton's 1st and 3rd Laws will be explored.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Apply scientific and engineering ideas to design, evaluate and refine a device that minimizes the force on a macroscopic object during a collision.

  Clarifying Statement: Examples of evaluation and refinement could include determining the success of the device at protecting an object from damage and modifying the design to improve it. Examples of a device could include a

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- All forces between objects arise from a few types of interactions: gravity,

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What underlying forces explain the variety of interactions observed? *(Q1)*

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football helmet or a parachute.

Assessment Boundary: Assessment is limited to qualitative evaluations and/or algebraic manipulations. *(3.2.9-12.K)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

electromagnetism, and the strong and weak nuclear interactions. *(U1)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Newton's 1st law states that an object at rest or in motion will remain so until acted on by unbalanced forces. Also known as the law of inertia. Inertia is the tendency of an object to obey Newton's 1st law. Objects with greater mass or greater velocity are said to have more inertia. *(K1)*
- Free body diagrams (FBDs) are representations of all the forces on an object. Arrows (ie vectors) represent the forces. A box or dot represents the object on which the forces act. *(K2)*
- Forces are pushes or pulls acting by contact or action-at-a-distance.
    - Gravitational force
    - Electromagnetic force
    - Applied force
    - Buoyancy force
    - Frictional force
    - Drag force
    - Tension force

  (K3)

Skills

What discrete skills and processes should students be able to use? Students can...

- I can demonstrate how Newton's 1st law governs mechanical motion. *(S1)*
- I can demonstrate how Newton's 3rd law governs mechanical motion. *(S2)*
- I can create free body diagrams to represent any object in various types of motion (constant or accelerating). *(S3)*

Matter

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	HS H/CP/GEN Principles of Science	3 Week(s)	9	Science	Allison Zmuda, Casey Banh, Marshall Edens

Focus

At this point in our story, we must depart from the physics of motion and energy at a macro scale, and instead direct our attention to the ultra small; the particles of a substance itself. If we zoom in to any object or substance in our world we would see a frenzy of activity! Billions of tiny particles feverishly in motion. Particles and their behavior are the reason why ships float, but a skipping stone eventually sinks.

We will learn how to describe matter as particles and how those particles are conserved.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.

  Clarifying Statement: Emphasis is on using mathematical ideas to communicate the proportional relationships between masses of atoms in the reactants and the products, and the translation of these relationships to the macroscopic scale using the mole as

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Matter can be understood in terms of the types of atoms present and the

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do substances combine or change (react) to make new substances? *(Q1)*

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the conversion from the atomic to the macroscopic scale. Emphasis is on assessing students' use of mathematical thinking and not on memorization and rote application of problem-solving techniques.

Assessment Boundary: Assessment does not include complex chemical reactions. *(3.2.9-12.G)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

interactions both between and within atoms. *(U1)*

- How does one characterize and explain these reactions and make predictions about them? *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- All substances are made of particles. *(K1)*
- The mass of a system is conserved. *(K2)*
- Mass changes only when particles are added or removed. *(K3)*
- 1 milliliter (mL) is equal to 1 cubic centimeter (cm3). *(K4)*
- Slope on a volume vs mass graph represents the density of a substance. *(K5)*
- Density is a characteristic property of matter and can be useful in identifying unknown substances. *(K6)*
- Density = mass / volume *(K7)*
- Common units of density are grams per milliliter (g/mL) and grams per cubic centimeter (g/cm3). *(K8)*
- Density of a substance is determined by three variables of its particles; mass of particles, size of particles, and arrangement of particles. *(K9)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain mass change in a system as a result of particles entering or leaving a system. *(S1)*
- I can predict properties of matter based on the arrangement and behavior of its particles. *(S2)*
- I can describe density at the particle level. *(S3)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Nuclear Reactions

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	HS H/CP/GEN Principles of Science	2 Week(s)	9	Science	Allison Zmuda, Casey Banh, Marshall Edens

Focus

To end our story, we would like to view atoms at their best and at their worst. No topic is as interesting (or concerning) as nuclear radiation. From nuclear bombs to nuclear medicine, from the food you eat to the ground beneath your feet.

We will learn that atoms give rise to radioactivity. We will also examine the history of radiation and the impact it has to our neck-of-the-woods, here in Pennsylvania.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

  Clarifying Statement: Emphasis is on simple qualitative models, such as pictures or diagrams, and on the scale of energy released in nuclear processes relative to other kinds of transformations.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Explain how the natural and designed worlds are interrelated and the application of scientific knowledge and technology can have beneficial, detrimental, or unintended consequences. (Global Citizen, Communicator) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Matter can be understood in terms of the types of atoms present and the

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Assessment Boundary: Assessment does not include quantitative calculation of energy released. Assessment is limited to alpha, beta, and gamma radioactive decays. *(3.2.9-12.H)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

interactions both between and within atoms. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What forces hold nuclei together and mediate nuclear processes? *(Q1)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- There are three types of radioactive decay; alpha, beta, and gamma. *(K1)*
- Alpha particles cannot penetrate the skin. *(K2)*
- Beta particles can partially penetrate the skin. *(K3)*
- Gamma radiation can pass through a person, damaging cells. It is not a particle, but electromagnetic radiation. *(K4)*
- Nuclear fission occurs when atoms split into two or more parts. *(K5)*
- Nuclear fusion occurs when atoms are fused to become one atom. *(K6)*
- Nuclear fission is used in nuclear power generation. *(K7)*
- Nuclear fusion occurs in the sun. *(K8)*
- Radioactive decay is the process that makes nuclear medicine possible. *(K9)*
- Radon gas occurs naturally in Lancaster County bedrock. *(K10)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain radioactive decay. *(S1)*
- I can describe uses of nuclear reactions in society. *(S2)*
- I can explain the impact of radon gas in Pennsylvania. *(S3)*

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	■ Radon gas can create hazardous conditions in the basement of homes. *(K11)* ■ People install radon gas removal systems in homes. *(K12)*	

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Particles in Motion

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	HS H/CP/GEN Principles of Science	2 Week(s)	9	Science	Allison Zmuda, Casey Banh, Marshall Edens

Focus

We can now distinguish different types of matter based on their particles. Equally interesting is the behavior of those particles. Watch out! Particles are colliding with each other and anything they encounter. From the biggest explosions to the unsettling ear pops on an airplane, particles are at work.

We will discover how temperature, volume, and pressure play a role in predicting just how those pesky particles will behave.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.

  Clarifying Statement: Emphasis is on student reasoning that focuses on the number and energy of collisions between molecules.

  Assessment Boundary: Assessment is

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Matter can be understood in terms of the types of atoms present and the

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do substances combine or change (react) to make new substances? *(Q1)*

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limited to simple reactions in which there are only two reactants; evidence from temperature, concentration, and rate data; and qualitative relationships between rate and temperature. *(3.2.9-12.E)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

interactions both between and within atoms. *(U1)*

- How does one characterize and explain these reactions and make predictions about them? *(Q2)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The pressure in a sealed container is inversely proportional to the volume. $P_1V_1 = P_2V_2$ i.e. as volume increases, pressure decreases. *(K1)*
- The pressure in a sealed container is directly proportional to the temperature. $P_1/T_1 = P_2/T_2$ i.e. as temperature increases, pressure increases. *(K2)*
- The pressure in a sealed container is directly proportional to the number of particles. $P_1/n_1 = P_2/n_2$ i.e. as number of particles increases, pressure increases. *(K3)*
- Reaction rate will increase with an increase in pressure. *(K4)*
- Reaction rate increases with increased number of particles. *(K5)*
- Reaction rate increases with increased temperature. *(K6)*
- Reaction rate increases with increased pressure. *(K7)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can use mathematical and graphical methods for predicting how pressure of a gas changes with temperature. *(S1)*
- I can use mathematical and graphical methods for predicting how pressure of a gas changes with volume. *(S2)*
- I can use mathematical and graphical methods for predicting how pressure of a gas changes with increased particle count. *(S3)*
- I can predict how reaction rates change due to change in temperature, volume, number of particles, and pressure. *(S4)*
- I can represent particle motion with a drawing to explain observations. *(S5)*

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Periodic Table

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
07-24-2026	HS H/CP/GEN Principles of Science	2 Week(s)	9	Science	Marshall Edens, Casey Banh, Allison Zmuda

Focus

Mass and volume are properties of matter that we can explore without understanding the inner structure of atoms. More patterns emerge as we investigate the hidden subatomic structure and how this determines other interesting properties.

We will learn how to predict the properties of an atom based on its structure and resulting position within the periodic table of elements.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.

  Clarifying Statement: Examples of properties that could be predicted from patterns could include reactivity of metals, types of bonds formed, numbers of bonds formed, and reactions with oxygen.

  Assessment Boundary: Assessment is limited to main group elements. Assessment does not include quantitative

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T2)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Matter can be understood in terms of the types of atoms present and the

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understanding of ionization energy beyond relative trends. *(3.2.9-12.A)*
- Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.

Clarifying Statement: Examples of chemical reactions could include the reaction of sodium and chlorine, of carbon and oxygen, or of carbon and hydrogen.

Assessment Boundary: Assessment is limited to chemical reactions involving main group elements and combustion reactions.
(3.2.9-12.C)

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance,

interactions both between and within atoms. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do particles combine to form the variety of matter one observes? *(Q1)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Atoms are made up of protons, neutrons and electrons. *(K1)*
- Protons determine the identity (aka which element) of an atom. *(K2)*
- Neutrons hold the protons together in the nucleus. *(K3)*
- Electrons determine the reactivity of an atom. *(K4)*
- Elements are arranged in the periodic table by their atomic number and by properties. *(K5)*
- Elements are grouped into broad categories of metals, non-metals, and metalloids. *(K6)*
- Elements belong to a “chemical family” which share similar properties. *(K7)*
- The row number of an element determines the number of electron shells. *(K8)*
- The column number of an element determines the number of electrons on the outermost shell. *(K9)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can predict the structure of any atom and its properties based on the position of an element box on the periodic table. *(S1)*
- I can predict the bond type that will occur between two atoms. *(S2)*
- I can draw a Bohr model of an atom. *(S3)*

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adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*	■ Valence electrons are the electrons on the outermost shell and are concerned with bonding. *(K10)* ■ Atomic radius is the total distance from the center of the nucleus to the outermost electron shell. *(K11)* ■ Atomic radius increases going down and going to the left along the periodic table. *(K12)* ■ Electronegativity is an atom's ability to attract shared electrons in a chemical bond. *(K13)* ■ Electronegativity increases going up and going to the right along the periodic table. *(K14)* ■ Ionic bonds occur when one atom takes an electron from another atom. *(K15)* ■ Covalent bonds occur when two electrons are shared between two atoms. *(K16)* ■ Most atoms prefer to have 8 valence electrons. This is known as the "Octet Rule". *(K17)*	

Uniform Acceleration

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	HS H/CP/GEN Principles of Science	2 Week(s)	9	Science	Allison Zmuda, Casey Banh, Marshall Edens

Focus

Now that we have several ways to visualize simple moving objects, let's add some complexity by looking at acceleration. Uniform acceleration is the turbo boost of physics, where objects not only move steadily but also crank up their speed with each passing moment. It's like riding a rocket that accelerates faster and faster, thrilling with the promise of ever-increasing velocity and the boundless potential to explore new frontiers of space and time.

We will represent and predict the motion of objects that experience acceleration. We will also differentiate between objects with constant velocity and uniform acceleration.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Apply scientific and engineering ideas to design, evaluate and refine a device that minimizes the force on a macroscopic object during a collision.

  Clarifying Statement: Examples of evaluation and refinement could include determining the success of the device at protecting an object from damage and

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*

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modifying the design to improve it. Examples of a device could include a football helmet or a parachute.

Assessment Boundary: Assessment is limited to qualitative evaluations and/or algebraic manipulations.
(3.2.9-12.K)

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- All forces between objects arise from a few types of interactions: gravity, electromagnetism, and the strong and weak nuclear interactions. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can one predict an object's continued motion, changes in motion, or stability? *(Q1)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Uniform acceleration is when an object's velocity changes by the same amount in every equal time interval. The rate of change of velocity is constant. *(K1)*
- The difference between velocity (a vector describing speed and direction) and acceleration (a vector describing the rate of change of velocity). *(K2)*
- Slope on a velocity vs time graph is acceleration. *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can determine when objects are speeding up or slowing down from a position vs time graph. *(S1)*
- I can differentiate between constant velocity motion and uniform acceleration motion in words and graphically. *(S2)*
- I can use mathematical and graphical methods for predicting uniform acceleration motion. *(S3)*
- I can create a velocity v time graph from a position v time graph. *(S4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Waves

Draft Date	Course	Duration	Grades	Subjects	Team
06-07-2024	HS H/CP/GEN Principles of Science	2 Week(s)	9	Science	Allison Zmuda, Casey Banh, Marshall Edens

Focus

Let's switch gears and explore nature's symphony of motion, waves. Waves can be found across land, sea, sky, and even outer space. From the whispering melodies of radio waves coursing through the air, to the light waves that paint the world in hues of wonder, waves carry the pulse of energy and information that connects us all.

We will explore various forms of waves, learn to identify their characteristic properties, and how they are used in everyday life.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

  Clarifying Statement: Examples of data could include electromagnetic radiation traveling in a vacuum and glass, sound waves traveling through air and water, and seismic waves traveling through the Earth.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Waves are a repeating pattern of motion that transfers energy from

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What are the characteristic properties and behaviors of waves? *(Q1)*

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Assessment Boundary: Assessment is limited to algebraic relationships and describing those relationships qualitatively. *(3.2.9-12.T)*

- Evaluate questions about the advantages of using digital transmission and storage of information.

Clarifying Statement: Examples of advantages could include that digital information is stable because it can be stored reliably in computer memory, transferred easily, and copied and shared rapidly. Disadvantages could include issues of easy deletion, security, and theft.

Assessment Boundary: N/A *(3.2.9-12.U)*

- Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

Clarifying Statement: Emphasis is on the idea that photons associated with different frequencies of light have different energies, and the damage to living tissue from electromagnetic radiation depends on the energy of the radiation. Examples of published materials could include trade books, magazines, web resources, videos, and other passages that may reflect bias.

Assessment Boundary: Assessment is limited to qualitative descriptions. *(3.2.9-12.W)*

place to place without overall displacement of matter. *(U1)*

- What is light? How can one explain the varied effects that involve light? What other forms of electromagnetic radiation are there? *(Q2)*
- How are instruments that transmit and detect waves used to extend human senses? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Certain features are fundamental to waves (crests, troughs, wavelength, frequency, wave height, amplitude).
  - Wavelength is the distance between two crests or two troughs.
  - Frequency is the number of crests that pass a fixed point each second (unit: Hertz (Hz))
  - Wave height is the total vertical distance between trough and crest.
  - Amplitude is half the wave height.

  (K1)
- Electromagnetic waves pass through matter or without matter present. All other forms of waves (ex: sound, oceanic, seismic) require a medium. *(K2)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify the characteristic properties of waves. *(S1)*
- I can identify the common forms of waves. *(S2)*
- I can list examples of how waves are experienced in everyday life. *(S3)*
- I can explain how waves impact daily life and society through history. *(S4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Profile of a CV Learner		
■ Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)* ■ Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*	■ Information is transmitted in electromagnetic waves. (ex: radio and wifi) *(K3)*	



Lions

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Biology	16 Day(s)	10	Science	Tara Flick, Savannah Byers, Katherine Watson, James Hovan

Focus

The Lions Storyline integrates **social behavior, energetics, and genetics**. Mathematics is used to model and demonstrate the **net energy benefits** of cooperative hunting. Students analyze molecular genetics, and microsatellite data/DNA sequencing to reveal geographic and phylogenetic relationships between populations. Finally, physiological studies are used to examine how lions digest prey on a physical and biochemical level.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

  Clarifying Statement: N/A

  Assessment Boundary: Assessment does not include the identification of specific cell or tissue types, whole body systems, specific protein structures and functions, or the biochemistry of protein synthesis. *(3.1.9-12.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T4)*

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- Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

  Clarifying Statement: Emphasis is on functions at the organism system level, such as nutrient uptake, water delivery, and organism movement in response to neural stimuli. An example of an interacting system could be an artery depending on the proper function of elastic tissue and smooth muscle to regulate and deliver the proper amount of blood within the circulatory system.

  Assessment Boundary: Assessment does not include interactions and functions at the molecular or chemical reaction levels. *(3.1.9-12.B)*
- Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.

  Clarifying Statement: Emphasis is on using evidence from models and simulations to support explanations.

  Assessment Boundary: Assessment does not include the details of specific chemical reactions or identification of macromolecules. *(3.1.9-12.F)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Animals live in groups and the details of their social behavior is an adaptation for survival. *(U1)*
- Mathematical models can analyze the benefits of group hunting, and demonstrate that hunting options offer differences in efficiency. *(U2)*
- Analyzing karyotypes and alleles shows how genetic data can determine parentage and the composition and dynamics of animal populations. *(U3)*
- Using microsatellite data and DNA sequencing, students explore how geographic proximity can influence the genetic relatedness of populations and demonstrate how gene flow occurs between them. *(U4)*
- The structure of animal body systems can be used to determine the function of that system. *(U5)*
- Organisms obtain energy and raw materials by breaking down biological macromolecules into monomers and then using those molecules for energy or reassembling them into more complex structures like muscle and collagen. *(U6)*
- Specific enzymes are shaped to break down large macromolecules into

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do the structures of organisms enable life's functions? (A/B) *(Q1)*
- How do organisms obtain and use the energy they need to live and grow? (F/G) *(Q2)*
- How do organisms interact with the living and nonliving environments to obtain matter and energy? (H) *(Q3)*
- How do matter and energy move through an ecosystem? (J/L) *(Q4)*
- How do organisms interact in groups so as to benefit individuals? (O) *(Q5)*
- Why do individuals of the same species vary in how they look, function, and behave? (R) *(Q6)*
- What evidence supports the relationship between species? (S) *(Q7)*
- How does genetic variation among organisms affect survival and reproduction? (T) *(Q8)*

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- Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.

  Clarifying Statement: Emphasis is on the conceptual understanding of the inputs and outputs of the process of cellular respiration.

  Assessment Boundary: Assessment should not include identification of the steps or specific processes involved in cellular respiration. *(3.1.9-12.G)*
- Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

  Clarifying Statement: Emphasis is on using a mathematical model of stored energy in biomass to describe the transfer of energy from one trophic level to another and that matter and energy are conserved as matter cycles and energy flows through ecosystems. Emphasis is on atoms and molecules such as carbon, oxygen, hydrogen, and nitrogen being conserved as they move through an ecosystem.

  Assessment Boundary: Assessment is limited to proportional reasoning to describe the cycling of matter and flow of energy. *(3.1.9-12.H)*

smaller molecules that can be absorbed and used by the body. *(U7)*
- Organisms**,** when placed within the broader context of a food web, illustrate the flow of energy and the interactions between producers and various levels of consumers. *(U8)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- All cells contain genetic information in the form of DNA. (A) *(K1)*
- DNA replication is semiconservative. (A) *(K2)*
- Genes are sections of DNA that contain instructions for a protein to be made through the processes of transcription and translation. (A) *(K3)*
- Multicellular organisms have levels or biological organization. (B) *(K4)*
- Differences between prokaryotic and eukaryotic cells. (B) *(K5)*
- Sugar molecules are made of oxygen, carbon, and hydrogen. (F) *(K6)*
- Oxygen, hydrogen, and carbon from sugar are used to build organic macromolecules. (F) *(K7)*
- Polymers consist of building blocks called monomers. (F) *(K8)*
- Cellular respiration uses sugar, oxygen, and ADP to produce water, carbon

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain based on valid and reliable evidence that DNA determines the structure of proteins. (A) *(S1)*
- I can develop and use a model to illustrate the levels of biological organization of multicellular organisms. (B) *(S2)*
- I can demonstrate using a model that illustrates how carbon, hydrogen, and oxygen from sugar may form other carbon-based molecules. (F) *(S3)*
- I can demonstrate using a model that illustrates how cellular respiration is a chemical process that results in a net transfer of energy from the formation of new bonds. (G) *(S4)*
- I can use mathematical models to explain and support claims about the flow of energy and the cycling of matter. (H) *(S5)*
- I can construct and revise an explanation based on evidence for the cycling of matter and flow of energy in

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- Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

  Clarifying Statement: Emphasis is on conceptual understanding of the role of aerobic and anaerobic respiration in different environments.

  Assessment Boundary: Assessment does not include the specific chemical processes of either aerobic or anaerobic respiration. *(3.1.9-12.J)*
- Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

  Clarifying Statement: Examples of mathematical representations include finding the average, determining trends, and using graphical comparisons of multiple sets of data.

  Assessment Boundary: Assessment is limited to provided data. *(3.1.9-12.L)*
- Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.

  Clarifying Statement: Emphasis is on: (1) distinguishing between group and individual behavior, (2) identifying evidence supporting the outcomes of group

dioxide, and energy in the form of ATP. (G) *(K9)*
- Energy produced by cellular respiration is used to maintain body temperature, perform life functions, and is released as heat to the environment. (G) *(K10)*
- The amount of available energy decreases as you move up a food web. (H) *(K11)*
- While energy cannot be created or destroyed, it can move from one system to another. (H) *(K12)*
- Matter releases energy for life functions, is stored in newly made structures, or is discarded. (H) *(K13)*
- Matter cycles through biotic and abiotic parts of an ecosystem. (H) *(K14)*
- Matter is cycled interdependently between photosynthesis and respiration. (J) *(K15)*
- Cellular respiration can occur in aerobic and anaerobic conditions. (J) *(K16)*
- The availability of resources and habitat impacts the biodiversity of an ecosystem. (L) *(K17)*
- Group behavior has evolved because it can increase the chances of survival for individuals and their genetic relatives. (O) *(K18)*
- Environmental factors can cause mutations which can be inherited and affect expression of traits. (R) *(K19)*
- The distribution of some traits (genotype and phenotype) can be

aerobic and anaerobic conditions. (J) *(S6)*
- I can use evidence-based mathematical representations to explain factors that affect biodiversity and populations of different scales. (L) *(S7)*
- I can evaluate evidence of how group behavior can influence an individual's and a species's chances of survival. (O) *(S8)*
- I can apply statistics and probability to predict the distribution of traits using Punnett Squares. (R) *(S9)*
- I can communicate scientific information to support biological evolution and common ancestry. (S) *(S10)*
- I can explain that evolution is primarily caused by natural selection using evidence. (T) *(S11)*

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behavior, and (3) developing logical and reasonable arguments based on evidence. Examples of group behaviors could include flocking, schooling, herding, and cooperative behaviors such as hunting, migrating, and swarming.

Assessment Boundary: N/A *(3.1.9-12.O)*

- Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.

Clarifying Statement: Emphasis is on the use of mathematics to describe the probability of traits as it relates to genetic and environmental factors in the expression of traits.

Assessment Boundary: Assessment does not include Hardy-Weinberg calculations. *(3.1.9-12.R)*

- Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.

Clarifying Statement: Emphasis is on a conceptual understanding of the role each line of evidence has relating to common ancestry and biological evolution. Examples of evidence could include similarities in DNA sequences, anatomical structures, and order of appearance of structures in embryological development.

Assessment Boundary: N/A *(3.1.9-12.S)*

predicted using Punnett Squares. (R) *(K20)*

- Fossils, anatomy, embryology, and genetics show evidence for evolution. (S) *(K21)*
- Natural selection only occurs when there is biodiversity through genetic variation (mutation and sexual reproduction), competition, and differences in gene expression. (T) *(K22)*

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- Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.

  Clarifying Statement: Emphasis is on using evidence to explain the influence each of the four factors has on number of organisms, behaviors, morphology, or physiology in terms of ability to compete for limited resources and subsequent survival of individuals and adaptation of species. Examples of evidence could include mathematical models such as simple distribution graphs and proportional reasoning.

  Assessment Boundary: Assessment does not include other mechanisms of evolution, such as genetic drift, gene flow through migration, and co-evolution. *(3.1.9-12.T)*

Environmental Literacy & Sustainability (2023): 9-12 Environmental Literacy & Sustainability

- Apply research and analytical skills to systematically investigate environmental issues ranging from local issues to those

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that are regional or global in scope. *(3.4.9-12.D)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*



Elephants

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Biology	14 Day(s)	10	Science	Tara Flick, Savannah Byers, Katherine Watson, James Hovan

Focus

The Elephants Storyline examines **population** limits, focusing on water as a critical **abiotic factor**. Students investigate tusklessness as a **genetic response** to poaching, using DNA data to track ivory origins. Lessons highlight elephants as **keystone species** essential for seed dispersal and **biodiversity**. Finally, students explore **niche partitioning** and plant physiology to understand overall ecosystem survival. Students expand their understanding of concepts focusing on **energy** and **genetics** from the previous unit.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

  Clarifying Statement: N/A

  Assessment Boundary: Assessment does not include specific gene control mechanisms or rote memorization of the steps of mitosis. *(3.1.9-12.D)*
- Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T4)*

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Clarifying Statement: Emphasis is on illustrating inputs and outputs of matter and the transfer and transformation of energy in photosynthesis by plants and other photosynthesizing organisms. Examples of models could include diagrams, chemical equations, and conceptual models.

Assessment Boundary: Assessment does not include specific biochemical steps. *(3.1.9-12.E)*

- Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.

Clarifying Statement: Emphasis is on using evidence from models and simulations to support explanations.

Assessment Boundary: Assessment does not include the details of specific chemical reactions or identification of macromolecules. *(3.1.9-12.F)*

- Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.

Clarifying Statement: Emphasis is on the

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- A species population density is strictly controlled by the availability of resources, specifically water. Population distribution correlates directly with water/other resource locations. *(U1)*
- Human activities can act as a powerful selective pressure. This can lead to a genetic response in some populations where a mutation or a rare trait becomes more prevalent because of differential survival. *(U2)*
- Keystone species are essential for maintaining ecosystem biodiversity. Their roles in supporting biodiversity can be varied, but their absence will result in a dramatic loss in biodiversity. *(U3)*
- Organisms occupy a specific ecological niche by partitioning resources. For example, by eating different types of plants or different parts of the same plants, different species minimize direct competition. *(U4)*
- Loss of natural habitat will result in increased pressure on the remaining organisms in an ecosystem. *(U5)*
- Population sampling (such as transect sampling) is used by scientists to

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do organisms grow and develop? (D) *(Q1)*
- How do organisms obtain and use the energy they need to live and grow? (G and E) *(Q2)*
- How do organisms obtain and use the energy they need to live and grow? (F) *(Q3)*
- How do organisms interact with the living and nonliving environments to obtain matter and energy? (H) *(Q4)*
- How do matter and energy move through an ecosystem? (J and K) *(Q5)*
- How do matter and energy move through an ecosystem? (L) *(Q6)*
- Why do individuals of the same species vary in how they look, function, and behave? (R) *(Q7)*
- How does genetic variation among organisms affect survival and reproduction? (T and U) *(Q8)*
- How does the environment influence populations of organisms over multiple generations? (W) *(Q9)*

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conceptual understanding of the inputs and outputs of the process of cellular respiration.

Assessment Boundary: Assessment should not include identification of the steps or specific processes involved in cellular respiration. *(3.1.9-12.G)*

- Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

Clarifying Statement: Emphasis is on using a mathematical model of stored energy in biomass to describe the transfer of energy from one trophic level to another and that matter and energy are conserved as matter cycles and energy flows through ecosystems. Emphasis is on atoms and molecules such as carbon, oxygen, hydrogen, and nitrogen being conserved as they move through an ecosystem.

Assessment Boundary: Assessment is limited to proportional reasoning to describe the cycling of matter and flow of energy. *(3.1.9-12.H)*

- Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

Clarifying Statement: Emphasis is on conceptual understanding of the role of aerobic and anaerobic respiration in

estimate the size and health of wildlife populations. *(U6)*

- The social structures that animals use are critical for survival, as the group collectively protects its members from predators especially during times of environmental stress like droughts. *(U7)*
- Animal physiology is adapted to various diets. There are differences in the digestive tracts of carnivores, herbivores, and omnivores. *(U8)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Multicellular organisms grow and differentiate cells via mitosis. (D) *(K1)*
- Cell division and differentiation produce and maintain tissues and organs that work together. (D) *(K2)*
- Mitosis produces two identical body cells from one parent cell. (D) *(K3)*
- The cell cycle includes interphase, mitosis, and cytokinesis. (D) *(K4)*
- Photosynthesis converts light energy into chemical energy using carbon dioxide and water to make sugar and oxygen. (E) *(K5)*
- Sugar molecules are made of oxygen, carbon, and hydrogen. (F) *(K6)*
- Oxygen, hydrogen, and carbon from sugar are used to build organic macromolecules. (F) *(K7)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. (D) *(S1)*
- I can use a model to show how photosynthesis transforms light energy into stored chemical energy. (E) *(S2)*
- I can demonstrate using a model that illustrates how carbon, hydrogen, and oxygen from sugar may form other carbon-based molecules. (F) *(S3)*
- I can demonstrate using a model that illustrates how cellular respiration is a chemical process that results in a net transfer of energy from the formation of new bonds. (G) *(S4)*
- I can use mathematical models to explain and support claims about the

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different environments.

Assessment Boundary: Assessment does not include the specific chemical processes of either aerobic or anaerobic respiration. *(3.1.9-12.J)*

- Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.

Clarifying Statement: Examples of models could include simulations and mathematical models.

Assessment Boundary: Assessment does not include the specific chemical steps of photosynthesis and respiration. *(3.1.9-12.K)*

- Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

Clarifying Statement: Examples of mathematical representations include finding the average, determining trends, and using graphical comparisons of multiple sets of data.

Assessment Boundary: Assessment is limited to provided data. *(3.1.9-12.L)*

- Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.

- Polymers consist of building blocks called monomers. (F) *(K8)*
- Cellular respiration uses sugar, oxygen, and ADP to produce water, carbon dioxide, and energy in the form of ATP. (G) *(K9)*
- Energy produced by cellular respiration is used to maintain body temperature, perform life functions, and is released as heat to the environment. (G) *(K10)*
- The amount of available energy decreases as you move up a food web. (H) *(K11)*
- While energy cannot be created or destroyed, it can move from one system to another. (H) *(K12)*
- Matter releases energy for life functions, is stored in newly made structures, or is discarded. (H) *(K13)*
- Matter cycles through biotic and abiotic parts of an ecosystem. (H) *(K14)*
- Matter is cycled interdependently between photosynthesis and respiration. (J) *(K15)*
- Cellular respiration can occur in aerobic and anaerobic conditions. (J) *(K16)*
- Carbon is exchanged within the biosphere among the atmosphere, hydrosphere, and geosphere. (K) *(K17)*
- The availability of resources and habitat impacts the biodiversity of an ecosystem. (L) *(K18)*
- Natural selection only occurs when there is biodiversity through genetic variation (mutation and sexual

flow of energy and the cycling of matter. (H) *(S5)*

- I can construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. (J) *(S6)*
- I can develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. (K) *(S7)*
- I can use evidence-based mathematical representations to explain factors that affect biodiversity and populations of different scales. (L) *(S8)*
- I can apply statistics and probability to predict the distribution of traits using Punnett Squares. (R) *(S9)*
- I can explain that evolution is primarily caused by natural selection using evidence. (T) *(S10)*
- I can apply statistics and probability to study advantageous traits in populations. (U) *(S11)*
- I can explain how natural selection leads to adaptations of populations using evidence. (W) *(S12)*

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Clarifying Statement: Emphasis is on the use of mathematics to describe the probability of traits as it relates to genetic and environmental factors in the expression of traits.

Assessment Boundary: Assessment does not include Hardy-Weinberg calculations. *(3.1.9-12.R)*

- Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.

Clarifying Statement: Emphasis is on using evidence to explain the influence each of the four factors has on number of organisms, behaviors, morphology, or physiology in terms of ability to compete for limited resources and subsequent survival of individuals and adaptation of species. Examples of evidence could include mathematical models such as simple distribution graphs and proportional reasoning.

Assessment Boundary: Assessment does not include other mechanisms of evolution, such as genetic drift, gene flow

reproduction), competition, and differences in gene expression. (T) *(K19)*
- Traits that positively affect survival are more likely to be reproduced and thus become more common. (U) *(K20)*
- Changes in allele frequency show that evolution has occurred. (U) *(K21)*
- Adaptations are traits that help an organism to survive and reproduce. (W) *(K22)*

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through migration, and co-evolution. *(3.1.9-12.T)*

- Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.

  Clarifying Statement: Emphasis is on analyzing shifts in numerical distribution of traits and using these shifts as evidence to support explanations.

  Assessment Boundary: Assessment is limited to basic statistical and graphical analysis. Assessment does not include allele frequency calculations. *(3.1.9-12.U)*
- Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

  Clarifying Statement: Emphasis is on using data to provide evidence for how specific biotic and abiotic differences in ecosystems (such as ranges of seasonal temperature, long-term climate change, acidity, light, geographic barriers, or evolution of other organisms) contribute to a change in gene frequency over time, leading to adaptation of populations.

  Assessment Boundary: N/A *(3.1.9-12.W)*

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Environmental Literacy & Sustainability (2023): 9-12 Environmental Literacy & Sustainability

- Apply research and analytical skills to systematically investigate environmental issues ranging from local issues to those that are regional or global in scope. *(3.4.9-12.D)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*



Otters

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Biology	15 Day(s)	10	Science	Tara Flick, Savannah Byers, Katherine Watson, James Hovan

Focus

The **Homeostasis** Storyline examines biological regulation across ecosystem, **population**, and cellular levels using sea otters as a focal point. Students investigate how **keystone species** maintain **community** stability and how **abiotic factors** like **ocean acidification** impact organisms. Finally, they explore physiological homeostasis through **gas exchange** and metabolic processes occurring within cells. Students gain an understanding of how **biological processes** from previous units are **maintained**.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

  Clarifying Statement: Emphasis is on functions at the organism system level, such as nutrient uptake, water delivery, and organism movement in response to neural stimuli. An example of an interacting system could be an artery depending on the proper function of elastic tissue and smooth muscle to regulate and deliver the proper amount of

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T4)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T5)*

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blood within the circulatory system.

Assessment Boundary: Assessment does not include interactions and functions at the molecular or chemical reaction levels. *(3.1.9-12.B)*

- Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Clarifying Statement: Examples of investigations could include heart rate response to exercise, stomate response to moisture and temperature, and root development in response to water levels.

Assessment Boundary: Assessment does not include the cellular processes involved in the feedback mechanism. *(3.1.9-12.C)*

- Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.

Clarifying Statement: Emphasis is on using evidence from models and simulations to support explanations.

Assessment Boundary: Assessment does not include the details of specific chemical reactions or identification of macromolecules. *(3.1.9-12.F)*

- Use a model to illustrate that cellular respiration is a chemical process whereby

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Life is regulated across multiple scales—ecosystem, community, population, cellular, and molecular. *(U1)*
- Keystone species maintain the stability of an entire community. The removal of such a species causes a "trophic cascade" that disrupts the balance of the ecosystem. *(U2)*
- Abiotic factors like temperature and atmospheric CO2 impact marine life. *(U3)*
- Biotic and abiotic factors limit population growth. Carrying capacity can help us to understand what a population must look like to maintain ecosystem homeostasis. *(U4)*
- Selective pressure changes population traits like size or physiology over time. This is different from genetic drift, where trait prevalences change even when they are not the selective factor. *(U5)*
- Photosynthesis and cellular respiration are crucial to the cycling of matter (i.e. carbon and nitrogen) through an ecosystem. *(U6)*
- Homeostasis is maintained at the cellular level through membrane

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do the structures of organisms enable life's functions? (B and C) *(Q1)*
- How do organisms obtain and use the energy they need to live and grow? (G) *(Q2)*
- How do organisms obtain and use the energy they need to live and grow? (F) *(Q3)*
- How do organisms interact with the living and nonliving environments to obtain matter and energy? (H and I) *(Q4)*
- How do matter and energy move through an ecosystem? (J and K) *(Q5)*
- How do matter and energy move through an ecosystem? (L) *(Q6)*
- How do environmental changes impact ecosystems? (M and N) *(Q7)*
- How does genetic variation among organisms affect survival and reproduction? (U) *(Q8)*
- How does the environment influence populations of organisms over multiple generations? (V, W, and X) *(Q9)*

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the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.

Clarifying Statement: Emphasis is on the conceptual understanding of the inputs and outputs of the process of cellular respiration.

Assessment Boundary: Assessment should not include identification of the steps or specific processes involved in cellular respiration. *(3.1.9-12.G)*

- Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

Clarifying Statement: Emphasis is on using a mathematical model of stored energy in biomass to describe the transfer of energy from one trophic level to another and that matter and energy are conserved as matter cycles and energy flows through ecosystems. Emphasis is on atoms and molecules such as carbon, oxygen, hydrogen, and nitrogen being conserved as they move through an ecosystem.

Assessment Boundary: Assessment is limited to proportional reasoning to describe the cycling of matter and flow of energy. *(3.1.9-12.H)*

- Use mathematical and/or computational representations to support explanations of transport mechanisms like diffusion and osmosis. *(U7)*
- Feedback loops illustrate how organisms maintain homeostasis under different conditions. *(U8)*
- On a molecular level, the respiratory and digestive systems deliver necessary molecules (like oxygen and glucose) to cells for metabolism. *(U9)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Multicellular organisms have levels or biological organization. (B) *(K1)*
- Differences between prokaryotic and eukaryotic cells. (B) *(K2)*
- Positive and negative feedback mechanisms maintain stable internal conditions and mediate behaviors as external conditions change. (C) *(K3)*
- Sugar molecules are made of oxygen, carbon, and hydrogen. (F) *(K4)*
- Oxygen, hydrogen, and carbon from sugar are used to build organic macromolecules. (F) *(K5)*
- Polymers consist of building blocks called monomers. (F) *(K6)*
- Cellular respiration uses sugar, oxygen, and ADP to produce water, carbon dioxide, and energy in the form of ATP. (G) *(K7)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can develop and use a model to illustrate the levels of biological organization of multicellular organisms. (B) *(S1)*
- I can plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. (C) *(S2)*
- I can demonstrate using a model that illustrates how carbon, hydrogen, and oxygen from sugar may form other carbon-based molecules. (F) *(S3)*
- I can demonstrate using a model that illustrates how cellular respiration is a chemical process that results in a net transfer of energy from the formation of new bonds. (G) *(S4)*
- I can use mathematical models to explain and support claims about the flow of energy and the cycling of matter. (H) *(S5)*

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factors that affect carrying capacity of ecosystems at different scales.

Clarifying Statement: Emphasis is on quantitative analysis and comparison of the relationships among interdependent factors including boundaries, resources, climate, and competition. Examples of mathematical comparisons could include graphs, charts, histograms, and population changes gathered from simulations or historical data sets.

Assessment Boundary: Assessment does not include deriving mathematical equations to make comparisons. *(3.1.9-12.I)*

- Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

Clarifying Statement: Emphasis is on conceptual understanding of the role of aerobic and anaerobic respiration in different environments.

Assessment Boundary: Assessment does not include the specific chemical processes of either aerobic or anaerobic respiration. *(3.1.9-12.J)*

- Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.

Clarifying Statement: Examples of models

- Energy produced by cellular respiration is used to maintain body temperature, perform life functions, and is released as heat to the environment. (G) *(K8)*
- The amount of available energy decreases as you move up a food web. (H) *(K9)*
- While energy cannot be created or destroyed, it can move from one system to another. (H) *(K10)*
- Matter releases energy for life functions, is stored in newly made structures, or is discarded. (H) *(K11)*
- Matter cycles through biotic and abiotic parts of an ecosystem. (H) *(K12)*
- Limiting factors such as predation, competition, and disease create carrying capacities for populations. (I) *(K13)*
- Populations can have exponential growth if resources are abundant. (I) *(K14)*
- Matter is cycled interdependently between photosynthesis and respiration. (J) *(K15)*
- Cellular respiration can occur in aerobic and anaerobic conditions. (J) *(K16)*
- Carbon is exchanged within the biosphere among the atmosphere, hydrosphere, and geosphere. (K) *(K17)*
- The availability of resources and habitat impacts the biodiversity of an ecosystem. (L/M) *(K18)*
- Complex interactions maintain relative consistency in an ecosystem. (M) *(K19)*

- I can use mathematical models to explain the factors that affect the carrying capacity of ecosystems at different scales. (I) *(S6)*
- I can construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. (J) *(S7)*
- I can develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. (K) *(S8)*
- I can use evidence-based mathematical representations to explain factors that affect biodiversity and populations of different scales. (L) *(S9)*
- I can evaluate and discuss how factors maintain ecosystem stability and also lead to change. (M) *(S10)*
- I can design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. (N) *(S11)*
- I can apply statistics and probability to study advantageous traits in populations. (U) *(S12)*
- I can use a simulation to analyze the negative impacts of human activity on biodiversity. (V) *(S13)*
- I can explain how natural selection leads to adaptations of populations using evidence. (W) *(S14)*
- I can evaluate the evidence supporting claims that changes in environmental

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could include simulations and mathematical models.

Assessment Boundary: Assessment does not include the specific chemical steps of photosynthesis and respiration. *(3.1.9-12.K)*

- Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

Clarifying Statement: Examples of mathematical representations include finding the average, determining trends, and using graphical comparisons of multiple sets of data.

Assessment Boundary: Assessment is limited to provided data. *(3.1.9-12.L)*

- Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

Clarifying Statement: Examples of changes in ecosystem conditions could include modest biological or physical changes, such as moderate hunting or a seasonal flood; and extreme changes, such as volcanic eruption or sea level rise.

Assessment Boundary: N/A *(3.1.9-12.M)*

- Small disturbances may cause an ecosystem to return to its original status (succession). (M) *(K20)*
- Habitat destruction, pollution, invasive species, over-exploitation, and climate change can disrupt and threaten an ecosystem. (N) *(K21)*
- Traits that positively affect survival are more likely to be reproduced and thus become more common. (U) *(K22)*
- Changes in allele frequency show that evolution has occurred. (U) *(K23)*
- Natural and manmade changes in the environment drive natural selection. (V) *(K24)*
- Natural selection can lead to the expansion, emergence, or decline/extinction of new species through speciation. (V/X) *(K25)*
- Adaptations are traits that help an organism to survive and reproduce. (W) *(K26)*
- Species become extinct when they cannot survive in their environment. (X) *(K27)*

conditions may result in increases in the number of individuals of some species, the emergence of new species over time, and the extinction of other species. (X) *(S15)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

  Clarifying Statement: Examples of human activities can include urbanization, building dams, and dissemination of invasive species.

  Assessment Boundary: N/A *(3.1.9-12.N)*
- Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.

  Clarifying Statement: Emphasis is on analyzing shifts in numerical distribution of traits and using these shifts as evidence to support explanations.

  Assessment Boundary: Assessment is limited to basic statistical and graphical analysis. Assessment does not include allele frequency calculations. *(3.1.9-12.U)*
- Create or revise a simulation to test a solution to mitigate the adverse impacts of human activity on biodiversity.

  Clarifying Statement: Emphasis is on designing solutions for a proposed problem related to threatened or endangered species, or to genetic variation of organisms for multiple species.

  Assessment Boundary: N/A *(3.1.9-12.V)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

  Clarifying Statement: Emphasis is on using data to provide evidence for how specific biotic and abiotic differences in ecosystems (such as ranges of seasonal temperature, long-term climate change, acidity, light, geographic barriers, or evolution of other organisms) contribute to a change in gene frequency over time, leading to adaptation of populations.

  Assessment Boundary: N/A *(3.1.9-12.W)*
- Evaluate the evidence supporting claims that changes in environmental conditions may result in (1)increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.

  Clarifying Statement: Emphasis is on determining cause and effect relationships for how changes to the environment such as deforestation, fishing, application of fertilizers, drought, flood, and the rate of change of the environment affect distribution or disappearance of traits in species.

  Assessment Boundary: N/A *(3.1.9-12.X)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their

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writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)* ■ Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*	



Melanin

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Biology	15 Day(s)	10	Science	Tara Flick, Savannah Byers, Katherine Watson, James Hovan

Focus

The **Melanin** Storyline investigates the biological and evolutionary basis of pigmentation, focusing on how traits vary among individuals. Students examine **albinism** through **pedigrees** and **Punnett squares**, eventually exploring how DNA **mutations** alter protein structure to determine **phenotypes**. Finally, the curriculum analyzes **evolutionary trade-offs** involving UV radiation and nutrient synthesis across different species. Students expand their understanding of concepts focusing on **genetics** from the previous units.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

  Clarifying Statement: N/A

  Assessment Boundary: Assessment does not include the identification of specific cell or tissue types, whole body systems, specific protein structures and functions, or the biochemistry of protein synthesis. *(3.1.9-12.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T4)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T5)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

- Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

  Clarifying Statement: Examples of investigations could include heart rate response to exercise, stomate response to moisture and temperature, and root development in response to water levels.

  Assessment Boundary: Assessment does not include the cellular processes involved in the feedback mechanism. *(3.1.9-12.C)*
- Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

  Clarifying Statement: Emphasis is on quantitative analysis and comparison of the relationships among interdependent factors including boundaries, resources, climate, and competition. Examples of mathematical comparisons could include graphs, charts, histograms, and population changes gathered from simulations or historical data sets.

  Assessment Boundary: Assessment does not include deriving mathematical equations to make comparisons. *(3.1.9-12.I)*
- Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Traits vary among individuals and are passed through generations. Pedigrees and Punnett squares to model how recessive alleles lead to specific phenotypes. *(U1)*
- DNA sequence (genotype) provides the instructions for building proteins that result in physical characteristics (phenotype). *(U2)*
- Silent, missense, nonsense, and frameshift mutations can alter the amino acid sequence during transcription and translation. *(U3)*
- A protein's structure dictates its function. Mutations can cause proteins to fold incorrectly, leading to varied phenotypes. *(U4)*
- Human skin tone evolution is tied to geographic location and levels of UV radiation. *(U5)*
- Proteins can provide a survival advantage for organisms through traits such as body color. While mutations are random, the environment exerts selective pressure that changes the frequency of body color traits in a population over time. *(U6)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do the structures of organisms enable life's functions? (A) *(Q1)*
- How do the structures of organisms enable life's functions? (C) *(Q2)*
- How do organisms interact with the living and nonliving environments to obtain matter and energy? (I) *(Q3)*
- How do matter and energy move through an ecosystem? (L) *(Q4)*
- How are the characteristics of one generation related to the previous generation? (P) *(Q5)*
- Why do individuals of the same species vary in how they look, function, and behave? (Q and R) *(Q6)*
- How does genetic variation among organisms affect survival and reproduction? (T and U) *(Q7)*
- How does the environment influence populations of organisms over multiple generations? (V) *(Q8)*

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Clarifying Statement: Examples of mathematical representations include finding the average, determining trends, and using graphical comparisons of multiple sets of data.

Assessment Boundary: Assessment is limited to provided data. *(3.1.9-12.L)*

- Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.

Clarifying Statement: N/A

Assessment Boundary: Assessment does not include the phases of meiosis or the biochemical mechanism of specific steps in the process. *(3.1.9-12.P)*

- Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.

Clarifying Statement: Emphasis is on using data to support arguments for the way variation occurs.

Assessment Boundary: Assessment does not include the phases of meiosis or the biochemical mechanism of specific steps in the process. *(3.1.9-12.Q)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- All cells contain genetic information in the form of DNA. (A) *(K1)*
- DNA replication is semiconservative. (A) *(K2)*
- Genes are sections of DNA that contain instructions for a protein to be made through the processes of transcription and translation. (A) *(K3)*
- Positive and negative feedback mechanisms maintain stable internal conditions and mediate behaviors as external conditions change. (C) *(K4)*
- Limiting factors such as predation, competition, and disease create carrying capacities for populations. (I) *(K5)*
- Populations can have exponential growth if resources are abundant. (I) *(K6)*
- The availability of resources and habitat impacts the biodiversity of an ecosystem. (L) *(K7)*
- Chromosomes contain specific genes located on a long strand of DNA. (P) *(K8)*
- Gene expression is regulated in different ways. (P) *(K9)*
- Some parts of DNA do not code for proteins, can be involved in gene

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain based on valid and reliable evidence that DNA determines the structure of proteins. (A) *(S1)*
- I can plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. (C) *(S2)*
- I can use mathematical models to explain the factors that affect the carrying capacity of ecosystems at different scales. (I) *(S3)*
- I can use evidence-based mathematical representations to explain factors that affect biodiversity and populations of different scales. (L) *(S4)*
- I can examine models to clarify relationships between DNA and inherited traits. (P) *(S5)*
- I can make and defend a claim based on evidence that inherited variation is caused by meiosis and mutations from either DNA replication or environmental factors. (Q) *(S6)*
- I can apply statistics and probability to predict the distribution of traits using Punnett Squares. (R) *(S7)*
- I can explain that evolution is primarily caused by natural selection using evidence. (T) *(S8)*

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- Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.

  Clarifying Statement: Emphasis is on the use of mathematics to describe the probability of traits as it relates to genetic and environmental factors in the expression of traits.

  Assessment Boundary: Assessment does not include Hardy-Weinberg calculations. *(3.1.9-12.R)*
- Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.

  Clarifying Statement: Emphasis is on using evidence to explain the influence each of the four factors has on number of organisms, behaviors, morphology, or physiology in terms of ability to compete for limited resources and subsequent survival of individuals and adaptation of species. Examples of evidence could include mathematical models such as simple distribution graphs and proportional reasoning.

expression, or have no known function. (P) *(K10)*
- Meiosis creates genetic diversity through independent assortment and crossing-over. (Q) *(K11)*
- Mutations can occur during replication and cause genetic variation. (Q) *(K12)*
- Environmental factors can cause mutations which can be inherited and affect expression of traits. (Q/R) *(K13)*
- The distribution of some traits (genotype and phenotype) can be predicted using Punnett Squares. (R) *(K14)*
- Natural selection only occurs when there is biodiversity through genetic variation (mutation and sexual reproduction), competition, and differences in gene expression. (T) *(K15)*
- Traits that positively affect survival are more likely to be reproduced and thus become more common. (U) *(K16)*
- Changes in allele frequency show that evolution has occurred. (U) *(K17)*
- Adaptations are traits that help an organism to survive and reproduce. (W) *(K18)*

- I can apply statistics and probability to study advantageous traits in populations. (U) *(S9)*
- I can explain how natural selection leads to adaptations of populations using evidence. (W) *(S10)*

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Assessment Boundary: Assessment does not include other mechanisms of evolution, such as genetic drift, gene flow through migration, and co-evolution. *(3.1.9-12.T)*

- Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.

Clarifying Statement: Emphasis is on analyzing shifts in numerical distribution of traits and using these shifts as evidence to support explanations.

Assessment Boundary: Assessment is limited to basic statistical and graphical analysis. Assessment does not include allele frequency calculations. *(3.1.9-12.U)*

- Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

Clarifying Statement: Emphasis is on using data to provide evidence for how specific biotic and abiotic differences in ecosystems (such as ranges of seasonal temperature, long-term climate change, acidity, light, geographic barriers, or evolution of other organisms) contribute to a change in gene frequency over time, leading to adaptation of populations.

Assessment Boundary: N/A *(3.1.9-12.W)*

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Profile of a CV Learner
■ Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)* ■ Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

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Disease

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Biology	13 Day(s)	10	Science	Tara Flick, Savannah Byers, Katherine Watson, James Hovan

Focus

The **Disease** Storyline investigates uncontrolled cell division, primarily focusing on **cancer** as the anchoring phenomenon. Students compare normal and cancerous cells, exploring the **cell cycle**, regulation checkpoints, and **apoptosis**. Through models of **DNA replication** and **mutations**, they analyze how genetic changes, environmental factors, and **viruses** disrupt biological stability. Students gain an understanding of how **biological processes** from previous units can be disrupted.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

  Clarifying Statement: N/A

  Assessment Boundary: Assessment does not include the identification of specific cell or tissue types, whole body systems, specific protein structures and functions,

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T4)*
- Explain how the natural and designed worlds are interrelated and the application of scientific knowledge and technology can have beneficial, detrimental, or unintended consequences. (Global Citizen, Communicator) *(T5)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T6)*

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or the biochemistry of protein synthesis. *(3.1.9-12.A)*

- Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

  Clarifying Statement: Examples of investigations could include heart rate response to exercise, stomate response to moisture and temperature, and root development in response to water levels.

  Assessment Boundary: Assessment does not include the cellular processes involved in the feedback mechanism. *(3.1.9-12.C)*
- Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

  Clarifying Statement: N/A

  Assessment Boundary: Assessment does not include specific gene control mechanisms or rote memorization of the steps of mitosis. *(3.1.9-12.D)*
- Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.

  Clarifying Statement: N/A

  Assessment Boundary: Assessment does not include the phases of meiosis or the

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Cancer cells divide faster and more frequently than healthy cells, spending less time in the cell cycle and signaling a dysregulation of mitosis. *(U1)*
- Normal growth and repair in organisms are managed by a tightly regulated cell cycle containing specific checkpoints. *(U2)*
- Mitosis and meiosis are the types of cell division that occur in eukaryotic cells. *(U3)*
- DNA carries the essential instructions for cell division; replication ensures each daughter cell receives an identical copy of this genetic code. *(U4)*
- Random DNA mutations—such as substitutions, insertions, or deletions—can alter the amino acid sequence during transcription and translation. These changes affect protein structure and function, which can disrupt cell regulation. *(U5)*
- Specific genes, such as p53, act as regulators to prevent tumor growth. *(U6)*
- Programmed cell death (apoptosis) is a vital process for maintaining constant cell numbers and preventing the perpetuation of damaged DNA. *(U7)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do the structures of organisms enable life's functions? (A and C) *(Q1)*
- How do organisms grow and develop? (D) *(Q2)*
- How are the characteristics of one generation related to the previous generation? (P) *(Q3)*
- Why do individuals of the same species vary in how they look, function, and behave? (Q) *(Q4)*

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biochemical mechanism of specific steps in the process. *(3.1.9-12.P)*

- Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.

  Clarifying Statement: Emphasis is on using data to support arguments for the way variation occurs.

  Assessment Boundary: Assessment does not include the phases of meiosis or the biochemical mechanism of specific steps in the process. *(3.1.9-12.Q)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

- Many issues surrounding disease and its treatment raise concerns about decisions that protect the humanity of all stakeholders. Bioethics is the branch of thought that opens up these discussions and guides decisions that are made regarding diseases, their treatment, and other biological questions. *(U8)*
- Beyond genetics, external factors like the viruses can cause cancer by integrating viral DNA into the host genome, thereby changing the genetic sequence. *(U9)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- All cells contain genetic information in the form of DNA. (A) *(K1)*
- DNA replication is semiconservative. (A) *(K2)*
- Genes are sections of DNA that contain instructions for a protein to be made through the processes of transcription and translation. (A) *(K3)*
- Positive and negative feedback mechanisms maintain stable internal conditions and mediate behaviors as external conditions change. (C) *(K4)*
- Multicellular organisms grow and differentiate cells via mitosis. (D) *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain based on valid and reliable evidence that DNA determines the structure of proteins. (A) *(S1)*
- I can plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. (C) *(S2)*
- I can use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. (D) *(S3)*
- I can examine models to clarify relationships between DNA and inherited traits. (P) *(S4)*

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	■ Cell division and differentiation produce and maintain tissues and organs that work together. (D) *(K6)* ■ Mitosis produces two identical body cells from one parent cell. (D) *(K7)* ■ The cell cycle includes interphase, mitosis, and cytokinesis. (D) *(K8)* ■ Chromosomes contain specific genes located on a long strand of DNA. (P) *(K9)* ■ Gene expression is regulated in different ways. (P) *(K10)* ■ Some parts of DNA do not code for proteins, can be involved in gene expression, or have no known function. (P) *(K11)* ■ Meiosis creates genetic diversity through independent assortment and crossing-over. (Q) *(K12)* ■ Mutations can occur during replication and cause genetic variation. (Q) *(K13)* ■ Environmental factors can cause mutations which can be inherited and affect expression of traits. (Q) *(K14)*	■ I can make and defend a claim based on evidence that inherited variation is caused by meiosis and mutations from either DNA replication or environmental factors. (Q) *(S5)*



Citizen Science at Outdoor School

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-03-2026	HS H/CP Biology	7 Day(s)	10	Science	Tara Flick, Savannah Byers, Katherine Watson, James Hovan

Focus

The Citizen Science Unit allows students to be active participants in real-world science by investigating local ecological phenomena including freshwater aquatic and terrestrial biodiversity, aquatic abiotic systems, forest biodiversity and management, and **population biology** on local Lancaster Conservancy properties. Students use inquiry and application of prior knowledge of ecology and population biology to participate in what the Alliance for the Chesapeake Bay, the Chesapeake Bay Foundation, Stroud Water Research Center, PA-DEP, PA-DCNR, PA-FBC/GC, and NOAA call a **Meaningful Watershed Education Experience (MWEE)** (ACB,2000). As a result, students are able to use data to explain scientific phenomena in the real world, and offer research-based answers for scientific questions.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Environmental Literacy & Sustainability (2023): 9-12 Environmental Literacy & Sustainability

- Analyze and interpret how issues, trends, technologies, and policies impact watersheds and water resources. *(3.4.9-12.C)*
- Apply research and analytical skills to systematically investigate environmental issues ranging from local issues to those that are regional or global in scope. *(3.4.9-12.D)*
- Plan and conduct an investigation utilizing environmental data about a local environmental issue. *(3.4.9-12.E)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T4)*
- Explain how the natural and designed worlds are interrelated and the application of scientific knowledge and technology can have beneficial, detrimental, or unintended consequences. (Global Citizen, Communicator) *(T5)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T6)*

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- Design and evaluate solutions in which individuals and societies can promote stewardship in environmental quality and community well-being. *(3.4.9-12.H)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Water resources change based on movement and shape. Stagnant ponds and flowing streams hold different amounts of oxygen, minerals, and sediment. Calculating stream flow helps scientists track how a watershed handles heavy rain and pollution runoff. *(U1)*
- Clear water isn't always healthy water. Chemical factors—like pH, alkalinity, nitrates, and phosphates—determine what can survive in a stream. Measuring these values reveals invisible threats, such as toxic fertilizer runoff or a lack of protection against acid rain. *(U2)*
- Macroinvertebrates are living sensors of water health because different species have different limits for pollution. Calculating a Pollution Tolerance Index (PTI) indicates how healthy a stream is over time. *(U3)*
- Healthy ecosystems rely on balanced, native food webs. When invasive species are introduced, they exploit the lack of natural predators and outcompete native wildlife for food and space, threatening local biodiversity and ecosystem stability. *(U4)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How does water change as it moves from a still pond to a flowing stream, and what do these differences tell us about the health of the broader watershed? (Env- C and E) *(Q1)*
- Why can a stream look perfectly clean and healthy to the human eye but be chemically or biologically in crisis? (Env-C and E) *(Q2)*
- How can calculating a Pollution Tolerance Index (PTI) for a tiny stream segment give us a report card for the entire surrounding landscape? (Env-D) *(Q3)*
- What happens to the delicate balance of a local ecosystem when an invasive plant or animal rewrites the rules of survival? (Env-D) *(Q4)*
- How do environmental scientists balance the financial market value of natural resources with the invisible ecological services those resources provide to the planet? (Env-H) *(Q5)*
- How can we use small-scale sampling methods (like quadrants) to accurately predict what a forest will look like 100 years into the future? (Env-H) *(Q6)*

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- Trees hold financial value as timber, but they also provide free, vital ecosystem services. Sustainable land stewardship means balancing the market price of lumber with a tree's invisible benefits, like stopping bank erosion, trapping carbon, and providing wildlife habitats. *(U5)*
- Scientists cannot count every tree in a massive forest, so they use the quadrant method to sample small, defined areas. Scientists can estimate the population and predict how the forest will look in 100 years. *(U6)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Human activities—like habitat destruction, pollution, invasive species, overexploitation, and climate change—disrupt ecosystems and threaten species survival. (Env-C, E) *(K1)*
- Biodiversity increases with speciation and decreases with the loss of species (extinction). Biodiversity is measurable with scientific tools such as the pollution tolerance index (PTI). (Env-C, E) *(K2)*
- Humans rely on biodiversity for ecosystem services, resources, recreation, and inspiration. However, human actions—like overpopulation

Skills

What discrete skills and processes should students be able to use? Students can...

- I can analyze and interpret how human actions—including environmental issues, new technologies, and government policies—shape the health of our watersheds and water resources (Env-C) *(S1)*
- I can use research tools and data to investigate environmental problems, tracing their impacts from my own backyard to the rest of the world. (Env-D) *(S2)*
- I can carry out a scientific study, using real data to investigate and solve an environmental problem in my local community (Env-E) *(S3)*

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	and pollution—threaten these systems, making biodiversity conservation essential for sustaining life on Earth. (Env-C,D) *(K3)* ■ Stable ecosystems use complex internal relationships to keep population sizes steady over time. These relationships can be quantified and studied through scientific testing. (Env-D) *(K4)* ■ Healthy ecosystems can bounce back from minor disruptions (resilience), but extreme changes can permanently shatter their balance, resources, and habitats. (Env-D) *(K5)* ■ For human societies and nature to survive long-term, we must manage Earth's natural resources responsibly. This stewardship involves evaluating the in-situ and ex-situ values of the components of the natural world. (Env-D) *(K6)* ■ Biodiversity increases when new species evolve (speciation) and decreases when species disappear forever (extinction). (Env-E) *(K7)* ■ Humans rely on biodiversity for vital resources, recreation, and inspiration. However, our footprint (overpopulation, pollution, and overexploitation) damages these systems, making active conservation vital for supporting life on Earth. (Env-E) *(K8)* ■ The sustainability of human societies and the biodiversity that supports them	■ I can design a realistic plan to protect the environment and improve community life, and evaluate how well that plan actually works. (Env-H) *(S4)*

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	requires responsible management of natural resources. (Env-E, H) *(K9)* ■ When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts. (Env-D, H) *(K10)*	

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Unit 1 - Counting Particles

Draft Date	Course	Duration	Grades	Subjects	Team
07-15-2024	HS H/CP/GEN Chemistry	3 Week(s)	10, 11, 12	Science	Matthew Fox, Adam Miller, Dylan Tull, Ashley Johnston

Focus

We can't see these atoms, so how do scientists know that water is made of hydrogen and oxygen? Like early chemists, we can use relative masses of atoms to count particles by weighing. These "moles" allow us to examine the composition of different substances.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.

  Clarifying Statement: Emphasis is on using mathematical ideas to communicate the proportional relationships between masses of atoms in the reactants and the products, and the translation of these relationships to the macroscopic scale using the mole as the conversion from the atomic to the macroscopic scale. Emphasis is on assessing students' use of mathematical thinking and not on memorization and rote application of problem-solving techniques.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T4)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Moles are used to count the amount of particles in a given substance using the relative masses of different atoms. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do we use moles to determine the amount of particles in a given substance? *(Q1)*

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Assessment Boundary: Assessment does not include complex chemical reactions. *(3.2.9-12.G)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

- Experiments can be used to collect macroscopic observations to construct microscopic inferences. This cycle continues until these inferences are accepted as conclusions. *(U2)*
- Teams work efficiently and effectively when members share leadership and decision-making responsibilities. *(U3)*
- Innovative problem-solvers realize that failure is an opportunity to learn and accept constructive feedback to evaluate and revise their thinking. *(U4)*

- How do we perform experiments when microscopic chemical interactions cannot be observed directly? *(Q2)*
- What makes a group effective? How are we working together right now? How can we continue to improve to meet a common goal? *(Q3)*
- How can we approach learning even when our first attempt was not successful? *(Q4)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- One mole is defined as the atomic mass of any given element in grams. *(K1)*
- The molar mass of any given compound is the sum of the atomic mass for each element in grams. *(K2)*
- Empirical formulas represent the simplest whole number mole ratio for the given compound. *(K3)*
- Molecular formulas represent the actual composition of individual molecules for the given compound. *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can determine the mass for a given substance using moles and the molar mass of the substance. *(S1)*
- I can determine the moles for a given substance using mass and the molar mass of the substance. *(S2)*
- I can determine empirical formulas from experimental data. *(S3)*
- I can relate the empirical formula to its corresponding molecular formulas using the molar mass of the substance. *(S4)*

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Unit 2 - Internal Structure

Draft Date	Course	Duration	Grades	Subjects	Team
07-15-2024	HS H/CP/GEN Chemistry	3 Week(s)	10, 11, 12	Science	Adam Miller, Matthew Fox, Dylan Tull, Ashley Johnston

Focus

How can we use chemistry to explore the wide variety of substances used in our society? We will examine basic patterns of bonding based on the internal structure of atoms, rather than simply counting these particles. These differences in structure affect the characteristic properties of these substances leading to innovative ways to meet the needs of our society.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.

  Clarifying Statement: Emphasis is on understanding the strengths of forces between particles, not on naming specific intermolecular forces (such as dipoledipole). Examples of particles could include ions, atoms, molecules, and networked materials (such as graphite). Examples of bulk properties of substances

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T4)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T5)*

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could include the melting point and boiling point, vapor pressure, and surface tension.

Assessment Boundary: Assessment does not include Raoult's law calculations of vapor pressure. *(3.2.9-12.B)*

- Communicate scientific and technical information about why the molecularlevel structure is important in the functioning of designed materials.

Clarifying Statement: Emphasis is on the attractive and repulsive forces that determine the functioning of the material. Examples could include why electrically conductive materials are often made of metal, flexible but durable materials are made up of long chained molecules, and pharmaceuticals are designed to interact with specific receptors.

Assessment Boundary: Assessment is limited to provided molecular structures of specific designed materials. *(3.2.9-12.N)*

Science (2023): 9-12 Science & Engineering Practices

- Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. *(SEP.9-12.P3.B)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms. *(U1)*
- The molecular structure of substances can be altered to adjust the properties of designed materials to serve specific purposes in our society. *(U2)*
- Teams work efficiently and effectively when members share leadership and decision-making responsibilities. *(U3)*
- Innovative problem-solvers realize that failure is an opportunity to learn and accept constructive feedback to evaluate and revise their thinking. *(U4)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can one explain the structure, properties, and interactions of matter? *(Q1)*
- How do the properties of different substances result from the underlying attractions between particles? *(Q2)*
- How does the molecular level structure affect the function of designed materials? *(Q3)*
- What makes a group effective? How are we working together right now? How can we continue to improve to meet a common goal? *(Q4)*
- How can we approach learning even when our first attempt was not successful? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The typical properties of ionic and molecular solids *(K1)*
- The typical structural characteristics of atomic, molecular, and ionic solids *(K2)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can analyze and explain why ionic and molecular solids have different properties. *(S1)*
- I can construct the name for different compounds given the compound's formula. *(S2)*

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- Communicate scientific and/or technical information or ideas (e.g. about phenomena and/or the process of development and the design and performance of a proposed process or system) in multiple formats (i.e., orally, graphically, textually, mathematically). *(SEP.9-12.P8.E)*

Science (2023): 9-12 Crosscutting Concepts

- Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena. *(CCC.9-12.C1.A.1)*
- Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem. *(CCC.9-12.C6.A)*

Science (2023): 9-12 Disciplinary Core Ideas

- The structure and interactions of matter at the bulk scale are determined by electrical forces within and between atoms. *(DCI.9-12.PS1.A.3)*
- Attraction and repulsion between electric charges at the atomic scale explain the structure, properties, and transformations of matter, as well as the contact forces between material objects. *(DCI.9-12.PS2.B.2)*

- I can construct the formula for different compounds given the compound's name. *(S3)*
- I can examine differences in designed materials to explain their functions in our society. *(S4)*

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Profile of a CV Learner	
■ Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)* ■ Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*	

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Unit 3 - Chemical Change

Draft Date	Course	Duration	Grades	Subjects	Team
07-15-2024	HS H/CP/GEN Chemistry	3 Week(s)	10, 11, 12	Science	Adam Miller, Matthew Fox, Dylan Tull, Ashley Johnston

Focus

The moment you have been waiting for! How do substances react with each other? Reactions involve the rearrangement of atoms to form new substances. We will use our understanding about chemical nomenclature to construct balanced equations to communicate these changes. Energy also has an important role in describing these changes.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.

  Clarifying Statement: Examples of chemical reactions could include the reaction of sodium and chlorine, of carbon and oxygen, or of carbon and hydrogen.

  Assessment Boundary: Assessment is limited to chemical reactions involving

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T4)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Atoms of some substances combine or rearrange to form new substances that

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main group elements and combustion reactions.
(3.2.9-12.C)

- Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.

Clarifying Statement: Emphasis is on the idea that a chemical reaction is a system that affects the energy change. Examples of models could include molecular-level drawings and diagrams of reactions, graphs showing the relative energies of reactants and products, and representations showing energy is conserved.

Assessment Boundary: Assessment does not include calculating the total bond energy changes during a chemical reaction from the bond energies of reactants and products. *(3.2.9-12.D)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a

have different properties.
(U1)

- Many chemical reactions follow patterns that allow for prediction of expected products. *(U2)*
- Chemical energy is needed to break chemical bonds and is released upon the formation of new chemical bonds. The bond strength correlates with the amount of energy. *(U3)*
- Writing reports for scientific experiments allow us to effectively communicate our results with any audience. *(U4)*
- Innovative problem-solvers realize that failure is an opportunity to learn and accept constructive feedback to evaluate and revise their thinking. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do particles combine to form the variety of substances observed in our society? *(Q1)*
- How can these reactions be categorized to make predictions about their outcome? *(Q2)*
- How does energy change when particles interact through chemical reactions? *(Q3)*
- How can we use writing to communicate the results of our scientific experiments? *(Q4)*
- How can we approach learning even when our first attempt was not successful? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- That balanced chemical reactions follow the Law of Conservation of Mass. *(K1)*
- The characteristics of the five basic types of chemical reactions. *(K2)*
- The difference between exothermic and endothermic reactions. *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can balance chemical equations and explain why balancing is necessary. *(S1)*
- I can model chemical reactions at the microscopic level based on macroscopic observations. *(S2)*
- I can use the five basic types of chemical reactions to predict products for simple chemical reactions. *(S3)*

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willingness to accept constructive feedback. *(PCVL.IPS)*		■ I can analyze why some reactions release energy, while others absorb energy. *(S4)*

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Unit 4 - Stoichiometry

Draft Date	Course	Duration	Grades	Subjects	Team
07-15-2024	HS H/CP/GEN Chemistry	4 Week(s)	10, 11, 12	Science	Adam Miller, Matthew Fox, Dylan Tull, Ashley Johnston

Focus

When we bake cookies, we know how many should be made. Can we predict this for chemical reactions? We will use our understanding of counting particles and chemical reactions as our "recipe" for how atoms are rearranged. These rearrangements allow us to quantitatively predict the amount of any chemical species within chemical reactions.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.

  Clarifying Statement: Emphasis is on using mathematical ideas to communicate the proportional relationships between masses of atoms in the reactants and the products, and the translation of these relationships to the macroscopic scale using the mole as the conversion from the atomic to the macroscopic scale. Emphasis is on assessing students' use of mathematical

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T4)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Stoichiometry uses mole ratios from balanced chemical equations to

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can stoichiometry be used to determine the amount of reactants and

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thinking and not on memorization and rote application of problem-solving techniques.

Assessment Boundary: Assessment does not include complex chemical reactions. *(3.2.9-12.G)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

mathematically determine the amount any chemical species involved in the given chemical reaction. *(U1)*
- Teams work efficiently and effectively when members share leadership and decision-making responsibilities. *(U2)*
- Innovative problem-solvers realize that failure is an opportunity to learn and accept constructive feedback to evaluate and revise their thinking. *(U3)*
- We recognize that getting stuck is a natural progression in learning and use setbacks to identify new strategies and improve this process. *(U4)*
- Writing reports for scientific experiments allow us to effectively communicate our results with any audience. *(U5)*

products involved in chemical reactions? *(Q1)*
- What makes a group effective? How are we working together right now? How can we continue to improve to meet a common goal? *(Q2)*
- How do I come up with a solution that can potentially help with this problem? *(Q3)*
- What am I doing when I get stuck? What are some strategies I can try? How are they working? *(Q4)*
- How can we use writing to communicate the results of our scientific experiments? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- That balanced chemical reactions follow the Law of Conservation of Mass. *(K1)*
- That mole ratios are shown as the coefficients in balanced chemical equations. *(K2)*
- The difference between actual yield, theoretical yield, and percent yield. *(K3)*
- That limiting reactants are consumed first during the chemical reaction. *(K4)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can determine the mass of any chemical species, given the balanced equation and mass of participating chemical species. *(S1)*
- I can calculate the percent yield for chemical reactions given experimental data. *(S2)*
- I can determine which reactant limits the formation of products in chemical reactions. *(S3)*

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		■ I can use stoichiometry with experimental data to predict the balanced chemical equation for an unknown chemical reaction. *(S4)*

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Unit 5 - Kinetics & Equilibrium

Draft Date	Course	Duration	Grades	Subjects	Team
07-28-2026	HS H/CP/GEN Chemistry	3 Week(s)	10, 11, 12	Science	Adam Miller, Matthew Fox, Dylan Tull, Ashley Johnston, Adam Miller

Focus

Have you ever seen rust form on metal surfaces? Chemical reactions take different amounts of time to reach equilibrium. We will use our current understanding of chemical reactions to investigate what affects the rate of chemical reactions and how chemical species interact as reactions near equilibrium.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.

  Clarifying Statement: Emphasis is on student reasoning that focuses on the number and energy of collisions between molecules.

  Assessment Boundary: Assessment is limited to simple reactions in which there are only two reactants; evidence from

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T4)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Increased concentration and temperature will often increase the

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temperature, concentration, and rate data; and qualitative relationships between rate and temperature. *(3.2.9-12.E)*
- Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.

Clarifying Statement: Emphasis is on the application of Le Chatelier's Principle and on refining designs of chemical reaction systems, including descriptions of the connection between changes made at the macroscopic level and what happens at the molecular level. Examples of designs could include different ways to increase product formation including adding reactants or removing products.

Assessment Boundary: Assessment is limited to specifying the change in only one variable at a time. Assessment does not include calculating equilibrium constants and concentrations. *(3.2.9-12.F)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a

speed of chemical reactions based on collision theory. *(U1)*
- Chemical reactions at equilibrium will shift to counteract changes to that system to establish equilibrium once again. *(U2)*
- Teams work efficiently and effectively when members share leadership and decision-making responsibilities. *(U3)*
- Innovative problem-solvers realize that failure is an opportunity to learn and accept constructive feedback to evaluate and revise their thinking. *(U4)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How does changing the temperature or concentration of particles affect the speed of reaction completion? *(Q1)*
- How can chemical reactions be altered to increase the amount of products formed at equilibrium? *(Q2)*
- What makes a group effective? How are we working together right now? How can we continue to improve to meet a common goal? *(Q3)*
- How can we approach learning even when our first attempt was not successful? *(Q4)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- That concentration of a solution describes the amount of solute present in a given volume of solution. *(K1)*
- The criteria for successful chemical reactions. *(K2)*
- That reaction rates are usually dependent on the concentration of reactants. *(K3)*
- That chemical reactions reach equilibrium when the forward reaction

Skills

What discrete skills and processes should students be able to use? Students can...

- I can calculate the concentration of substances given the number of moles dissolved in the given sample of water. *(S1)*
- I can use the method of initial rates to determine the rate law for chemical reactions, given experimental data. *(S2)*
- I can apply Le Chatelier's Principle to explain changes to chemical systems at equilibrium. *(S3)*

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willingness to accept constructive feedback. *(PCVL.IPS)*	rate is equivalent to the reverse reaction rate. *(K4)*	

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Unit 1 - Scientific Thinking

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Physics	2 Week(s)	11, 12	Science	Alicia Panzarella

Focus

We will start our journey into Newtonian Mechanics by first learning the fundamental mathematical skills necessary to collect and analyze data. This unit will focus on experimental design, the engineering design process, proper data collection in a physical science context, and finally on mastering the necessary skills to graphically analyze discovered information so that useful mathematical functions can be formed. By embracing what's known as the "Modeling Approach," students will start to hone in their communication and collaboration skills, while embracing the problem solving nature of being a scientist!

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- **Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.**

  Clarifying Statement: Examples of data could include tables or graphs of position or velocity as a function of time for objects subject to a net unbalanced force, such as a falling object, an object sliding down a ramp, or a moving object being pulled by a constant force.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T4)*

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Assessment Boundary: Assessment is limited to one-dimensional motion and to macroscopic objects moving at non-relativistic speeds. *(3.2.9-12.I)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- A controlled experiment involves careful manipulation of an independent variable and the ability to observe the affect on the dependent variable while accounting for experimental error. *(U1)*
- Data can be represented in a multitude of ways and the trends show the correlation between independent and dependent variables. *(U2)*
- The process of linearization is used to manipulate how the researcher views the data so that linear line mathematical techniques can be applied in order create proper mathematical models. *(U3)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can one explain and predict interactions between objects within systems? *(Q1)*
- How do I explain my ideas or approach for a specific purpose and audience? How does sharing that inspire my own and others' thinking? *(Q2)*
- What do I know? What do I need to find out? How does that help me? *(Q3)*
- How do I use labels, symbols, units of measure, tables, graphs, and vocabulary to analyze situations and/or share findings? *(Q4)*
- How do I get started when I am looking at this problem/challenge? What are some other ways I might think about this? *(Q5)*
- How do I apply the engineering process to engineering challenges, lab designs, and real world questions? *(Q6)*

Acquisition of Knowledge & Skill

Skills

What discrete skills and processes should students be able to use? Students can...

- I can make observations regarding a phenomena and create an essential question to test various aspects of the

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Knowledge

What facts and basic concepts should students know and be able to recall?
Students will know...

- A controlled experiment includes a independent, dependent, and controlled variables. *(K1)*
- There are 6 recognizable trends in Newtonian Mechanics. Trends include no effect, linear, side opening parabolic, top opening parabolic, inverse, and quadratic. *(K2)*
- Non linear data must go through the mathematical process of linearization in order to form a proper mathematical model. *(K3)*
- The slope is the rate of change between the dependent and independent variable. The units follow the change in y over change in x equation. *(K4)*
- The y intercept is the point on the graph where, in the (x,y) coordinate, x is zero and the trend intersects on the y axis. The y intercept value has the same units as the dependent variable. *(K5)*
- The formation of a proper mathematical model includes the correct use of all variables titles, units, slope value, and y intercept value. *(K6)*

phenomena in order to gain a broader understanding. *(S1)*

- I can plot and analyze data by using a graphical analysis software. *(S2)*
- I can identify trends and differentiate between a no effect, linear, side opening parabolic, top opening parabolic, inverse, and quadratic relationship. *(S3)*
- I can create proper mathematical models from a given data set and trendline. Models include all proper titles, units, slope value, and y intercept value. *(S4)*
- I can engage in technical writing to explain a lab procedure, presentation of data tables, trends, models, and form evidence based conclusions. *(S5)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Unit 2 - Constant Velocity

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Physics	3 Week(s)	11, 12	Science	Alicia Panzarella

Focus

We will explore how position, velocity, and time are connected as we investigate the patterns of constant-velocity motion. Using the skills we developed in our first unit, we will design and conduct experiments, analyze our data, and develop mathematical models and graphs that describe motion. Through collaboration, discussion, and problem-solving, we will use evidence from our experiments to explain and predict how objects move. As **Innovative Problem Solvers**, we will question our results, refine our models, and apply our understanding of motion to situations beyond the classroom.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- **Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.**

  Clarifying Statement: Examples of data could include tables or graphs of position or velocity as a function of time for objects subject to a net unbalanced force, such as a falling object, an object sliding down a ramp, or a moving object being pulled by a constant force.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Work Together: Engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. (Collaborator) *(T1)*
- Solve Problems Effectively: Based on an examination of the problem/situation, initiate a plan, execute it, evaluate and explain the reasonableness of the solution. (Innovative Problem Solver) *(T2)*
- Communicate Mathematically: Communicate effectively in a variety of ways based on purpose, task, and audience, using appropriate vocabulary. (Communicator) *(T3)*
- Solve Problems Efficiently: Use skills, strategies, models, or manipulatives to increase efficiency and accuracy. (Innovative Problem Solver) *(T4)*
- Recognize Relationships: Identify patterns and relationships to make sense of mathematical and/or real world situations. (Global Citizen) *(T5)*
- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T6)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T7)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Assessment Boundary: Assessment is limited to one-dimensional motion and to macroscopic objects moving at non-relativistic speeds. *(3.2.9-12.I)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T8)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T9)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- On a position vs time graph, an object in constant velocity motion will create either a no effect trend line or a linear trend line. *(U1)*
- The slope of the position vs. time graph creates the velocity vs. time graph. The trend on a velocity vs. time graph will appear as a horizontal line which indicates a “no effect” for that option of the graph. *(U2)*
- The CV equation of Xf = Vt + Xi is created by applying the skill of proper model formation to a linear trend line. *(U3)*
- The area under the velocity vs time graph curve is the objects total displacement for that section of motion. *(U4)*
- The CV equation can be used to predict the motion of the object and can be used to solve for all variables in the equation if known quantities can be derived graphically, through collected data, or via prompts. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do I explain my ideas or approach to others? How does sharing that inspire my own and others’ thinking? *(Q1)*
- When I’m listening to an idea or approach, what questions do I have? How do I share them to grow my own and other’s thinking? *(Q2)*
- What is the problem, and why does this problem exist and need solving? *(Q3)*
- How do I come up with a solution that can potentially help with this problem? *(Q4)*
- How do I work to design, test, and rework the solution based on feedback from the target audience? *(Q5)*
- As I am speaking/writing... What am I trying to say? How do I explain my ideas or approach for a specific purpose and audience? What details are appropriate to include to clarify my message? How can I utilize accessibility tools to ensure diverse audiences can understand me? What adjustments do I need to make? *(Q6)*

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		■ Does my answer/solution make sense? How do I test it? *(Q7)* ■ How do I use various tools and skills to assess the validity of my answer or solution to a complex real world problem? *(Q8)*
	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ The slope of a position verses time graph is velocity. *(K1)* ■ The constant velocity equation is Xf = Vt + Xi *(K2)* ■ A scalar function only has magnitude where as a vector function has both magnitude and direction. *(K3)* ■ Distance is the total path traveled by the object. *(K4)* ■ The area under the velocity vs. time graph "curve" is displacement. *(K5)* ■ Displacement is the change in position from the initial position to the final position regardless of the path taken. *(K6)*	What discrete skills and processes should students be able to use? Students can... ■ I can take the slope of a position vs. time graph in order to calculate the constant velocity of an object. *(S1)* ■ I can take the area under the curve of a velocity vs. time graph can determine an object's displacement. *(S2)* ■ I can use proper mathematical models in order to predict future phenomena. *(S3)*

Unit 3 - Uniform Acceleration

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Physics	2 Week(s)	11, 12	Science	Alicia Panzarella

Focus

We will continue our journey through kinematics by investigating how and why an object's motion changes over time. Through a discovery-based lab, we will collect and analyze data to uncover the patterns of uniform acceleration and develop our own graphical and mathematical models of motion. We will use position-, velocity-, and acceleration-time graphs along with kinematic equations to solve problems, explain motion, and communicate our reasoning in extended-response settings. As **Innovative Problem Solvers**, we will use evidence from our investigations to test, refine, and apply our models to real world scenarios.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

  Clarifying Statement: Examples of data could include tables or graphs of position or velocity as a function of time for objects subject to a net unbalanced force, such as a falling object, an object sliding down a ramp, or a moving object being pulled by a constant force.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T1)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T2)*
- Explain how the natural and designed worlds are interrelated and the application of scientific knowledge and technology can have beneficial, detrimental, or unintended consequences. (Global Citizen, Communicator) *(T3)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Assessment Boundary: Assessment is limited to one-dimensional motion and to macroscopic objects moving at non-relativistic speeds. *(3.2.9-12.I)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- When in uniform acceleration, a velocity vs. time graph can be represented as either a linear line or a line where the slope is zero. Both types of trends show that the slope of any velocity vs. time graph is acceleration. *(U1)*
- The area under the acceleration vs. time graph shows the change in velocity over time for a specific section of motion. *(U2)*
- Polynomial positive vs. time graphs and linear acceleration vs. time graphs create the three proper mathematical models that are the uniform acceleration kinematic equations. *(U3)*
- Depending on the type of motion, whether presented graphically, in words, or via a data set, the constant velocity equation or the uniform acceleration equations must be used appropriately based on the motion. *(U4)*
- The gravitational field, on Earth, produces a uniform acceleration for all free falling objects that is equivalent to an acceleration of -9.8m/s^2. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do I use various tools and skills to assess the validity of my answer or solution to a complex real world problem? *(Q1)*
- How do I explain my ideas or approach for a specific purpose and audience? How does sharing that inspire my own and others' thinking? *(Q2)*
- What is this judgment, conclusion, perspective based on? Does the mathematical logic hold up? *(Q3)*
- How do I use data to clarify a local/global challenge? What predictions/conclusions can I draw? *(Q4)*
- Does my answer/solution make sense? How do I test it? *(Q5)*

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	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ The slope of a velocity vs. time graph is acceleration. *(K1)* ■ Acceleration is the change in velocity over the change in time. *(K2)* ■ The area under the acceleration vs time graph is the change in velocity over time. *(K3)* ■ Acceleration due to gravity is -9.8m/s^2. *(K4)* ■ The velocity based kinematic equations is Vf = at + VI. *(K5)* ■ The position based kinematic equation is Xf = ½at^2 + Vi(t) *(K6)* ■ An object is in free fall when gravity is the only force acting on the system. *(K7)*	What discrete skills and processes should students be able to use? Students can... ■ I can either take the slope of a line or the area under the curve in order to determine variables in the uniform acceleration equations. *(S1)* ■ I can utilize the kinematic equations appropriately in order to solve word based prompts, graphical analysis questions, or analyze real world problems. *(S2)* ■ I can recognize when an object is in free fall either graphically, from a data set, from a written prompt, or through analysis of a real world scenario. *(S3)*



Unit 4 - Projectile Motion

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Physics	2 Week(s)	11, 12	Science	Alicia Panzarella

Focus

We will bring together our learning about constant velocity and uniform acceleration as we investigate how objects move in two dimensions. Through hands-on investigations and problem-solving, we will analyze horizontal, vertical, and angled motion while applying graphical, mathematical, and trigonometric models to describe what happens. We will use evidence, diagrams, and mathematical reasoning to analyze real-world athletic motion and communicate our findings to sports analysts, connecting physics to the way athletes and teams study performance. As **Innovative Problem Solvers and Communicators**, we will collaborate to test strategies, evaluate our reasoning, and clearly communicate our conclusions to authentic audiences.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

  Clarifying Statement: Examples of data could include tables or graphs of position or velocity as a function of time for objects subject to a net unbalanced force, such as a falling object, an object sliding down a ramp, or a moving object being pulled by a

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Solve Problems Effectively: Based on an examination of the problem/situation, initiate a plan, execute it, evaluate and explain the reasonableness of the solution. (Innovative Problem Solver) *(T1)*
- Communicate Mathematically: Communicate effectively in a variety of ways based on purpose, task, and audience, using appropriate vocabulary. (Communicator) *(T2)*
- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T3)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T4)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T5)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

constant force.

Assessment Boundary: Assessment is limited to one-dimensional motion and to macroscopic objects moving at non-relativistic speeds. *(3.2.9-12.I)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Objects in projectile motion create a quadratic function when plotting position vs. time. *(U1)*
- Isolation of the position and time data for the horizontal component produces a linear line due to the lack of gravitational affects horizontally which creates constant velocity in the x component. *(U2)*
- Isolation of the position and time data for the vertical component produces a polynomial trend line due to the gravitational affects vertically which creates uniform acceleration in the y component. *(U3)*
- An object in projectile motion will experience free fall motion in the absence of any resistive forces. *(U4)*
- The application of trigonometric functions and the knowledge of right triangles can be used to determine initial and final velocities in their respective components. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can one explain and predict interactions between objects within systems? *(Q1)*
- Does my answer/solution make sense? How do I test it? *(Q2)*
- What is the best/most efficient way to solve this type of problem? *(Q3)*
- Does my approach make sense? What is another way of seeing/doing this? *(Q4)*
- How do I use various tools and skills to assess the validity of my answer or solution to a complex real world problem? *(Q5)*

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	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ A projectile object experiences constant velocity in the horizontal component. *(K1)* ■ A projectile object experiences uniform acceleration in the vertical component. *(K2)* ■ The velocity at maximum height is zero in the y component. *(K3)* ■ A projectile that starts and ends at the same position is considered a perfect parabola. *(K4)*	What discrete skills and processes should students be able to use? Students can... ■ I can apply the kinematic equations appropriately depending on the specific component of the object's motion. *(S1)* ■ I can analyze a position vs. time graph to determine the component of an object's motion represented by the data. *(S2)* ■ I can analyze a velocity vs. time graph to determine the component of an object's motion represented by the data. *(S3)* ■ I can identify the difference between an object that creates a perfect parabola and an object that does not. *(S4)* ■ I can apply my knowledge of graphical analysis and application of the kinematic equations in order to optimize results or critically analyze the variables presented in a real world situation. *(S5)*

Unit 5 - Forces and Newton's Laws

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Physics	4 Week(s)	11, 12	Science	Alicia Panzarella

Focus

We will move from studying **how things move** to investigating **why they move** as we begin our journey into dynamics and Newton's Laws. Through discovery-based labs and hands-on investigations, we will explore Newton's three laws, create force diagrams, and use evidence to explain and predict the motion of objects. We will connect our understanding of forces to Newton's Second Law and extend our thinking into circular motion, discovering how familiar ideas from kinematics take on a new twist when objects move in circles. As **Innovative Problem Solvers and Life-Long Learners**, we will question how forces shape the world around us and apply our models to explain motion in everyday and real-world situations.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

  Clarifying Statement: Examples of data could include tables or graphs of position or velocity as a function of time for objects subject to a net unbalanced force, such as a falling object, an object sliding down a ramp, or a moving object being pulled by a

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T1)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T2)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T3)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

constant force.

Assessment Boundary: Assessment is limited to one-dimensional motion and to macroscopic objects moving at non-relativistic speeds. *(3.2.9-12.I)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Newton's three fundamental laws govern the macroscopic and microscopic movement of all particles. *(U1)*
- Newton's Second Law is the bridge that binds kinematics and dynamics to explain both how and why a system moves. *(U2)*
- A Free Body Diagram, or FBD, is the fundamental illustration that addresses all forces acting on a system. *(U3)*
- All motion is created either due to a balanced or unbalanced FBD. *(U4)*
- The force of friction equation is based on surface type, gravitation pull on the system, and the angle of the system. The frictional force is not dependent on the surface area. *(U5)*
- Newton's second law and kinematic equations are valid for both linear and uniform circular motion, but circular equations require adjustments to account for a constantly changing direction. *(U6)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- What are some strategies I am using to check in and get feedback on my part? What are my next steps? *(Q1)*
- How do I explain my ideas or approach to others? How does sharing that inspire my own and others' thinking? *(Q2)*
- As I am speaking/writing... What am I trying to say? How do I explain my ideas or approach for a specific purpose and audience? What details are appropriate to include to clarify my message? How can I utilize accessibility tools to ensure diverse audiences can understand me? What adjustments do I need to make? *(Q3)*
- How can one explain and predict interactions between objects within systems? *(Q4)*
- Does my answer/solution make sense? How do I test it? *(Q5)*
- Does my approach make sense? What is another way of seeing/doing this? *(Q6)*
- How do I use labels, symbols, units of measure, tables, graphs, and vocabulary to analyze situations and/or share findings? *(Q7)*
- How do I use various tools and skills to assess the validity of my answer or

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solution to a complex real world problem? *(Q8)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Newton's first law is that an object in motion states in motion and an object at rest stays at rest unless acted upon by an outside force. *(K1)*
- Net force is defined as the sum of all forces per component. *(K2)*
- Newton's Second Law states that the net force of a system is proportional to the product of the mass of the system and the acceleration of the system. *(K3)*
- Newton's Third Law states that for every action there is an equal and opposite reaction. *(K4)*
- The normal force is defined as the force that is perpendicular to the surface. *(K5)*
- The force of friction is equivalent to the friction coefficient multiplied by the normal force. *(K6)*
- The tangential velocity is equivalent to the circumferences divided by the period. *(K7)*
- When in uniform circular motion, UCM, the centripetal acceleration is equivalent to the square of the tangential acceleration divided by the radius of the circular path. *(K8)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can create FBDs in order to determine if a system is balanced or unbalanced per component. *(S1)*
- I can identify the resulting motion due to the creation of the quantitative or qualitative FBD. *(S2)*
- I can apply kinematic concepts as a result of inferencing the type of motion created the by FBD. *(S3)*
- I can apply Newton's Second Law to both linear and circular motion. *(S4)*
- I can assess and apply the force of friction equation when appropriate. *(S5)*
- I can use data collection and graphical analysis techniques to determine if a system is accelerating and if friction is present. *(S6)*

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	■ Centripetal force is defined as the sum of the forces causing circular motion. *(K9)* ■ When in UCM, Fnet = ma becomes Fc = ma_c. *(K10)*	

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Unit 6 - Energy

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Physics	2 Week(s)	11, 12	Science	Alicia Panzarella

Focus

We will continue our exploration of dynamics by investigating how energy moves and changes as objects interact with the world around us. Through hands-on investigations and real-world applications, we will explore different forms of mechanical energy and use the conservation of energy to explain and predict motion. We will apply our learning through an engineering challenge in which we design, build, and refine a **Rube Goldberg machine**, using energy transformations to create a successful sequence of events. As **Innovative Problem Solvers and Collaborators**, we will work together to test our designs, overcome challenges, and communicate how energy is transformed throughout our machines.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.

  Clarifying Statement: Emphasis is on explaining the meaning of mathematical expressions used in the model.

  Assessment Boundary: Assessment is limited to basic algebraic expressions or

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Solve Problems Effectively: Based on an examination of the problem/situation, initiate a plan, execute it, evaluate and explain the reasonableness of the solution. (Innovative Problem Solver) *(T1)*
- Solve Problems Efficiently: Use skills, strategies, models, or manipulatives to increase efficiency and accuracy. (Innovative Problem Solver) *(T2)*
- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T3)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T4)*
- Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system. (Global Citizen, Innovative Problem Solver) *(T5)*

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computations; to systems of two or three components; and to thermal energy, kinetic energy, and/or the energies in gravitational, magnetic, or electric fields. *(3.2.9-12.O)*

- Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

  Clarifying Statement: Examples of phenomena at the macroscopic scale could include the conversion of kinetic energy to thermal energy, the energy stored due to position of an object above the earth, and the energy stored between two electrically-charged plates. Examples of models could include diagrams, drawings, descriptions, and computer simulations.

  Assessment Boundary: N/A *(3.2.9-12.P)*

- Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

  Clarifying Statement: Emphasis is on both qualitative and quantitative evaluations of devices. Examples of devices could include Rube Goldberg devices, wind turbines, solar cells, solar ovens, and generators. Examples of constraints could include use of renewable energy forms and efficiency.

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Energy can not be created nor destroyed, but it can be transferred to different types of energy and work within the system. *(U1)*
- Mechanical energy focuses on the flow of energy between kinetic energy, potential energy, and the work required to move a system from its initial stage to the final stage. *(U2)*
- Conservative forces do not require energy to get from the initial stage to the final stage. Only non conservative forces do work in order to move the system. *(U3)*
- Non conservative forces follow Newton's Second Law in order to do work. *(U4)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do I come up with a solution that can potentially help with this problem? *(Q1)*
- How do I work to design, test, and rework the solution based on feedback from the target audience? *(Q2)*
- What am I doing when I get stuck? What are some strategies I can try? How are they working? *(Q3)*
- As I am speaking/writing... What am I trying to say? How do I explain my ideas or approach for a specific purpose and audience? What details are appropriate to include to clarify my message? How can I utilize accessibility tools to ensure diverse audiences can understand me? What adjustments do I need to make? *(Q4)*
- How is energy transferred and conserved? *(Q5)*
- How do I explain my ideas or approach for a specific purpose and audience? How does sharing that inspire my own and others' thinking? *(Q6)*
- What is the best/most efficient way to solve this type of problem? *(Q7)*

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Assessment Boundary: Assessment for quantitative evaluations is limited to total output for a given input. Assessment is limited to devices constructed with materials provided to students. *(3.2.9-12.Q)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Kinetic energy is the energy associated with motion. *(K1)*
- Potential energy is the stored energy in a system either from gravitational positioning or elastic potential. *(K2)*
- Mechanical energy is the sum of kinetic and potential energy. *(K3)*
- The conservation of energy equality is $E_I = E_F$. *(K4)*
- Work is equal to the product of the non conservative net force multiplied by the distance traveled. *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can apply the conservation of energy to a stationary or moving object. *(S1)*
- I can determine the amount of work done to move a system by either applying energy or force concepts. *(S2)*
- I can analyze graphical data for a moving system to determine any variable within the conservation of equation or determine the amount of energy converted to a non mechanical form. *(S3)*

Unit 7 - Momentum

Draft Date	Course	Duration	Grades	Subjects	Team
06-02-2026	HS H/CP Physics	2 Week(s)	11, 12	Science	Alicia Panzarella

Focus

We will make our final stop in our quest to understand linear motion by investigating what happens before, during, and after objects collide. Through discovery-based labs, we will uncover the conservation of momentum and explore impulse as a connection between the forces of dynamics and the motion of kinematics. We will apply mathematical models, evidence, and critical thinking to analyze collisions and explain how momentum and forces change throughout an interaction. As **Innovative Problem Solvers and Communicators**, we will collaborate to investigate real-world collisions and clearly communicate our findings and reasoning.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Academic Standards

Science (2023): 9-12 Standards

- **Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.**

  Clarifying Statement: Emphasis is on the quantitative conservation of momentum in interactions and the qualitative meaning of this principle.

  Assessment Boundary: Assessment is limited to systems of two macroscopic

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Solve Problems Effectively: Based on an examination of the problem/situation, initiate a plan, execute it, evaluate and explain the reasonableness of the solution. (Innovative Problem Solver) *(T1)*
- Solve Problems Efficiently: Use skills, strategies, models, or manipulatives to increase efficiency and accuracy. (Innovative Problem Solver) *(T2)*
- Approach science as a reliable and testable way of knowing and explaining the natural world and designed world. (Life-Long Learner) *(T3)*
- Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions. (Innovative Problem Solver) *(T4)*
- Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions. (Communicator) *(T5)*
- Participate in respectful discourse with peers, teachers, and experts in the field to share ideas, perspectives, and findings. (Collaborator, Communicator) *(T6)*

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bodies moving in one dimension. *(3.2.9-12.J)*

- **Apply scientific and engineering ideas to design, evaluate and refine a device that minimizes the force on a macroscopic object during a collision.**

  Clarifying Statement: Examples of evaluation and refinement could include determining the success of the device at protecting an object from damage and modifying the design to improve it. Examples of a device could include a football helmet or a parachute.

  Assessment Boundary: Assessment is limited to qualitative evaluations and/or algebraic manipulations. *(3.2.9-12.K)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Momentum is conserved in both elastic and inelastic collisions for all parts of the system. *(U1)*
- The distinguishing factor between an elastic and inelastic collision is whether or not kinetic energy is conserved or if energy is transformed to a different type. *(U2)*
- Newton's Second Law provides the connection between an object's change in momentum over time to the object's acceleration during a collision. *(U3)*
- Impulse is the product of the collision force and time of collision. *(U4)*
- Mechanical energy is conserved regardless of the type of collision. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can one explain the structure, properties, and interactions of matter? *(Q1)*
- How do I explain my ideas or approach for a specific purpose and audience? How does sharing that inspire my own and others' thinking? *(Q2)*
- Does my answer/solution make sense? How do I test it? *(Q3)*
- What is the best/most efficient way to solve this type of problem? *(Q4)*
- Does my approach make sense? What is another way of seeing/doing this? *(Q5)*
- How do I explain my ideas or approach for a specific purpose and audience? How does sharing that inspire my own and others' thinking? *(Q6)*
- How do I use labels, symbols, units of measure, tables, graphs, and vocabulary to analyze situations and/or share findings? *(Q7)*
- How do I apply the engineering process to engineering challenges, lab designs, and real world questions? *(Q8)*

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and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

Acquisition of Knowledge & Skill	
Knowledge	**Skills**
What facts and basic concepts should students know and be able to recall? Students will know...	What discrete skills and processes should students be able to use? Students can...
■ Momentum (p) is the product of mass and velocity. *(K1)* ■ The conservation of momentum is written as $P_I = P_F$. *(K2)* ■ The second equality line of a conservation of momentum problem depends on whether the collision is elastic or inelastic. *(K3)* ■ Impulse is equal to the area under the curve of the Force vs. Time graph. *(K4)*	■ I can compute the change in an object's momentum regardless of the type of collision. *(S1)* ■ I can equate Newton's Second Law to impulse and a momentum change depending on the given and asked for quantities. *(S2)* ■ I can transfer computed information from kinematics, forces, momentum, and energy depending on the scenario. *(S3)*

Unit 1 - Introduction to Psychology - History and Approaches

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS Psychology	11 Day(s)	11, 12	Social Studies	Kelly Galbraith, Liza Kuhn, Charles Dembrosky

Focus

Curious about why people think, feel, and behave the way they do? In this unit, you'll explore the history of psychology, major perspectives, influential psychologists, and the diverse careers within the field while building a strong foundation in the science of mind and behavior.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Reading for History and Social Studies (2014): 11

- Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain. *(CC.8.5.11-12.C)*

Pennsylvania Academic Standards

Career Education and Work (2026): 9-12

- Identify solutions to existing conditions or problems using critical thinking skills. *(13.2.9-12.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Make informed decisions and offer potential solutions about current issues. *(T1)*
- Build/construct a knowledge base to inform critical thinking. *(T2)*
- Apply various theoretical approaches to better understand human behavior. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Psychology is the scientific study of behavior and mental processes, and it uses research and evidence to better understand human thoughts, feelings, and actions. *(U1)*
- The field of psychology has evolved over time through the contributions of influential psychologists whose ideas

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How does psychology influence the world around us and the careers people pursue? *(Q1)*
- How do psychologists use different perspectives to understand human thoughts, feelings, and behaviors? *(Q2)*

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Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

continue to shape modern psychological thinking. *(U2)*
- Different psychological perspectives offer unique explanations for human behavior, and each perspective contributes valuable insights while also having limitations. *(U3)*
- Careers in psychology are diverse and extend beyond clinical practice into fields such as education, business, health care, sports, research, and public service. *(U4)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Definition of psychology *(K1)*
- Research vs. Applied Psychology *(K2)*
- Fields of psychology (clinical, counseling, community, developmental, I/O, experimental, educational, school, social) *(K3)*
- Psychological approaches (biopsychological, behavioral, cognitive, psychoanalytic, humanistic) *(K4)*
- Careers in psychology *(K5)*
- Influential psychologists (Wundt, James, Freud, Watson, Rogers, Maslow) *(K6)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can differentiate between behavior and mental processes. *(S1)*
- I can determine the fields of psychology demonstrated in real-life scenarios. *(S2)*
- I can answer questions from different psychological perspectives. *(S3)*
- I can identify and describe a variety of careers within the field of psychology. *(S4)*
- I can differentiate between a research psychologist and an applied psychologist. *(S5)*
- I can analyze a case study to determine evidence of each of the approaches and provide solutions from each approach. *(S6)*

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Unit 2 - Learning

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS Psychology	10 Day(s)	11, 12	Social Studies	Kelly Galbraith, Liza Kuhn, Charles Dembrosky

Focus

Have you ever wondered how people learn new behaviors, skills, and habits? In this unit, you'll explore major theories of learning, including classical conditioning, operant conditioning, social learning, and cognitive learning, to understand how experiences and mental processes shape behavior and influence everyday life.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Writing for History and Social Studies (2014): 11

- Draw evidence from informational texts to support analysis, reflection, and research. *(CC.8.6.11-12.H)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance,

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Build/construct a knowledge base to inform critical thinking. *(T1)*
- Apply various theoretical approaches to better understand human behavior. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Learning is a relatively permanent change in behavior or knowledge that results from experience. *(U1)*
- Through classical conditioning, individuals learn associations between stimuli, which can shape emotions, attitudes, and automatic responses. *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do associations, consequences, observations, and mental processes influence learning? *(Q1)*

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adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

- Through operant conditioning, consequences such as reinforcement and punishment influence the likelihood that behaviors will be repeated or reduced. *(U3)*
- People can learn new behaviors, attitudes, and skills by observing and imitating others, even without direct experience or reinforcement. *(U4)*
- Cognitive processes such as attention, memory, problem-solving, insight, and expectations play an important role in learning. *(U5)*
- Understanding how learning occurs can help individuals develop effective habits, change behaviors, and improve performance. *(U6)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Classical conditioning process (US, UR, CS, CR, neutral stimulus, extinction, stimulus generalization, spontaneous recovery) *(K1)*
- Operant conditioning process (primary reinforcer, secondary reinforcer, positive reinforcement, negative reinforcement, positive punishment, negative punishment, continuous reinforcement schedules, partial reinforcement schedules, fixed ratio, variable ratio, fixed interval, variable

Skills

What discrete skills and processes should students be able to use? Students can...

- I can distinguish between classical conditioning, operant conditioning, social learning, and cognitive learning by analyzing examples of behavior. *(S1)*
- I can evaluate real-world situations using multiple theories of learning to explain human behavior. *(S2)*
- I can identify the areas of expertise of various psychologists. *(S3)*
- I can identify and distinguish between the components of classical conditioning: unconditioned stimulus, unconditioned response, conditioned

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	interval, generalization, discrimination, shaping, chaining) *(K2)* ■ Social learning process (observational learning) *(K3)* ■ Cognitive learning process (latent learning, expectancies, reinforcement value, cognitive maps) *(K4)* ■ Students should know the following psychologists and their contributions: Pavlov, Watson, Mary Cover Jones, Skinner, Bandura, E.C. Tolman. *(K5)*	stimulus, and conditioned response. *(S4)* ■ I can explain the processes of acquisition, extinction, spontaneous recovery, generalization, and discrimination in classical conditioning and operant conditioning scenarios. *(S5)* ■ I can distinguish between positive reinforcement, negative reinforcement, positive punishment, and negative punishment. *(S6)* ■ I can analyze how Albert Bandura's observational learning components (attention, retention, reproduction, and motivation) influence the imitation of modeled behavior. *(S7)*

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Unit 3 - Memory

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS Psychology	7 Day(s)	11, 12	Social Studies	Kelly Galbraith, Liza Kuhn, Charles Dembrosky

Focus

Get ready to become a memory master! In this unit, we're diving deep into how your amazing brain remembers, and sometimes forgets, information. Understanding these proven memory strategies will help you study smarter and remember more of what you learn.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Writing for History and Social Studies (2014): 11

- Draw evidence from informational texts to support analysis, reflection, and research. *(CC.8.6.11-12.H)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts,

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- See themselves and their personal experiences reflected in the sources they explore and the questions they consider. *(T1)*
- Build/construct a knowledge base to inform critical thinking. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Memory isn't a single entity, but a complex system where information must be actively processed (encoded), stored, and effectively accessed (retrieved) to be remembered. *(U1)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can understanding cognition transform our approach to education and daily life? *(Q1)*

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and use information to make informed and conscientious decisions. *(PCVL.LLL)*	■ The most effective ways to improve memory involve actively retrieving information and spacing out learning over time, rather than cramming. *(U2)* ■ Learning is an active, dynamic process influenced by how our brain functions, not just passive absorption of information. *(U3)*	
	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ Sensory, Short-Term (Working), and Long-Term Memory How information flows through memory systems, the capacity and duration of each type *(K1)* ■ Overview of Effective Encoding Strategies Elaboration: Making connections Chunking: Grouping information Visual Imagery and Mnemonics Spaced Practice vs. Cramming *(K2)* ■ Causes of forgetting (decay, interference); Strategies to combat forgetting *(K3)*	What discrete skills and processes should students be able to use? Students can... ■ I can explain how attention, memory, and other cognitive processes contribute to learning. *(S1)* ■ I can identify and explain the key features of each of the memory models. *(S2)* ■ I can use encoding strategies to create personalized learning plans. *(S3)* ■ I can evaluate real-world scenarios to determine the reasons we forget. *(S4)*

Unit 4 -Personality

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS Psychology	7 Day(s)	11, 12	Social Studies	Kelly Galbraith, Liza Kuhn, Charles Dembrosky

Focus

What makes you unique? In this unit, you'll explore major theories of personality, including psychoanalytic, Neo-Freudian, behavioral, and humanistic perspectives, to understand how experiences, motivations, and personal growth shape who we are.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Reading for History and Social Studies (2014): 11

- Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole. *(CC.8.5.11-12.A)*
- Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas. *(CC.8.5.11-12.B)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- See themselves and their personal experiences reflected in the sources they explore and the questions they consider. *(T1)*
- Evaluate various ideological systems and how they shape the world. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Personality is a complex and enduring pattern of thoughts, feelings, and behaviors that helps make each individual unique. *(U1)*
- Psychologists have developed multiple theories of personality, each offering a different explanation for how personality develops and influences behavior. *(U2)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How can understanding personality theories help us better understand ourselves and others? *(Q1)*

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growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*	■ Understanding personality theories can help individuals better understand themselves, others, and the diverse factors that influence human behavior. *(U3)*	
	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ Definition of personality and how psychologists study personality *(K1)* ■ Major assumptions, key concepts, and theorists of the psychoanalytic perspective *(K2)* ■ Major ideas of Neo-Freudian theorists (Jung, Adler, Horney) *(K3)* ■ Behavioral perspective's explanation of personality development and specific theorists' contributions *(K4)* ■ Major assumptions, key concepts, and psychologists of the humanistic perspective *(K5)*	What discrete skills and processes should students be able to use? Students can... ■ I can define and use key terminology associated with major personality theories. *(S1)* ■ I can analyze how different theories may provide complementary explanations for the same behavior. *(S2)* ■ I can construct evidence-based explanations for behavior using concepts from personality psychology. *(S3)*



Unit 5 - Clinical Psychology

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS Psychology	10 Day(s)	11, 12	Social Studies	Kelly Galbraith, Liza Kuhn, Charles Dembrosky

Focus

What happens when thoughts, emotions, or behaviors interfere with daily life? In this unit, you'll explore the field of clinical psychology, learn how psychological disorders are identified and classified using the DSM-5, and develop a deeper understanding of mental health, assessment, and treatment.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

Student Interpersonal Skills: 11

- Evaluate emotional responses in relation to the impact on self and others at home, school, work, and community. *(16.1.12.A)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Build/construct a knowledge base to inform critical thinking. *(T1)*
- Engage in respectful discourse to advocate for one's ideas and listen to better understand the views of others. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Mental health exists on a continuum, and psychological well-being can be influenced by biological, psychological, and social factors. *(U1)*
- The *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* provides a standardized system for classifying and

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- To what extent do biological, psychological, and social factors contribute to mental health and psychological disorders? *(Q1)*
- How do psychologists determine when a behavior or experience becomes a psychological disorder? *(Q2)*

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	diagnosing psychological disorders. *(U2)* ■ Different psychological disorders have distinct characteristics, but symptoms may overlap and vary among individuals. *(U3)*	
	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ Purpose and organization of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) *(K1)* ■ Major criteria used in diagnosing psychological disorders (distress, dysfunction, deviance) *(K2)* ■ The characteristics, symptoms, and diagnostic criteria of major categories of psychological disorders (neurodevelopmental, anxiety, somatoform, dissociative, personality, mood, psychotic) *(K3)*	What discrete skills and processes should students be able to use? Students can... ■ I can differentiate between typical behavior and behavior that may indicate a psychological disorder. *(S1)* ■ I can explain how psychologists use diagnostic criteria to identify psychological disorders. *(S2)* ■ I can analyze case studies to determine which psychological disorder may best explain an individual's symptoms. *(S3)*



Unit 1: The Rise of Dictators - Blitzkrieg - The War Begins

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS World War II	2 Week(s)	11, 12	Social Studies	Kelly Galbraith, Joel Buch, Kameron Shott, Liza Kuhn, Charles Dembrosky

Focus

Students will learn how economic problems, political instability, and nationalism helped dictators gain power in Europe before World War II. They will examine how leaders such as Adolf Hitler used these conditions to expand their influence and challenge the existing world order. Students will then explore the events that led to the outbreak of war, including the invasion of Poland. By the end of the unit, they will understand how the rise of dictators and Germany's use of Blitzkrieg tactics set the stage for the rapid expansion of the war across Europe.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 11

- Evaluate patterns of continuity and rates of change over time, applying context of events. *(8.1.12.A)*
- Evaluate the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships. *(8.1.12.B)*
- Evaluate the role groups and individuals played in the social, political, cultural, and economic development throughout world history. *(8.4.12.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Evaluate various ideological systems and how they shape the world. *(T1)*
- Communicate ideas and conclusions effectively using evidence with integrity. *(T2)*
- Apply various theoretical approaches to better understand human behavior. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- World War II began because of a combination of political, economic, and social problems that developed after World War I, including the rise of

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How did the political instability, economic hardship, and social changes after World War I help create conditions that allowed dictators to rise to power in Europe? *(Q1)*

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- Evaluate the importance of historical documents, artifacts, and sites which are critical to world history. *(8.4.12.B)*
- Evaluate how continuity and change have impacted the world today. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organization *(8.4.12.C)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

dictators and the failure of countries to work together to maintain peace. *(U1)*
- The decisions, leadership styles, and beliefs of key dictators helped increase tensions in Europe and played a major role in the outbreak of World War II. *(U2)*
- Germany's use of Blitzkrieg warfare allowed it to achieve rapid military victories during the early years of the war. *(U3)*
- Major events at the beginning of World War II, including the invasions of Poland and Western Europe, shaped the course of the conflict and influenced the responses of the Allied nations. *(U4)*

- What were the main causes of World War II, and how did the choices of aggression and appeasement influence the path toward war? *(Q2)*
- How did the beliefs and leadership styles of major dictators shape their actions, and how did those actions change relationships between countries in the 1930s? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The Treaty of Versailles and its consequences for Europe's stability (Treaty of Versailles; war guilt clause; reparations; territorial losses; League of Nations; economic hardship; political instability) *(K1)*
- The factors that allowed dictators like Hitler, Mussolini, and Stalin to rise and maintain power (Adolf Hitler; Benito Mussolini; Joseph Stalin; economic crisis; propaganda; fear of communism;

Skills

What discrete skills and processes should students be able to use? Students can...

- I can analyze primary and secondary sources to determine how economic instability and political unrest contributed to the rise of authoritarian leaders in interwar Europe. *(S1)*
- I can evaluate the effectiveness of Blitzkrieg tactics by interpreting maps, battle reports, and historical accounts of early German military campaigns. *(S2)*
- I can construct a chronological narrative explaining the causes of

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	weak democratic institutions; use of secret police; totalitarian control) *(K2)* ■ The beliefs and goals of fascism, Nazism, and other authoritarian ideologies (Fascism; Nazism; authoritarianism; militarism; ultranationalism; racism and anti-Semitism; expansionism; suppression of dissent) *(K3)* ■ Germany's actions of aggression and expansion before World War II, including the annexation of Austria and occupation of Czechoslovakia (Anschluss; Sudetenland crisis; Munich Agreement; occupation of Czechoslovakia; remilitarization of the Rhineland; appeasement policy) *(K4)* ■ The causes and immediate consequences of Germany's invasion of Poland in 1939 (Invasion of Poland; blitzkrieg tactics; failure of appeasement; alliance obligations; Neville Chamberlain; declaration of war by Britain and France; beginning of World War II in Europe) *(K5)*	World War II and the early actions that led to its outbreak in 1939. *(S3)*

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Unit 2: The Fall of Europe - Sitzkrieg

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS World War II	1 Week(s)	11, 12	Social Studies	Kelly Galbraith, Joel Buch, Kameron Shott, Liza Kuhn, Charles Dembrosky

Focus

Building on the causes of the war studied in Unit 1, students will examine how Germany quickly expanded its control throughout Europe. They will learn about the Sitzkrieg, or "Phony War," and how the conflict developed after the invasion of Poland. Students will investigate key events such as the fall of France and the evacuation at Dunkirk. By the end of the unit, they will understand how Germany's early successes created new challenges for the Allies and set the stage for the war to become even larger.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 11

- Evaluate patterns of continuity and rates of change over time, applying context of events. *(8.1.12.A)*
- Evaluate the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships. *(8.1.12.B)*
- Evaluate the role groups and individuals from the U.S. played in the social, political, cultural, and economic development of the world. *(8.3.12.A)*
- Evaluate the impact of historical documents, artifacts, and places in U.S.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Cite examples of how the past has shaped the modern world and make predictions of how current events will shape the future. *(T1)*
- Analyze a variety of sources and formats from multiple perspectives to deepen their understanding of long-standing issues and one another. *(T2)*
- Create and discuss questions to better understand a perspective, make generalizations, and/or draw conclusions. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The period known as the "Sitzkrieg" (Phoney War) involved

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history which are critical to world history. *(8.3.12.B)*
- Evaluate how conflict and cooperation among groups and organizations in the U.S. have influenced the growth and development of the world. Ethnicity and race Working conditions Immigration Military conflict Economic stability *(8.3.12.D)*
- Evaluate the role groups and individuals played in the social, political, cultural, and economic development throughout world history. *(8.4.12.A)*
- Evaluate the importance of historical documents, artifacts, and sites which are critical to world history. *(8.4.12.B)*
- Evaluate how continuity and change have impacted the world today. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organization *(8.4.12.C)*

Profile of a CV Learner

- Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*

limited large-scale military action on the Western Front between 1939 and 1940, despite the outbreak of World War II. *(U1)*
- Germany maintained the early initiative in the war through effective military strategy and key political decisions that allowed it to gain rapid advantages over its opponents. *(U2)*
- The invasions of Denmark, Norway, the Netherlands, Belgium, and France by Germany in 1940 significantly shifted the balance of power in Europe in Germany's favor. *(U3)*
- The rapid collapse of France and the evacuation of Allied forces at Dunkirk were the result of a combination of military, strategic, and organizational factors. *(U4)*
- The fall of Western Europe in 1940 transformed the war in the West, leaving the United Kingdom as the primary opponent of Nazi Germany. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- In what ways did fear, propaganda, and media shape people's beliefs and actions during World War II? *(Q1)*
- How did World War II change the lives of ordinary people around the world, both during and after the war? *(Q2)*
- How did technology and innovation during World War II change how wars are fought? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The meaning of the term "Sitzkrieg" (Phoney War) and the circumstances that led to limited military action on the Western Front

Skills

What discrete skills and processes should students be able to use? Students can...

- I can analyze maps and military timelines to explain the limited activity during the Sitzkrieg period and the strategic positioning of major European powers. *(S1)*

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	between September 1939 and April 1940 *(K1)* ■ The strategic goals and military preparations of Germany, Britain, and France during the Sitzkrieg period *(K2)* ■ The sequence and significance of Germany's invasions of Denmark and Norway in 1940 *(K3)* ■ How Germany's attacks on Belgium, Netherlands, and France led to the rapid collapse of Allied defenses in Western Europe *(K4)* ■ The causes, events, and significance of the Dunkirk Evacuation and its impact on the continuation of the war *(K5)* ■ The political and military consequences of the fall of France, including the establishment of the Vichy France and Britain's position as the primary European opponent of Nazi Germany *(K6)*	■ I can evaluate the effectiveness of German military strategy during the invasions of Western Europe using primary and secondary historical sources. *(S2)* ■ I can construct evidence-based explanations of how the fall of France and the evacuation at Dunkirk Evacuation altered the balance of power in World War II. *(S3)*

 Unit 3: The US Enters the War - Turning Points in the Pacific

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS World War II	2 Week(s)	11, 12	Social Studies	Kelly Galbraith, Joel Buch, Kameron Shott, Liza Kuhn, Charles Dembrosky

Focus

As the war continued to spread, students will learn how the United States became involved following the Attack on Pearl Harbor. They will examine how America's entry strengthened the Allied cause and expanded the conflict into a truly global war. Students will also study major turning points in the Pacific, including the Battle of Midway, where the Allies began to gain momentum. This unit shows how the balance of power started to shift away from the Axis powers and toward an eventual Allied victory.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 11

- Analyze, synthesize, and integrate historical data, creating a product that supports and appropriately illustrates inferences and conclusions drawn from research. (Reference RWSL Standard 1.8.11 Research) *(8.1.12.C)*
- Evaluate the role groups and individuals from the U.S. played in the social, political, cultural, and economic development of the world. *(8.3.12.A)*
- Evaluate the impact of historical documents, artifacts, and places in U.S.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Cite examples of how the past has shaped the modern world and make predictions of how current events will shape the future. *(T1)*
- Analyze a variety of sources and formats from multiple perspectives to deepen their understanding of long-standing issues and one another. *(T2)*
- Create and discuss questions to better understand a perspective, make generalizations, and/or draw conclusions. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The events leading to the United States entering World War II, especially the

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How did World War II affect different groups of people differently (based on

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history which are critical to world history. *(8.3.12.B)*
- Evaluate how continuity and change in U.S. history are interrelated with the world. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organizations *(8.3.12.C)*
- Evaluate the role groups and individuals played in the social, political, cultural, and economic development throughout world history. *(8.4.12.A)*
- Evaluate the importance of historical documents, artifacts, and sites which are critical to world history. *(8.4.12.B)*
- Evaluate how continuity and change have impacted the world today. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organization *(8.4.12.C)*
- Evaluate how conflict and cooperation among groups and organizations have impacted the development of the world today, including its effects on Pennsylvania. *(8.4.12.D)*

Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

attack on Pearl Harbor, brought the conflict into a truly global war involving multiple regions and powers. *(U1)*
- The strategic goals of Japan and the United States in the Pacific were shaped heavily by geography, including the vast distances between islands and the importance of controlling key locations. *(U2)*
- The Battle of the Coral Sea and the Battle of Midway were major turning points in the Pacific War because they shifted momentum away from Japan and toward the United States and its allies. *(U3)*
- Intelligence, technology, and leadership played important roles in shaping the outcomes of major battles in the Pacific Theater and influenced which side gained advantages. *(U4)*
- Allied victories in the Pacific gradually shifted the balance of power, weakening Japan and setting the stage for its eventual defeat in World War II. *(U5)*

race, gender, nationality, or social class)? *(Q1)*
- What led to the Holocaust, and how can societies allow such events to happen? *(Q2)*
- How did technology and innovation during World War II change how wars are fought? *(Q3)*
- What role did the United States play in World War II, and how did the war change America's role in the world? *(Q4)*
- How do countries and people decide what is "right" and "wrong" during wartime? *(Q5)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- The political and economic tensions between the United States and Japan that contributed to the outbreak of war in the Pacific *(K1)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can analyze primary and secondary sources to explain how the attack on Pearl Harbor Attack led to the United States entering World War II. *(S1)*

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	■ The causes, events, and consequences of the Attack on Pearl Harbor and how it led to the United States' entry into World War II *(K2)* ■ The strategic objectives of Japan and the United States during the early stages of the Pacific War *(K3)* ■ The significance of the Battle of the Coral Sea as the first major naval battle that halted Japanese expansion in the Pacific *(K4)* ■ The causes, events, and outcomes of the Battle of Midway and why it is considered a decisive turning point in the Pacific Theater *(K5)* ■ How intelligence gathering, code breaking, aircraft carriers, and naval air power influenced the outcome of key Pacific campaigns and shifted momentum to the Allies *(K6)*	■ I can interpret maps and naval battle data to evaluate the strategic significance of key Pacific engagements, including the Battle of Midway. *(S2)* ■ I can construct an evidence-based explanation of how intelligence, technology, and geography influenced turning points in the Pacific Theater. *(S3)*



Unit 4: Invasion - D-Day - Turning Points in Europe

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS World War II	2 Week(s)	11, 12	Social Studies	Kelly Galbraith, Joel Buch, Kameron Shott, Liza Kuhn, Charles Dembrosky

Focus

After gaining momentum in earlier battles, the Allies were ready to take the offensive in Europe. Students will examine the planning and significance of the Normandy Landings and how it opened a path for the liberation of Western Europe. They will also study key battles and campaigns that weakened German forces and pushed them back across the continent. By the end of the unit, students will understand how Allied successes in both Europe and the Pacific brought the war closer to its conclusion.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 11

- Evaluate patterns of continuity and rates of change over time, applying context of events. *(8.1.12.A)*
- Evaluate the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships. *(8.1.12.B)*
- Evaluate the role groups and individuals from the U.S. played in the social, political, cultural, and economic development of the world. *(8.3.12.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Cite examples of how the past has shaped the modern world and make predictions of how current events will shape the future. *(T1)*
- Analyze a variety of sources and formats from multiple perspectives to deepen their understanding of long-standing issues and one another. *(T2)*
- Create and discuss questions to better understand a perspective, make generalizations, and/or draw conclusions. *(T3)*
- Communicate ideas and conclusions effectively using evidence with integrity. *(T4)*

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- Evaluate the impact of historical documents, artifacts, and places in U.S. history which are critical to world history. *(8.3.12.B)*
- Evaluate how continuity and change in U.S. history are interrelated with the world. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organizations *(8.3.12.C)*
- Evaluate how conflict and cooperation among groups and organizations in the U.S. have influenced the growth and development of the world. Ethnicity and race Working conditions Immigration Military conflict Economic stability *(8.3.12.D)*
- Evaluate the role groups and individuals played in the social, political, cultural, and economic development throughout world history. *(8.4.12.A)*
- Evaluate the importance of historical documents, artifacts, and sites which are critical to world history. *(8.4.12.B)*
- Evaluate how continuity and change have impacted the world today. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organization *(8.4.12.C)*
- Evaluate how conflict and cooperation among groups and organizations have impacted the development of the world today, including its effects on Pennsylvania. *(8.4.12.D)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The planning and execution of the Allied invasion of Normandy, including the challenges military leaders faced on D-Day, show how difficult it was to coordinate a large-scale invasion across land, sea, and air under enemy resistance. *(U1)*
- The Normandy Landings were important because they helped open a Western Front against Nazi Germany, changing the balance of fighting in Europe. *(U2)*
- Intelligence, deception strategies, air power, and amphibious landings all played key roles in helping the Allies succeed in Western Europe. *(U3)*
- Major campaigns such as the Liberation of Paris and the Battle of the Bulge significantly influenced the progress and outcome of the war in Europe. *(U4)*
- The combined pressure of Allied forces advancing from the west and Soviet forces attacking from the east led to the collapse of Nazi Germany and the end of the war in Europe. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How did World War II affect different groups of people differently (based on race, gender, nationality, or social class)? *(Q1)*
- How did technology and innovation during World War II change how wars are fought? *(Q2)*
- What role did the United States play in World War II, and how did the war change America's role in the world? *(Q3)*
- How do countries and people decide what is "right" and "wrong" during wartime? *(Q4)*

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Profile of a CV Learner	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
■ Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*	What facts and basic concepts should students know and be able to recall? Students will know... ■ The strategic reasons for opening a Western Front in Europe and the Allied planning that led to the invasion of Nazi-occupied France *(K1)* ■ The objectives, major participants, and key events of the Normandy Landings *(K2)* ■ The role of intelligence, deception operations, air superiority, and amphibious warfare in the success of the Allied invasion *(K3)* ■ The significance of the Allied breakout from Normandy and the Liberation of Paris in the campaign to liberate Western Europe *(K4)* ■ The causes, events, and outcomes of the Battle of the Bulge as Germany's final major offensive in the West *(K5)* ■ How Allied advances from Western Europe and Soviet offensives from Eastern Europe contributed to the defeat of Nazi Germany and the end of the war in Europe *(K6)*	What discrete skills and processes should students be able to use? Students can... ■ I can analyze maps, military plans, and historical accounts to explain the planning and execution of the Allied invasion of Nazi-occupied France. *(S1)* ■ I can evaluate the effectiveness of Allied strategies during the Normandy Landings using evidence from primary and secondary sources. *(S2)* ■ I can construct an argument explaining how key European battles and campaigns contributed to the weakening and eventual defeat of Nazi Germany. *(S3)*

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Unit 5: The Thousand Year Reich Ends - The Atomic Bomb

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS World War II	2 Week(s)	11, 12	Social Studies	Kelly Galbraith, Joel Buch, Kameron Shott, Liza Kuhn, Charles Dembrosky

Focus

Building on the Allied advances studied in Unit 4, students will examine the final defeat of Nazi Germany and the collapse of the Third Reich. They will learn how Germany's surrender ended the war in Europe while fighting continued in the Pacific. Students will then explore the development and use of the atomic bomb through the Manhattan Project and its role in ending the war against Japan. The unit concludes by examining how the end of World War II reshaped the world and influenced international relations for decades to come.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 11

- Evaluate patterns of continuity and rates of change over time, applying context of events. *(8.1.12.A)*
- Evaluate the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships. *(8.1.12.B)*
- Evaluate the role groups and individuals from the U.S. played in the social, political, cultural, and economic development of the world. *(8.3.12.A)*
- Evaluate the impact of historical documents, artifacts, and places in U.S.

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Cite examples of how the past has shaped the modern world and make predictions of how current events will shape the future. *(T1)*
- Analyze a variety of sources and formats from multiple perspectives to deepen their understanding of long-standing issues and one another. *(T2)*
- Create and discuss questions to better understand a perspective, make generalizations, and/or draw conclusions. *(T3)*
- Make informed decisions and offer potential solutions about current issues. *(T4)*
- Evaluate various ideological systems and how they shape the world. *(T5)*

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history which are critical to world history. *(8.3.12.B)*
- Evaluate how continuity and change in U.S. history are interrelated with the world. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organizations *(8.3.12.C)*
- Evaluate how conflict and cooperation among groups and organizations in the U.S. have influenced the growth and development of the world. Ethnicity and race Working conditions Immigration Military conflict Economic stability *(8.3.12.D)*
- Evaluate the role groups and individuals played in the social, political, cultural, and economic development throughout world history. *(8.4.12.A)*
- Evaluate the importance of historical documents, artifacts, and sites which are critical to world history. *(8.4.12.B)*
- Evaluate how continuity and change have impacted the world today. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organization *(8.4.12.C)*
- Evaluate how conflict and cooperation among groups and organizations have impacted the development of the world today, including its effects on Pennsylvania. *(8.4.12.D)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The final military campaigns of World War II and the factors that led to the collapse of Nazi Germany in 1945 show how Germany was defeated through continued fighting, pressure on multiple fronts, and weakening resources. *(U1)*
- The capture of Berlin was a turning point that marked the end of the Third Reich and helped bring World War II in Europe to a close. *(U2)*
- The development of the atomic bomb involved major scientific breakthroughs and difficult political and military decisions about whether and how to use it. *(U3)*
- The atomic bombings of Hiroshima and Nagasaki played a major role in Japan's surrender and helped bring World War II to an end. *(U4)*
- The end of World War II led to major changes in the world, including the beginning of the nuclear age and new tensions between countries that shaped the postwar period. *(U5)*

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How did technology and innovation during World War II change how wars are fought? *(Q1)*
- What role did the United States play in World War II, and how did the war change America's role in the world? *(Q2)*
- How do countries and people decide what is "right" and "wrong" during wartime? *(Q3)*
- What lessons from World War II are still important for the world today, and how do we see their impact now? *(Q4)*

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understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Key military and political events that led to the collapse of Nazi Germany in the final months of World War II (Battle of Berlin, Allied advance, Soviet forces, Adolf Hitler, German surrender) *(K1)*
- Why the Soviet capture of Berlin and Germany's surrender were important in ending the war in Europe (Berlin, Red Army, V-E Day, unconditional surrender, Nazi Germany) *(K2)*
- What the Manhattan Project was, including its purpose and major scientific achievements (Manhattan Project, atomic bomb, J. Robert Oppenheimer, Enrico Fermi, nuclear fission) *(K3)*
- Why Allied leaders considered using atomic weapons on Japan and what other options they debated (Harry S. Truman, Potsdam Conference, firebombing, invasion of Japan, Operation Downfall) *(K4)*
- What happened during and after the atomic bombings of Hiroshima and Nagasaki and how they affected Japan's surrender (Hiroshima, Nagasaki, Enola Gay, atomic bomb, Japanese surrender, August 1945) *(K5)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can analyze primary and secondary sources to explain the final military and political events that led to the defeat of Nazi Germany and Japan. *(S1)*
- I can evaluate historical evidence and perspectives regarding the decision to use atomic weapons in the Manhattan Project and its outcomes. *(S2)*
- I can construct evidence-based arguments explaining how the atomic bombings of Hiroshima and Nagasaki changed the course of World War II and shaped the postwar world. *(S3)*

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	■ The long-term effects of the atomic bomb, including the start of the nuclear age and rising global tensions after World War II (nuclear age, Cold War, arms race, nuclear weapons, United Nations) *(K6)*	

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Unit 1: African Kingdoms

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS African American Studies	1 Week(s)	11, 12	Social Studies	Kelly Galbraith, Abdulla Virmani, Liza Kuhn, Charles Dembrosky

Focus

African Kingdoms and the Atlantic Slave Trade examines how powerful, complex African societies shaped and were transformed by the growth of a transatlantic system that commodified African lives, linking African political and economic dynamics to the rise of racial slavery across the Atlantic world, a system that would become the foundation for plantation slavery in the Americas.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 12

- Evaluate the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships. *(8.1.12.B)*
- Evaluate the importance of historical documents, artifacts, and sites which are critical to world history. *(8.4.12.B)*
- Evaluate the importance of historical documents, artifacts, and sites which are critical to world history. *(8.4.W.B)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Create and discuss questions to better understand a perspective, make generalizations, and/or draw conclusions. *(T1)*
- Make informed decisions and offer potential solutions about current issues. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Many African kingdoms were largely patriarchal, and they practiced diverse religious traditions—including indigenous beliefs alongside Islam (and, in some regions, Christianity). *(U1)*
- African slave labor, utilized after the failure of using natives and indentured

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How did gender roles, religious beliefs, and political structures in African kingdoms shape the lives of their people and influence the ways they experienced and responded to the rise of the Atlantic slave trade? *(Q1)*

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contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*

servants as workers, provided a method to maximize agricultural profits in North America and the Caribbean. Agricultural production focused on sugar and tobacco. *(U2)*

- African culture remained a distinct part of slave culture through language, music, and stories that transmitted African history from one generation to the next in the New World. *(U3)*

- Why did European colonizers increasingly turn to African slave labor in the Americas, and how did this choice transform both the economies of the Atlantic world and the lives of the people forced to work on sugar and tobacco plantations? *(Q2)*
- In what ways did enslaved Africans use language, music, and storytelling to preserve and adapt their cultures, and how did these traditions help them resist dehumanization and create new identities in the New World? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Government Structure: Many African kingdoms established organized, structured governments.Religious Diversity: Many religious practices coexisted across African kingdoms.Historical Coexistence: African societies introduced and practiced Islam and Christianity alongside native traditional religions. (Vocabulary: Patriarchal, Indigenous beliefs, Islam, Christianity, Kingdoms) *(K1)*
- Demand for Labor: European colonizers required a large labor force on colonial plantations.Exploitation of Enslaved Africans: Colonizers forcibly turned to

Skills

What discrete skills and processes should students be able to use? Students can...

- I can describe and compare key features of precolonial African kingdoms (political structures, gender roles, and religious practices) using maps, visuals, and short texts. *(S1)*
- I can explain cause-and-effect relationships between labor demands in the Americas, the failure of Indigenous and indentured labor systems, and the turn to African slave labor on sugar and tobacco plantations. *(S2)*
- I can identify and interpret evidence of African cultural continuities in primary sources (songs, folktales, narratives, images) and analyze how language, music, and storytelling helped enslaved

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	enslaved Africans as the primary source of labor.Economic Motivation: The trans-Atlantic slave trade and plantation system were driven by profit. (Vocabulary: Indigenous labor, Indentured servant, Plantation, Cash crop, Chattel slavery) *(K2)* ■ Cultural Preservation & Adaptation: Enslaved Africans retained their cultural traditions.Community Building: Preserving shared cultural heritage and creating new traditions helped enslaved people form strong bonds.Forms of Resistance: Cultural preservation helped maintain humanity, identity, and autonomy. (Vocabulary: Oral tradition, Spirituals, Folktales, Call and response, Cultural resistance) *(K3)*	people preserve culture and resist dehumanization. *(S3)*

Unit 2: West and Central African Societies

Draft Date	Course	Duration	Grades	Subjects	Team
09-04-2026	HS African American Studies	1 Week(s)	11, 12	Social Studies	Abdulla Virmani, Kelly Galbraith, Liza Kuhn, Charles Dembrosky

Focus

Daily life in West and Central Africa. Students explore how extended kinship networks shaped identity, inheritance, and mutual support, and how agricultural rhythms—yams, millet, sorghum, and rice—sustained households and states. They investigate gender roles in labor, trade, and religious life, including women's economic influence, and study artisanship in iron, cloth, wood, and clay. Throughout, students consider community values of reciprocity, respect for elders, and oral tradition as living historical record.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 12

- Evaluate patterns of continuity and rates of change over time, applying context of events. *(8.1.12.A)*
- Evaluate the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships. *(8.1.12.B)*
- Analyze, synthesize, and integrate historical data, creating a product that supports and appropriately illustrates inferences and conclusions drawn from research. (Reference RWSL Standard 1.8.11 Research) *(8.1.12.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Cite examples of how the past has shaped the modern world and make predictions of how current events will shape the future. *(T1)*
- Make informed decisions and offer potential solutions about current issues. *(T2)*
- Communicate ideas and conclusions effectively using evidence with integrity. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Kinship as Social Infrastructure: Extended kinship networks formed the foundational framework of West and Central African societies, defining

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do family connections, kinship networks, and cultural traditions shape our individual identity, build

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- Evaluate the role groups and individuals played in the social, political, cultural, and economic development throughout world history. *(8.4.12.A)*
- Evaluate the importance of historical documents, artifacts, and sites which are critical to world history. *(8.4.12.B)*
- Evaluate how continuity and change have impacted the world today. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organization *(8.4.12.C)*
- Evaluate how conflict and cooperation among groups and organizations have impacted the development of the world today, including its effects on Pennsylvania. *(8.4.12.D)*

identity, governing inheritance, and ensuring social stability through mutual obligation. *(U1)*
- Agriculture as the Engine of Society: Agricultural rhythms and crop cultivation provided the necessary economic foundation to sustain daily household life, feed growing populations, and support organized state power. *(U2)*
- Oral Tradition as Living History: Guided by reverence for elders and shared community values, oral tradition served as a sophisticated, reliable system for preserving the historical record, passing down knowledge, and maintaining cultural continuity. *(U3)*

community, and ensure mutual support during difficult times? *(Q1)*
- How do local geography, agricultural practices, and everyday labor sustain the growth, structure, and stability of powerful human societies? *(Q2)*
- How can a community effectively preserve its history, values, and identity over generations without relying primarily on written records or books? *(Q3)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Lineage & Inheritance: Descent systems determined land rights.Social Safety Nets: Shared resources ensured community support.Identity & Status: Clan affiliation defined social position. (Vocabulary: Kinship, Lineage, Matrilineal, Patrilineal, Clan, Mutual obligation, Inheritance) *(K1)*
- Staple Crops: Regional crops sustained dense populations.Agricultural Rhythms: Seasons dictated work and trade.Economic Foundation: Surplus

Skills

What discrete skills and processes should students be able to use? Students can...

- Analyze Historical Sources: Analyze oral traditions, proverbs, and material artifacts to evaluate how West and Central African societies recorded history and passed down values. *(S1)*
- Map Spatial & Environmental Patterns: Map the geographic distribution of staple crops (yams, millet, sorghum, rice) to explain how agricultural rhythms supported population growth and trade networks. *(S2)*
- Examine Social & Economic Structures: Categorize and compare how kinship

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	food enabled specialized labor. (Vocabulary: Sorghum, Millet, Agrarian, Surplus, Cultivation, Subsistence, Crop rotation, Division of labor) *(K2)* ■ Role of Griots: Storytellers maintained official historical records.Mechanisms of Memory: Songs encoded complex historical events.Intergenerational Transmission: Elders passed down community laws. (Vocabulary: Griot (Jali), Oral history, Ancestral lineage, Custodian, Collective memory, Epic (e.g., Epic of Sundiata), Intergenerational, Folklore) *(K3)*	networks, gender divisions, and specialized labor (craftsmen, griots, farmers) organize daily life and governance. *(S3)*

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Unit 3: African Trade Networks and Global Connections

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-04-2026	HS African American Studies	1 Week(s)	11, 12	Social Studies	Abdulla Virmani, Kelly Galbraith, Liza Kuhn, Charles Dembrosky

Focus

Africa's place in premodern global commerce. Students trace trans-Saharan caravan routes that carried gold, salt, copper, and enslaved people between West Africa and the Mediterranean, and follow Indian Ocean monsoon networks linking Swahili coast city-states to Arabia, India, and China. They analyze how trade spread Islam, literacy, and urban wealth, and how empires like Ghana, Mali, and Songhai taxed exchange. Students conclude by assessing Africa's economic centrality before European maritime dominance reshaped these systems.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 12

- Evaluate the role groups and individuals played in the social, political, cultural, and economic development throughout world history. *(8.4.12.A)*
- Evaluate the importance of historical documents, artifacts, and sites which are critical to world history. *(8.4.12.B)*
- Evaluate how continuity and change have impacted the world today. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organization *(8.4.12.C)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Communicate ideas and conclusions effectively using evidence with integrity. *(T1)*
- Engage in respectful discourse to advocate for one's ideas and listen to better understand the views of others. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Commercial Networks & Regional Integration: Trans-Saharan caravan routes and Indian Ocean maritime networks linked African kingdoms and Swahili Coast city-states to global

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How did Africa's early trade networks connect distant societies, transform global commerce, and challenge modern misconceptions about the

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- Evaluate how conflict and cooperation among groups and organizations have impacted the development of the world today, including its effects on Pennsylvania. *(8.4.12.D)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*
- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

commerce, making the continent an indispensable hub for the movement of valuable commodities, ideas, and people long before European maritime expansion. *(U1)*
- Trade as a Catalyst for Cultural Exchange: Long-distance trade networks acted as primary engines for cultural diffusion, driving the spread of Islam, Arabic literacy, architectural innovation, and urban growth across West and East Africa while reshaping local social and political structures. *(U2)*
- Wealth, Imperial Power, and Taxation: Major African empires, such as Ghana, Mali, and Songhai, built their immense wealth and geopolitical influence by strategically controlling trade routes, taxing cross-regional exchange, and managing key natural resources like gold, salt, and copper. *(U3)*

continent's historical influence on global trade? *(Q1)*
- How can the movement of goods over long distances fundamentally reshape a society's religion, language, architecture, and political governance? *(Q2)*
- How do powerful states strategically leverage geographical advantage, natural resource control, and taxation systems to build, sustain, and project imperial power? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Trans-Saharan Routes: Caravan paths connected West Africa.Indian Ocean Trade: Monsoon winds guided maritime routes.Key Commodities: Goods like gold were traded cross-regionally. (Vocabulary: Trans-Saharan, Caravan, Monsoon, Swahili Coast, Commodity,

Skills

What discrete skills and processes should students be able to use? Students can...

- Map and Analyze Spatial Patterns: Trace trans-Saharan caravan routes and Indian Ocean monsoon networks on historical maps to analyze how geographic features and seasonal weather patterns directed global movement and trade. *(S1)*

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	Maritime, Interregional, Entrepot→ port) *(K1)* ■ Spread of Islam: Merchants introduced monotheism to rulers.Rise of Literacy: Arabic script enabled written records.Urban Growth: Commercial hubs grew into cities. (Vocabulary: Cultural diffusion, Arabic script, Literacy, Urbanization, Islamization, Cosmopolitan, Syncretism, Scholasticism) *(K2)* ■ Empire Control: Rulers regulated valuable trade routes.Taxation Systems: Levied duties funded state operations.Resource Wealth: Gold mines built imperial prestige. (Vocabulary: Hegemony, Tribute, Customs duty, Monopoly, Revenue, Sovereignty, Imperial administration, Merchant class) *(K3)*	■ Evaluate Cause-and-Effect Relationships: Assess how long-distance commercial exchange directly caused the spread of Islam, the adoption of Arabic script, and the growth of urban intellectual centers across West and East Africa. *(S2)* ■ Analyze Economic Systems and Policy: Examine primary and secondary source evidence to explain how West African empires (Ghana, Mali, Songhai) used trade regulation, resource monopolies, and taxation structures to maintain state power. *(S3)*

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Unit 4: Religion, Philosophy, and Knowledge Systems

Draft Date	Course	Duration	Grades	Subjects	Team
09-04-2026	HS African American Studies	1 Week(s)	11, 12	Social Studies	Abdulla Virmani, Kelly Galbraith, Liza Kuhn, Charles Dembrosky

Focus

Religion and intellectual life across Africa. Students study indigenous spiritual traditions—ancestral veneration, divination, and sacred landscapes—alongside the spread of Christianity in Axum, Nubia, and Ethiopia and Islam across the Sahel and Swahili coast. They consider how communities blended rather than replaced belief systems, and how griots preserved history through oral tradition. Students examine Timbuktu's scholars, manuscripts, and universities, evaluating Africa as a center of literacy, theology, and learning.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 12

- Analyze, synthesize, and integrate historical data, creating a product that supports and appropriately illustrates inferences and conclusions drawn from research. (Reference RWSL Standard 1.8.11 Research) *(8.1.12.C)*
- Evaluate the role groups and individuals played in the social, political, cultural, and economic development throughout world history. *(8.4.12.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Cite examples of how the past has shaped the modern world and make predictions of how current events will shape the future. *(T1)*
- Analyze a variety of sources and formats from multiple perspectives to deepen their understanding of long-standing issues and one another. *(T2)*
- Build/construct a knowledge base to inform critical thinking. *(T3)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Spiritual Continuity and Syncretism: Indigenous spiritual practices—such as ancestral veneration, divination, and

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do communities integrate new religious ideas with indigenous traditions to create unique, enduring

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Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

reverence for sacred landscapes—formed a durable foundation for African worldviews, often blending dynamically with monotheistic faiths like Christianity and Islam rather than being wholly replaced by them. *(U1)*

- Plurality of Monotheistic Traditions: Christianity and Islam took deep, early root in distinct regions of Africa, serving not as foreign impositions, but as vibrant localized traditions that shaped the political legitimacy, art, and intellectual identity of kingdoms from Ethiopia and Nubia to the Sahel and Swahili coast. *(U2)*
- Centers of Global Intellectual Power: African societies established sophisticated systems to cultivate, preserve, and transmit knowledge—combining written scholarship in world-class academic centers like Timbuktu with the rigorous oral traditions of griots—positioning the continent as a major hub of global literacy, theology, and science. *(U3)*

spiritual identities and cultural worldviews? *(Q1)*

- How did the early adoption and localization of global monotheistic faiths shape political power, art, and identity across historical African kingdoms? *(Q2)*
- How do different systems of preserving knowledge—from written manuscripts in university centers to oral traditions passed by griots—shape our understanding of history? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Indigenous Traditions: Spiritual beliefs emphasized ancestral veneration.Religious Syncretism: Faiths blended traditional and monotheistic

Skills

What discrete skills and processes should students be able to use? Students can...

- Analyze Historical Claims: Examine primary-source manuscripts, oral traditions, and religious art to evaluate claims about intellectual and spiritual life in historical African societies. *(S1)*

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	beliefs.Sacred Landscapes: Physical environments held deep spiritual meaning. (Vocabulary: Syncretism, Ancestral veneration, Divination, Cosmology, Indigenous, Sacred landscape, Animism, Worldview) *(K1)* ■ Early Christianity: Aksum adopted Christianity as the state religion.Spread of Islam: The Muslim faith reshaped trading centers in the Sahel.Local Adaptation: Foreign religions incorporated regional African customs. (Vocabulary: Monotheism, Aksum, Sahel, Ge'ez, Sectarianism, Liturgy, Clergy, Proselytizing) *(K2)* ■ Timbuktu Scholarship: Universities produced extensive Arabic manuscripts.Griot Preservation: Oral traditions safeguarded historical court records.Intellectual Hubs: Scholars advanced theology, math, and astronomy. (Vocabulary: Manuscript, Timbuktu, Sankore University, Scholasticism, Epistemology, Exegesis, Pedagogy, Scribe, Astronomy) *(K3)*	■ Compare Cultural Phenomena: Compare how Christianity in Axum and Islam across the Sahel adapted local African practices, identifying examples of religious syncretism versus preservation of doctrine. *(S2)* ■ Assess Systems of Record-Keeping: Contrast written manuscript traditions (such as Timbuktu's libraries) with oral historical traditions (such as the griots) to evaluate the strengths, functions, and reliability of different knowledge-preservation systems. *(S3)*



Unit 5: European Contacts and Early Encounters

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
09-04-2026	HS African American Studies	1 Week(s)	11, 12	Social Studies	Abdulla Virmani, Kelly Galbraith, Liza Kuhn, Charles Dembrosky

Focus

African-European encounters of the fifteenth and sixteenth centuries. Students study Portuguese voyages along the Atlantic coast, the trading forts of Elmina, and the exchanges of gold, ivory, pepper, and textiles that preceded mass enslavement. They analyze African rulers as active agents—Kongo's Afonso I, Benin's obas, Ndongo's leaders—who negotiated treaties, controlled access, and set trade terms. Students then assess how commercial partnership gave way to coercion, conversion pressure, and armed conflict.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 12

- Evaluate patterns of continuity and rates of change over time, applying context of events. *(8.1.12.A)*
- Evaluate the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships. *(8.1.12.B)*

Profile of a CV Learner

- Collaboration: Students will be able to independently engage and meaningfully contribute to a team to reach a common

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Analyze a variety of sources and formats from multiple perspectives to deepen their understanding of long-standing issues and one another. *(T1)*
- Build/construct a knowledge base to inform critical thinking. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Commercial Encounters & Equal ExchangeEarly African-European encounters along the Atlantic coast began with mutual economic interest and sovereign trade agreements, in

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How did fifteenth-century African rulers leverage sovereignty, diplomatic trade agreements, and natural resources when negotiating early European alliances? *(Q1)*

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goal, through mutual reflection, feedback, and shared responsibility. *(PCVL.CO)*
- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

which African states served as active, equal partners controlling valuable regional trade networks. *(U1)*
- Sovereignty, Diplomacy & African AgencyAfrican rulers strategically exercised political agency, diplomacy, and administrative control to navigate foreign relations, set trade conditions, and manage diplomatic ties to advance their regional interests. *(U2)*
- Transition to Coercion & ExploitationInitial commercial partnerships gradually shifted into coercive, destabilizing dynamics as European demand for forced labor escalated, fueling armed conflict, political fragmentation, and pressure on traditional governance. *(U3)*

- In what ways did the transition from mutual commercial exchange to human exploitation alter political stability across West Africa? *(Q2)*
- How do primary sources reveal the shift from balanced diplomatic partnerships to European coercion and African resistance over time? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Maritime Encounters: Portuguese explorers established coastal trading networks along West Africa.Commodity Trade: African and European merchants exchanged gold, ivory, and textiles.Trading Forts: Fortified outposts like Elmina served as central trade hubs. (Vocabulary: Feitoria→ trading posts, Elmina→mine, Maritime, Commodity, Mercantile, Outpost, Commercial exchange, Sovereign trade)

Skills

What discrete skills and processes should students be able to use? Students can...

- Analyze Diplomatic Correspondence: Analyze diplomatic letters and primary sources (such as King Afonso I's letters to Manuel I of Portugal) to evaluate how African rulers asserted sovereignty and attempted to regulate European trade activities. *(S1)*
- Trace Historical Shifts: Map the chronological transition from equal economic partnerships to coercive labor exploitation using trade logs,

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	(K1) ■ Sovereign Authority: Rulers like Afonso I set terms and controlled trade access.Diplomatic Strategy: African leaders negotiated treaties to advance their state's regional interests.Monarchic Power: Benin's Obas strictly regulated foreign interactions within their territory. (Vocabulary: Oba→King= Nigeria), Diplomacy, Monopoly, Sovereignty, Hegemony, Strategic negotiation, Treaty, Envoy) *(K2)* ■ Rising Demands: Growing European demand for enslaved labor destabilized local economies.Conversion Pressure: Christian missionary efforts challenged existing political and cultural structures.Emergence of Conflict: Equal commercial partnerships shifted toward militarized coercion and resistance. (Vocabulary: Coercion, Destabilization, Demarcation, Forced labor, Conversion, Vulnerability, Captivity, Resistance) *(K3)*	treaty documents, and historical maps of West African coastal fortresses. *(S2)* ■ Evaluate Political Strategies: Compare the administrative strategies used by different West African leaders—such as the Obas of Benin and the rulers of Ndongo—to control foreign access, protect state interests, and respond to European conversion pressures. *(S3)*

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Unit 6: The Slave Trade and Slavery

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS African American Studies	1 Week(s)	11, 12	Social Studies	Kelly Galbraith, Abdulla Virmani, Liza Kuhn, Charles Dembrosky

Focus

The Slave Trade and Slavery unit explores how this racialized system of forced labor took root in the Americas, examining the brutal realities of enslavement alongside the ways enslaved people built families, cultures, and strategies of resistance within a world that treated them as property, setting the stage for growing moral, political, and economic conflicts over slavery's future.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 12

- Evaluate patterns of continuity and rates of change over time, applying context of events. *(8.1.12.A)*
- Evaluate how continuity and change have impacted the world today. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organization *(8.4.W.C)*

Profile of a CV Learner

- Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Create and discuss questions to better understand a perspective, make generalizations, and/or draw conclusions. *(T1)*
- Communicate ideas and conclusions effectively using evidence with integrity. *(T2)*

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Numerous African cultures have influenced on American society over time. *(U1)*
- The transatlantic slave trade and slavery developed through key events, participating nations, and the social

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How have African cultures shaped, and continued to reshape, what we think of as "American" culture? *(Q1)*
- How and why did the transatlantic slave trade and enslaved person societies develop, and what do their

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audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*

organization and "seasoning" of slave societies. *(U2)*

- Evaluate the impact of slavery on American history and argue, with evidence, how enslaved people's resistance and revolts challenged and undermined the institution of slavery. *(U3)*

structures reveal about power, race, and profit in the Atlantic world? *(Q2)*

- In what ways did the institution of slavery shape American history, and how effectively did enslaved people's resistance and revolts challenge and undermine that system? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- African cultures shaped American languages, religions, arts, food, and everyday life.(Vocabulary: Diaspora, Blending of Culture, Cultural diffusion, Creolization, Griot) *(K1)*
- Slave societies had strict hierarchies and controlled Africans through "seasoning" and punishment. (Vocabulary: Hierarchy, Overseer, Plantation, Seasoning, Slave code) *(K2)*
- Enslaved people resisted slavery through work slowdowns, escape, sabotage, cultural resistance, and revolts. (Vocabulary: Resistance, Rebellion, Maroon communities, Underground Railroad, Sabotage) *(K3)*

Skills

What discrete skills and processes should students be able to use? Students can...

- I can identify, describe, and categorize cultural influences by examining sources (images, music clips, texts, artifacts) to explain how specific African cultural practices have shaped American society over time. *(S1)*
- I can analyze cause-and-effect in historical development by tracing key events, routes, and participating nations in the transatlantic slave trade and explaining how these shaped the emergence and organization of slave societies, including "seasoning" practices. *(S2)*
- I can interpret and evaluate historical evidence (primary and secondary sources) to make and defend claims about how slavery impacted American history and how different forms of enslaved people's resistance and

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		revolts challenged and undermined the institution of slavery. *(S3)*

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Unit 7: Abolition, The Civil War and Reconstruction

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS African American Studies	1 Week(s)	11, 12	Social Studies	Kelly Galbraith, Abdulla Virmani, Liza Kuhn, Charles Dembrosky

Focus

Abolition, the Civil War, and Reconstruction traces how enslaved and free Black people, abolitionists, and their allies confronted those conflicts and challenged slavery, how the Civil War became a war for emancipation, and how the contested experiment of Reconstruction briefly expanded Black freedom and citizenship before facing violent backlash and retrenchment, creating new forms of racial control that shaped life in the post-slavery United States.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 12

- Evaluate the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships. *(8.1.12.B)*
- Analyze, synthesize, and integrate historical data, creating a product that supports and appropriately illustrates inferences and conclusions drawn from research. (Reference RWSL Standard 1.8.11 Research) *(8.1.12.C)*
- Evaluate the importance of historical documents, artifacts, and sites which are critical to world history. *(8.4.12.B)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Enslaved and free Black people were central agents whose choices, organizing, and ideas pushed the United States toward emancipation and redefined the meaning of freedom and citizenship. *(U1)*
- The Civil War was not only about union and secession but became a transformative struggle to end slavery,

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How did enslaved and free Black people act as agents of change, and in what ways did their choices and organizing redefine freedom and citizenship in the United States? *(Q1)*
- How and why did the Civil War evolve from a war to preserve the Union into a war for emancipation, and what roles did Black people play—on and off the

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- Evaluate how continuity and change have impacted the world today. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organization *(8.4.W.C)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of others to responsibly participate in all facets of local and global society. *(PCVL.GC)*

with Black participation on and off the battlefield playing a crucial role in that shift. *(U2)*
- Reconstruction was a fragile, contested experiment in multiracial democracy that briefly expanded Black rights and power, but violent backlash created new systems of racial control whose legacies long outlasted slavery. *(U3)*

battlefield—in driving that transformation? *(Q2)*
- Was Reconstruction a success or a failure in creating a multiracial democracy, and how did both its achievements and the violent backlash against it shape systems of racial control that persisted long after slavery ended? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Enslaved and free Black people organized, escaped, built communities, and reshaped American ideas of freedom. (Vocabulary: agency, abolitionist, manumission, petition, self-emancipation) *(K1)*
- The Civil War started over union and secession, but evolved into a war to end slavery. (Vocabulary: secession, Emancipation Proclamation, contraband, United States Colored Troops (USCT), total war) *(K2)*
- Reconstruction expanded Black rights and political power but was undermined by violent white resistance and new systems of racial control. (Vocabulary: Reconstruction Amendments, Freedmen's Bureau, Black

Skills

What discrete skills and processes should students be able to use? Students can...

- I can analyze primary and secondary sources to explain how enslaved and free Black people acted as agents of change, pushing the United States toward emancipation and new meanings of freedom and citizenship. *(S1)*
- I can trace and explain change over time in the Civil War's goals, showing how it shifted from a war over union and secession to a war to end slavery, and describe the different roles Black people played in that transformation. *(S2)*
- I can evaluate historical actions and their consequences by assessing the successes and limits of Reconstruction, identifying how new rights were gained, how backlash created new systems of racial control, and how those legacies

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	Codes, sharecropping, Ku Klux Klan) *(K3)*	continued to shape American society. *(S3)*

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Unit 8: Successes and Struggles in a Post-Slavery Society

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS African American Studies	1 Week(s)	11, 12	Social Studies	Kelly Galbraith, Abdulla Virmani, Liza Kuhn, Charles Dembrosky

Focus

Successes and Struggles in a Post-Slavery Society examines how Black Americans built families, communities, institutions, and cultural life in this post-Reconstruction landscape, while confronting emerging systems of racial oppression—such as sharecropping, segregation, and racial violence—that sought to limit the freedoms they had fought to secure, even as Black people forged new strategies of survival, advancement, and protest.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 12

- Evaluate the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships. *(8.1.W.B)*
- Construct research on a historical topic using a thesis statement and demonstrate use of appropriate primary and secondary sources. (Reference RWSL Standard 1.8.8 Research) *(8.1.W.C)*
- Evaluate the role groups and individuals played in the social, political, cultural, and economic development throughout world history. *(8.4.W.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- Black life after slavery combined institution-building and constraint, as Black Americans built families, churches, schools, businesses, and cultural institutions while systems like sharecropping and debt peonage restricted their freedom. *(U1)*
- Legal and extra-legal systems worked together to enforce racial hierarchy, as

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How did Black Americans build families, communities, and institutions in the years after slavery, and what challenges did they face in trying to secure real freedom? *(Q1)*
- In what ways did laws, policies, and racial violence work together to maintain white supremacy and limit Black people's political, social, and

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Profile of a CV Learner

- Innovative Problem Solving: Students will be able to independently use their learning to approach new problems with curiosity and creativity while consistently seeking growth through self-reflection and a willingness to accept constructive feedback. *(PCVL.IPS)*

segregation laws, voting restrictions, racial violence, and terror preserved white supremacy and curtailed Black political, social, and economic freedoms. *(U2)*
- Black communities developed diverse strategies to survive, advance, and resist, using education, migration, cultural expression, organizing, and protest to pursue safety, opportunity, and dignity and lay the groundwork for later civil rights struggles. *(U3)*

economic rights after Reconstruction? *(Q2)*
- How did Black communities respond to these new systems of oppression, and how did their strategies of survival, advancement, and resistance lay the groundwork for later civil rights movements? *(Q3)*

Acquisition of Knowledge & Skill

Knowledge

What facts and basic concepts should students know and be able to recall? Students will know...

- Black Americans built families, churches, schools, and businesses despite discrimination. (Vocabulary: church, congregation, HBCU (Historically Black College or University), entrepreneur, mutual aid) *(K1)*
- New legal and extra-legal systems enforced racial hierarchy after Reconstruction.(Vocabulary: Jim Crow, disenfranchisement, poll tax, lynching, segregation) *(K2)*
- Black communities developed strategies for survival, advancement, and resistance, using education, migration, organizing, and culture to seek safety and opportunity while

Skills

What discrete skills and processes should students be able to use? Students can...

- I can explain and give examples of how Black Americans built families, communities, and institutions after slavery, and describe how these helped people pursue safety, opportunity, and dignity. *(S1)*
- I can analyze laws, policies, and events to show how systems like Jim Crow, voting restrictions, and racial violence worked together to maintain white supremacy and limit Black rights after Reconstruction. *(S2)*
- I can evaluate different strategies of Black resistance and advancement—such as education, migration, organizing, and cultural expression—and explain how they helped communities survive oppression and

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	challenging oppression. (Vocabulary: Great Migration, NAACP, activism, protest, cultural expression) *(K3)*	set the stage for later civil rights movements. *(S3)*

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Unit 9: Contemporary Issues in Black America and Africa

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS African American Studies	1 Week(s)	11, 12	Social Studies	Kelly Galbraith, Abdulla Virmani, Liza Kuhn, Charles Dembrosky

Focus

Contemporary Issues in Black America and Africa investigates how people of African descent continue to confront these enduring legacies of slavery, colonialism, and racism today, focusing on struggles over political power, economic inequality, migration, culture, and human rights—and on the transnational connections that link Black communities across the African continent and the wider diaspora, connections that inform modern visions of liberation and solidarity.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 12

- Evaluate the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships. *(8.1.U.B)*
- Evaluate the role groups and individuals played in the social, political, cultural, and economic development throughout world history. *(8.4.W.A)*

Profile of a CV Learner

- Global Citizenship: Students will be able to mindfully and respectfully seek to understand the ideas and perspectives of

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

Meaning

Understandings

What specifically do you want students to understand? What inferences should they make? Students will understand that...

- The legacies of slavery and colonialism still shape present-day conditions. Students will understand that contemporary struggles over political power, economic inequality, policing, land, and human rights in Black communities across the U.S. and Africa are deeply rooted in earlier systems of

Essential Questions

What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering...

- How do the legacies of slavery and colonialism continue to shape political power, economic inequality, and human rights in Black communities in the United States and across Africa today? *(Q1)*
- How are Black experiences and identities connected across borders, and how do migration, culture, and

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others to responsibly participate in all facets of local and global society. *(PCVL.GC)*	slavery, colonial rule, and racial hierarchy. *(U1)* ■ Black experiences are connected across borders. Students will understand that Black communities in the United States, on the African continent, and throughout the wider diaspora are linked by shared histories and ongoing exchanges of ideas, culture, activism, and migration, which together shape global Black identities and politics. *(U2)* ■ Modern movements draw on long traditions of liberation and solidarity. Students will understand that contemporary movements for racial justice and human rights—whether in Ferguson, Lagos, Johannesburg, or London—build on older Black struggles, using transnational networks, media, and culture to imagine new forms of liberation and collective action. *(U3)*	shared histories link Black communities in Africa, the United States, and the wider diaspora? *(Q2)* ■ How do contemporary movements for racial justice and liberation draw on earlier Black struggles, and how are today's activists using global networks and media to build solidarity and imagine new futures? *(Q3)*
	Acquisition of Knowledge & Skill	
	Knowledge	**Skills**
	What facts and basic concepts should students know and be able to recall? Students will know... ■ Institutional Roots: Modern systemic inequality stems directly from slavery and colonialism.State Power: Contemporary policing reflects historical methods of racial control.Economic Disparities: Historic land expropriation created lasting racial wealth gaps.(Vocabulary:	What discrete skills and processes should students be able to use? Students can... ■ I can explain connections between past and present, showing how the histories of slavery, colonialism, and legal discrimination help explain current political, economic, and human rights issues in Black communities in the United States and across Africa. *(S1)* ■ I can compare Black experiences across different regions, using maps, data, and

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	Systemic inequality, Expropriation, Disinvestment, Disenfranchisement, Neocolonialism, Racialization, Structural violence, Segregation) *(K1)* ■ Shared Heritage: Historical migrations forged global networks of Black identity.Cultural Diffusion: Artistic and intellectual traditions continually cross international borders.Transnational Activism: Diaspora communities unite around shared political and social goals. (Vocabulary: Diaspora, Pan-Africanism, Transnational, Migration, Diffusion, Identity, Cosmopolitanism, Solidarity) *(K2)* ■ Movement Building: Modern activists adapt strategies from historical freedom struggles.Global Networks: Digital tools connect regional human rights movements worldwide.Collective Vision: Contemporary struggles imagine shared liberation across borders. (Vocabulary: Liberation, Grassroots, Mobilization, Resistance, Coalition, Self-determination, Advocacy, Intersectionality) *(K3)*	sources to describe how Black communities in Africa, the U.S., and the wider diaspora are linked through migration, cultural exchange, and shared histories. *(S2)* ■ I can analyze and evaluate contemporary movements for racial justice, using evidence to explain how modern activists draw on earlier Black freedom struggles and how they use global networks and media to build solidarity and imagine new forms of liberation. *(S3)*



Unit 10: The Black Freedom Struggle After 1968

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS African American Studies	1 Week(s)	11, 12	Social Studies	Kelly Galbraith, Abdulla Virmani, Liza Kuhn, Charles Dembrosky

Focus

The Black Freedom Struggle After 1968 unit explores how Black activists, artists, and communities have reimagined liberation in this contemporary context, confronting mass incarceration, economic inequality, and cultural oppression while building new movements, institutions, and visions of Black power and dignity in the United States and across the African diaspora, providing powerful narratives and tools that shape how the past is remembered and contested.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 12

- Analyze, synthesize, and integrate historical data, creating a product that supports and appropriately illustrates inferences and conclusions drawn from research. (Reference RWSL Standard 1.8.11 Research) *(8.1.12.C)*
- Evaluate the role groups and individuals played in the social, political, cultural, and economic development throughout world history. *(8.4.12.A)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Cite examples of how the past has shaped the modern world and make predictions of how current events will shape the future. *(T1)*
- See themselves and their personal experiences reflected in the sources they explore and the questions they consider. *(T2)*
- Create and discuss questions to better understand a perspective, make generalizations, and/or draw conclusions. *(T3)*
- Engage in respectful discourse to advocate for one's ideas and listen to better understand the views of others. *(T4)*

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Profile of a CV Learner	Meaning	
	Understandings	**Essential Questions**
■ Communication: Students will be able to independently and confidently adapt their writing and speaking in relation to audience, task, and purpose, as well as practice active listening to understand other perspectives, viewpoints, and cultures. *(PCVL.CM)*	What specifically do you want students to understand? What inferences should they make? Students will understand that... ■ Black freedom struggles continued and changed after the classical Civil Rights era. Students will understand that after 1968, Black activists, artists, and communities did not stop fighting for justice; instead, they developed new movements, ideas, and cultural expressions to confront evolving forms of racism, inequality, and state violence. *(U1)* ■ New systems of oppression required new strategies and institutions. Students will understand that mass incarceration, economic inequality, and cultural oppression emerged as key arenas of struggle, and that Black communities responded by creating organizations, campaigns, and cultural work that reimagined what liberation, Black power, and dignity could look like. *(U2)* ■ Stories and culture are central tools in the ongoing freedom struggle. Students will understand that the art, music, literature, and historical narratives produced in the post-1968 Black freedom struggle do more than reflect the past—they actively shape how people remember, contest, and use	What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering... ■ How did the Black freedom struggle change after 1968, and what new visions of liberation, power, and dignity did Black activists, artists, and communities create? *(Q1)* ■ In what ways have mass incarceration, economic inequality, and cultural oppression functioned as new systems of control, and how have Black communities organized to challenge them? *(Q2)* ■ How do Black stories, art, music, and historical narratives shape the way the past is remembered and used to inspire present and future movements for justice? *(Q3)*

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history to inspire present and future movements. *(U3)*

Acquisition of Knowledge & Skill

Knowledge	Skills
What facts and basic concepts should students know and be able to recall? Students will know...	What discrete skills and processes should students be able to use? Students can...
■ Shifting Tactics: Post-1968 activism pivoted toward systemic and local issues.Political Action: Black leaders gained institutional power through electoral politics.Radical Ideologies: Black Power movements prioritized self-determination and community control. (Vocabulary: Black Power, Self-determination, Electoralism, Grassroots, Urban decay, Institutionalization, Radicalism, Post-civil rights) *(K1)* ■ Mass Incarceration: Policy shifts accelerated racially biased criminal justice systems.Economic Inequality: Deindustrialization disproportionately harmed urban Black economic stability.Alternative Institutions: Communities built independent schools, clinics, and mutual aid networks. (Vocabulary: Mass incarceration, Deindustrialization, Carceral state, Mutual aid, Redlining, Criminalization, Divestment, Disproportionate) *(K2)* ■ Expressive Culture: Hip-hop and Black arts movements voiced political critique.Contested History: Narrative	■ I can describe and explain how Black activists, artists, and communities continued and reshaped the freedom struggle after 1968, including the new visions of liberation, power, and dignity they developed. *(S1)* ■ I can analyze contemporary systems of oppression—such as mass incarceration, economic inequality, and cultural stereotyping—and explain how Black communities have organized movements and institutions to challenge these systems. *(S2)* ■ I can evaluate the role of Black art and storytelling by showing how music, visual art, literature, and historical narratives since 1968 have shaped public memory of the past and inspired current and future movements for justice. *(S3)*

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	production challenged dominant historical erasure and bias.Public Memory: Monuments and literature preserve legacies to inspire future struggles. (Vocabulary: Black Arts Movement, Cultural critique, Hip-hop, Public memory, Historiography, Counter-narrative, Cultural resistance, Representation) *(K3)*	

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Unit 11: Memory, Representation, and the Struggle Over History

Conestoga Valley SCHOOL DISTRICT

Draft Date	Course	Duration	Grades	Subjects	Team
06-10-2026	HS African American Studies	1 Week(s)	11, 12	Social Studies	Kelly Galbraith, Abdulla Virmani, Liza Kuhn, Charles Dembrosky

Focus

Memory, Representation, and the Struggle Over History examines how these narratives and tools become part of public life, asking how stories about slavery, Black freedom, and racism are created, contested, and used through monuments, museums, textbooks, films, and activism—and who has the power to shape historical memory, whose voices are centered or erased, and how these battles over the past influence justice and democracy in the present.

Stage 1: Learning Goals

Established Goals

Standards

Pennsylvania Core Standards

History: 12

- Evaluate how continuity and change have impacted the world today. Belief systems and religions Commerce and industry Technology Politics and government Physical and human geography Social organization *(8.4.12.C)*
- Evaluate how conflict and cooperation among groups and organizations have impacted the development of the world today, including its effects on Pennsylvania. *(8.4.W.D)*

Transfer

Long-Term Transfer Goals

What kinds of long-term, independent accomplishments are desired? Students will be able to independently use their learning to...

- Cite examples of how the past has shaped the modern world and make predictions of how current events will shape the future. *(T1)*
- See themselves and their personal experiences reflected in the sources they explore and the questions they consider. *(T2)*
- Build/construct a knowledge base to inform critical thinking. *(T3)*
- Engage in respectful discourse to advocate for one's ideas and listen to better understand the views of others. *(T4)*

This unit was designed using Eduplanet21 - https://eduplanet21.com/

Profile of a CV Learner	Meaning	
	Understandings	**Essential Questions**
■ Life-Long Learner: Students will be able to independently use their learning to analyze past and ongoing performance, adjust thinking processes to new contexts, and use information to make informed and conscientious decisions. *(PCVL.LLL)*	What specifically do you want students to understand? What inferences should they make? Students will understand that... ■ Historical narratives are constructed, not neutral. Students will understand that stories about slavery, Black freedom, and racism are created and shaped by choices about whose voices are included, what evidence is emphasized, and which perspectives are left out, so every monument, museum exhibit, film, or textbook reflects particular values and agendas. *(U1)* ■ Power shapes what we remember and forget. Students will understand that governments, institutions, and social movements compete to define historical memory, and that those with more power can better center some stories, erase others, and shape how the public understands the past. *(U2)* ■ Struggles over memory are also struggles over justice and democracy. Students will understand that debates over monuments, curriculum, public apologies, reparations, and representation are not just about history—they are fights over whose experiences count, who belongs in the nation's story, and what justice and democracy should look like today. *(U3)*	What thought-provoking questions will foster inquiry, meaning making, and transfer? Students will keep considering... ■ How are stories about slavery, Black freedom, and racism created, and what choices do people make about whose voices and experiences to include or leave out? *(Q1)* ■ Who has the power to decide what gets remembered or forgotten in monuments, museums, films, and textbooks, and how does that power shape our understanding of the past? *(Q2)* ■ How do current conflicts over memorials, school curricula, and public history reveal deeper struggles over justice, belonging, and democracy today? *(Q3)*

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Acquisition of Knowledge & Skill	
Knowledge	**Skills**
What facts and basic concepts should students know and be able to recall? Students will know... ■ Selectivity of Evidence: Historical narratives depend on chosen archival sources.Marginalization of Voices: Dominant histories frequently exclude marginalized perspectives.Purposeful Framing: Media and textbooks reflect specific cultural agendas. (Vocabulary: Historiography, Narrative framing, Archival silence, Perspective, Erasure, Representation, Bias, Textual analysis) *(K1)* ■ Institutional Control: Powerful entities control monuments and official histories.Contested Memory: Public memory changes through continuous political struggle.Erasure Mechanisms: State policies can intentionally suppress controversial historical truths. (Vocabulary: Collective memory, Hegemony, Commemoration, Institutional power, Suppression, Public history, Revisionism, Monuments) *(K2)* ■ Reparative Struggles: Debates over reparations address unaddressed historic harms.Curricular Debates: School curriculum fights define boundaries of national identity.Democratic Inclusivity: Preserving diverse histories	What discrete skills and processes should students be able to use? Students can... ■ I can identify and explain how different monuments, museums, textbooks, and films construct specific stories about slavery, Black freedom, and racism, and whose perspectives they highlight or ignore. *(S1)* ■ I can analyze who has the power to shape public memory by examining how governments, schools, museums, the media, and activists decide what to remember, what to forget, and why. *(S2)* ■ I can evaluate contemporary debates over monuments, curriculum, and public history and explain how these conflicts reflect larger struggles over justice, belonging, and democracy today. *(S3)*

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	strengthens overall civic participation. (Vocabulary: Reparations, Restorative justice, Reconciliation, Civic identity, Canon, Democratic accountability, Restitution, Redress) *(K3)*	

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CHARACTER COMMUNITY COMMITMENT







Conestoga Valley
SCHOOL DISTRICT

2025/2026 Finance Update

October 12, 2026

2025/2026 At a Glance

• Beginning General Fund Balance	$13,659,588
• 2025/2026 Revenues	$94,710,177
• 2025/2026 Expenditures	-$97,953,409
• Net Operating Decrease	-$3,243,232
• Ending General Fund Balance	$10,416,356

2025/2026 Revenue Highlights
Budget vs. Actual

- Favorable Revenue Variances:
  - Ready to Learn Adequacy Supplement +$711,000.
  - Real Estate, Realty Transfer and Delinquent Taxes +$478,000.
  - Federal Title Subsidies +$263,000.
  - Earned Income Taxes +$216,000.
  - Medical Access +$128,000.

- Unfavorable Revenue Variances:
  - Interest Income ($346,000).
  - Transportation Subsidy ($215,000) – lower state allocation.

2025/2026 Expenditure Highlights Budget vs. Actual

- Personnel:
  - Salaries (retirements, leaves, contract movement) +$592,000.
  - Healthcare +$318,000.
  - SOS Paras/PCAs +$655,000.
- Special Education:
  - Tuition/Placements (Emotional Support, Autistic Support) +$372,000.
  - IU Contracted Special Education services +$154,000.
- Operations:
  - Energy/Utilities +$547,000.

2025/2026 Fund Transfer & Other Adjustments

Fund Transfer:

- Replenish healthcare reserve following elevated healthcare costs.
  - Unexpected high level of healthcare costs has impacted Healthcare Reserve Fund.
  - Transfer of $317,938 restores healthcare reserve to $2,250,000 to help offset impact of future large claims.

Other Adjustments:

- Reclassification of unexpected, high-cost capital repairs - $249,000 – from general fund to capital reserve fund.
    - Repairs to Fritz and High School Chillers – both of which are being replaced this year.
    - Sink hole repairs at Brownstown.
  - Reclassification of costs covered by investment earnings in fund, does not impact principal.

Fund Balances as of 06/30/2026

- General Fund - $10.42 million
- Capital Reserve Fund - $6.57 million
- Construction Fund - $19.58 million
- Food Service Fund - $3.51 million
- Healthcare Fund - $2.25 million

General Fund Balance - Commitments, Assignments and Unassigned

Fund Balance Commitments/Assignments	06/30/2026
Prepaids	240,452
PSERS Stabalization	1,122,838
Health Savings	250,000
Future Year Debt	522,928
Assessment Appeals	1,050,000
Inflation Stabalization	750,000
Unassigned	6,480,138
Total Fund Balance	10,416,356
Total Fund Balance *is* ***10.4%*** *of the $100,029,350 2026/2027 expenditure budget.*	
Unassigned General Fund Balance is 6.48% of the $100,029,350 2026/2027 expenditures budget which is within the 8.0% allowed by PDE.	

Looking Ahead to 2027/2028….

- January 19, 2027 – deadline to adopt resolution for tax increase not to exceed Act 1 index.
  - 2027/2028 Act 1 index 3.60%
  - PDE confirms that adopting resolution prohibits pursuit of exceptions or voter referendum.
  - If district were to pursue exceptions or voter referendum, would not receive Ready to Learn adequacy supplement - $1.4 million.
- May 10, 2027 – deadline to adopt proposed final budget.
- June 14, 2027 – Adopt final budget.



502 Mt. Sidney Rd., Lancaster, PA 17602
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Date	Action / Deadline	What the District Needs to Do	Status / Notes	Completion
January 19, 2027	**OPT-OUT DECISION DEADLINE**	**School Board adopts the Accelerated Budget Opt-Out Resolution stating the district will not raise any tax rate by more than the Act 1 index.**	**Major Step #1 — 110 days before the May 19 primary election.**	**Date Completed**
January 24, 2027	File Opt-Out Resolution with PDE	Submit a copy of the opt-out resolution and the related proposed tax rate increases (PDE 2028) to PDE through CFRS.	Within 5 days after adoption.	
Feb. 13, 2027	PDE Response	PDE notifies the district whether the proposed tax rates are equal to or less than the applicable index.	Within 10 days after PDE receives the opt-out resolution.	
Feb. 13, 2027	Accelerated Process Ends	Once the opt-out resolution is adopted, the accelerated budget and Act 1 exception/primary-election steps no longer apply.	The timeline skips the February 18, February 23, February 28, March 5, March 20, March 25, March 30 and May 19 Act 1 steps.	
May 10, 2027	Proposed Final Budget	Adopt Proposed Final Budget and submit Certification of Use of PDE-2028 to PDE.	At least 30 days before final budget adoption.	
May 11, 2027	Public Display	Make Proposed Final Budget (PDE-2028) available for public inspection.	At least 20 days before final budget adoption.	
May 15, 2027	Final Budget Notice	Publish notice of intent to adopt the Final Budget.	At least 10 days before final budget adoption.	
June 14, 2027	FINAL BUDGET	Adopt the Final Budget on PDE-2028.	Annual deadline — no later than the last day of the fiscal year.	
June 14, 2027	Tax Levy	Adopt the Annual Tax Levy Resolution.	Annual deadline.	
June 29, 2027	Submit Final Budget to PDE	Submit final PDE-2028 and required fund-balance certification through CFRS.	Within 15 days after final budget adoption.	

School Board Approval Proposal:
Intensive Instructional Coaching Institute - Virtual

Prepared by: Jill Koser, Assistant Superintendent
Organization: Conestoga Valley School District
Requested Action: Board approval for professional development registration and associated expenses

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Proposal Summary

Administration recommends approval for nine (9) staff members to participate in the **Intensive Instructional Coaching Institute - Virtual** offered by the Instructional Coaching Group (ICG), led by nationally recognized instructional coaching expert Dr. Jim Knight. The institute is a comprehensive professional learning experience focused on building instructional coaching capacity, strengthening teacher support systems, and improving student outcomes through evidence-based coaching practices.

The virtual institute includes:

- A 16-week live online learning experience
- Instruction in the Seven Success Factors for Instructional Coaching
- Training in the Impact Cycle coaching model
- Books and participant workbooks
- Opportunities for collaboration with coaches and instructional leaders from other districts
- Graduate credit eligibility through the University of the Pacific

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Purpose and Alignment

Participation in this institute directly supports district priorities related to:

- Improving instructional practices across all grade levels
- Building leadership capacity among instructional coaches and teacher leaders
- Supporting implementation of district initiatives
- Strengthening professional learning communities
- Increasing student achievement through evidence-based instructional practices

The training will provide participants with a common coaching framework and practical strategies for supporting teacher growth in a non-evaluative, partnership-based model.

Participants

The following nine staff members are recommended to attend:

1. Susan Brunk – Fritz Math Specialist and Elementary STEM Team Leader
2. Maureen Davis – Smoketown Math Specialist
3. Dr. Kelly Galbraith – Director of Curriculum & Instruction
4. Laura Gingrich – Brownstown Math Specialist
5. Katie Koch – Brownstown Reading Specialist
6. David Paul – Leola Reading Specialist
7. Amanda Schlee – Smoketown Reading Specialist
8. Jill Schnader – Leola Math Specialist
9. Jayme Soles – Fritz Reading Specialist

Program Information

Provider: Instructional Coaching Group (ICG)
Program: Intensive Instructional Coaching Institute - Virtual
Format: Virtual (Live Zoom Sessions)
Duration: 16 weekly sessions, approximately 3.5 hours per session

Key topics include:

- Partnership Principles
- The Impact Cycle
- Better Conversations
- Engagement Data and Strategies
- Achievement Data and Strategies
- Instructional Playbooks
- Evaluating Instructional Coaching
- System Support for Coaching Programs

Estimated Cost

Item	Cost Per Participant	Quantity	Total
Registration Fee	$1,995	9	$17,955
Less 15% Team Discount	=		($2,693.25)
Less CVEF Grant			($9,000)
Total Registration Cost			**$6,261.75**

Travel Costs: None (virtual format)

Substitute Costs: None anticipated outside contracted work hours / TBD

Total Request: $ 6,261.75 (District Professional Development Funds)

Expected Outcomes

Following participation, attendees will:

- Apply the Impact Cycle coaching framework within the district.
- Support teachers through evidence-based coaching conversations.
- Use student engagement and achievement data to guide instructional improvement.
- Strengthen district systems for professional learning and coaching.
- Share learning with additional staff through district-based professional development opportunities

Regular Board Meeting

Monday, October 19, 2026 7:00 PM
District Administration Board Room , 502 Mt. Sidney Rd., Lancaster, PA 17602

1. **CALL TO ORDER**
A. Welcome
B. Pledge to the Flag
C. Attendance
D. Approval of Agenda
2. **COMMENTARY ON DISTRICT ACTIVITY**
A. Board Commendations
B. Superintendent Comments
C. Board Comments
D. Correspondence - Secretary
3. **PRESENTATIONS**
4. **PUBLIC / PROFESSIONAL / STAFF INPUT**
A. Public Comments - Specific to the Agenda
B. Comments from CVEA
C. Comments from Other Employee Groups
5. **CONSENT AGENDA**
A. Approval of Minutes
B. Approval of Financial Reports
C. Approval of Superintendent's Report
D. Approval of 2026 Resolution for Commitment and Assignment of Fund Balance
E. Approval of IU13 and CVSD ELD Letter of Agreement for CTC Services 2026-2027
F. Approval of HS FOCUS Club Overnight Retreat Trip
G. Approval of Wrestling Team Overnight Trips for 2026-2027 Season
H. Approval of Attollo Prep (CDCF) MOU 2026-2027
I. Approval of Proposal for Intensive Instructional Coaching Institute - Virtual
J. Approval of Comprehensive Plan Stakeholders Advisory Committee Members
6. **ACTION / DISCUSSION ITEMS**
A. Approval of Second (and Final) Reading of District Policy 716 - Integrated Pest Management
B. Approval of Proposed New Policy 123.3 - Sports Sex Eligibility
7. **INFORMATION REPORTS**
A. Finance and Operations Report
B. Curriculum and Instruction Report
C. Federal Funds
8. **BOARD REPORTS**

A. IU13 Report
B. PSBA Report
C. Lancaster County Academy Report
D. Lancaster County Career and Technology Center Report
E. Construction Team Update
F. Other Reports
9. **PUBLIC COMMENTS**
10. **BOARD MATTERS**
A. Board Announcements / Initiatives

B. Upcoming Board Meeting Dates

11. **ADJOURNMENT**