Student Achievement & Outcomes Committee Meeting

Wednesday, February 21, 2024 6:30 PM
BOE - Room 36 and via Zoom Meeting Platform, 129 Church Street, Bristol, CT 06010

1. **Call to Order/ Pledge of Allegiance**

2. **Decision: Approval of Minutes**

3. **Public Comment**

4. **Decision**

4.1. Pre-K Music and Library, Kenneth Bagley and Jillian Romann

4.2. AP Pre-Calculus, Dr. Jaime Rechenberg

4.3. Grade 7 Math, Dr. Jaime Rechenberg

5. **Adjournment**

Student Achievement Committee
January 17, 2024
MINUTES - DRAFT

The minutes presented within this document are a summary of the discussion that took place at the Student Achievement Committee meeting. To view the meeting in its entirety and hear full reports please go to: January 17, 2024 SAC Meeting Recording

PRESENT: Committee members: Jill Fitzsimons-Bula, Kristen Giantonio , Maria Simmons (zoom)

ALSO PRESENT: Catherine Carbone, Michael Dietter, Carly Fortin, Sara Hale (zoom), Michael Higgins, Jaime Rechenberg, Azra Redzic, Jillian Romann (zoom), Dante Tagariello (zoom), Melanie Vetrano (zoom), Leszek Ward

Call to Order
Commissioner Fitzsimons-Bula called the meeting to order at 6:30 p.m.

Decision: Approval of Minutes from September 20, 2023 meeting:
On a motion made by Commissioner Giantonio and seconded by Commissioner Simmons, Commissioner Fitzsimons-Bula called for a Roll Call Vote.

Following the Roll Call Vote, it was unanimously;
VOTED: to approve the September 20, 2023 minutes.

Decision: Approval of Minutes from October 18, 2023 meeting:
On a motion made by Commissioner Giantonio and seconded by Commissioner Simmons, Commissioner Fitzsimons-Bula called for a Roll Call Vote.
Following the Roll Call Vote, it was unanimously;
VOTED: to approve the October 18, 2023 minutes.

Decision: Student Achievement Calendar of Meeting Dates
On a motion made by Commissioner Giantonio and seconded by Commissioner Simmons, Commissioner Fitzsimons-Bula called for a Roll Call Vote.
Following the Roll Call Vote, it was unanimously;
VOTED: to approve the 2024 Student Achievement Calendar of Meeting Dates.

Decision: Program of Studies
Mr. Michael Higgins , principal of Bristol Eastern High School, presented the new Program of Studies platform. The platform, which has undergone significant improvements, now provides a user-friendly interface for planning a successful high school experience. Key features include planning tools for various courses, Spanish versions of documents, and detailed course descriptions categorized by department.

Questions and discussion followed.

On a motion made by Commissioner Giantonio and seconded by Commissioner Simmons, Commissioner Fitzsimons called for a Roll Call Vote.
Following the Roll Call Vote, it was unanimously;
VOTED: to move the Program of Studies to the full Board of Education for approval.

Decision: Theater Behind the Scenes:
Mr. Kenneth Bagley , Supervisor of Fine Arts, presented the new BAIMS course, Theater Behind the Scenes. This course will be a high school course and include 7 units: Introduction to Theater Production, Costume Design, Lighting Design, Scenic Design, Sound Design, Production Team Design, and Technical Theater Practicum.

Discussion followed.

On a motion made by Commissioner Giantonio and seconded by Commissioner Simmons, Commissioner Fitzsimons called for a Roll Call Vote.
Following the Roll Call Vote, it was unanimously;
VOTED: to move the Theater Behind the Scenes curriculum to the full Board of Education for approval.

Decision: Advanced Acting:
Mr. Bagley presented the new BAIMS course, Advanced Acting. This course will be a high school course and include 3 units: Acting Fundamentals, The Masters of Acting Methods, and Applications in Performance.

On a motion made by Commissioner Giantonio and seconded by Commissioner Simmons, Commissioner Fitzsimons called for a Roll Call Vote.
Following the Roll Call Vote, it was unanimously;
VOTED: to move the Advanced Acting curriculum to the full Board of Education for approval.

Decision: Murals:
Mr. Bagley presented the new BAIMS course, Murals. This course will be a high school course and include 7 units: Design and Composition, Scaling and Perspective, Murals Art History, Creative Lettering, Influential Street Art, Proposal Writing, Public Mural Making.

Questions and discussion followed.

On a motion made by Commissioner Giantonio and seconded by Commissioner Simmons, Commissioner Fitzsimons called for a Roll Call Vote.
Following the Roll Call Vote, it was unanimously;
VOTED: to move the Murals curriculum to the full Board of Education for approval.

Decision: Soundtrack Production:
Mr. Bagley presented the new BAIMS course, Soundtrack Production. This course will be a high school course and include 4 units: Soundtrack Analysis, Sound Effects, Vocal Recording, and Film Scoring.
On a motion made by Commissioner Giantonio and seconded by Commissioner Simmons, Commissioner Fitzsimons called for a Roll Call Vote.

Following the Roll Call Vote, it was unanimously;
VOTED: to move the Soundtrack Production curriculum to the full Board of Education for approval.

Decision: Entrepreneurship:
Dr. Jaime Rechenberg, Secondary STEM Supervisor, highlighted recent efforts in revamping pathways and ensuring coherence among courses, leading to the removal of the Small Business Ownership course and replacing it with Entrepreneurship. Dr. Rechenberg detailed the robust learning targets and success criteria in the curriculum, offering students a college-level experience. She mentioned the course's focus on developing a comprehensive business plan and the culminating task of a business plan presentation.

Questions and discussion followed.

On a motion made by Commissioner Giantonio and seconded by Commissioner Simmons, Commissioner Fitzsimons called for a Roll Call Vote.
Following the Roll Call Vote, it was unanimously;
VOTED: to move the Entrepreneurship curriculum to the full Board of Education for approval.

Decision: Architectural Concepts:
Dr. Rechenberg discussed the decision to revise the Architectural Concepts course, combining two older courses (Architectural Design and Architectural Concepts) for efficiency. She highlighted the benefits of the revision in opening up more sections in Project Lead the Way Architecture. Dr. Rechenberg detailed the course structure, emphasizing the culminating task of developing an architectural model.

On a motion made by Commissioner Giantonio and seconded by Commissioner Simmons, Commissioner Fitzsimons called for a Roll Call Vote.
Following the Roll Call Vote, it was unanimously;
VOTED: to move the Architectural Concepts curriculum to the full Board of Education for approval.

Information: Update on K-3 Reading Waiver:
Mrs. Azra Redzic, Elementary Humanities Supervisor, provided an update on the Right to Read legislation and Bristol Public School's submission of a waiver request. The Bristol Public School curriculum received a positive disposition, meeting expectations in fluency, phonics, and vocabulary. Feedback received from the State Department of Education praised the purposeful transfer of skills, user-friendly design, and incorporation of diverse texts in the curriculum. The waiver response is a transitional rating. Mrs. Redzic discussed the next steps, including the need to provide a scope and sequence for vocabulary and comprehension.

Questions and discussion followed.

There being no further discussion, Commissioner Fitzsimons- Bula adjourned the meeting at 7:32 pm.

Respectfully submitted,

Katlyne Laprise
Katlyne Laprise

PROCEDURES FOR REMOTE PUBLIC COMMENT

Members of the public are invited to comment to the Board on any topic related to school business.

Items requiring consideration by the Board must be approved as an agenda item by a 2/3ds vote of the Board members present. Such items may be referred for further study and not necessarily acted upon at this meeting.

Anyone wishing to address the Board should adhere to the following procedures:

PUBLIC COMMENT

Before a Remote Meeting

1. Send your comments to: KatlyneLaprise@bristolk12.org
2. Be sure to put **PUBLIC COMMENT-SAC** in the subject line.
3. Include your name and address.
4. Direct your comments to the Board Chair.
5. Your comments will be read at the meeting by the Board Chair.
6. All comments should be written in an appropriate manner, particularly if concerning a personnel matter.
7. Any comments not adhering to the guidelines will not be read at the meeting.

During a Remote Meeting

1. Everyone is requested to address the Chair for recognition.
2. Each speaker must state his/her name and address.
3. All speakers must observe rules of common etiquette. Personalities are not to be injected. Anyone violating this rule will be denied the floor. Unless waived by the Chairperson or a majority of the Board,
4. Each speaker shall limit his/her remarks to three (3) minutes.
5. A speaker will not be recognized for a second time on the same topic.
6. Each speaker must concern himself/herself with the topic under discussion. Anyone digressing from the topic will be ruled out of order.
7. Written statements and materials may be made available, in advance of comments, for distribution to Board members.
8. Speakers shall state their positions on the subject being discussed.
9. Board members will not respond directly to comments during the Board meeting. The Superintendent will direct the question to the appropriate staff member for follow-up.

Bristol Public Schools

Bristol, Connecticut

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
Pre-K Music	Music	**Pre-K**	NA

Course Description:

This classroom experience is a part of a sequential music curriculum, which offers each student the opportunity to engage in the art of music utilizing the Four Artistic Processes as outlined in the National Coalition for Core Arts Standards: Creating, Performing, Responding, and Connecting. This course provides an introduction to the musical concepts of Pitch Exploration, Movement Exploration, Melody, Expression, Rhythm, Literacy, and Technique. Students will explore these concepts through various musical activities including singing, performing on instruments, moving, improvising, listening, and evaluating.

Aligned Core Resources:	Connection to the BPS Vision of the Graduate
First Steps in Music for Preschool and Beyond - John Feierabend **The Book of Call and Response - John Feierabend** **The Book of Movement Exploration - John Feierabend** **The Book of Echo Songs - John Feierabend** **First Steps in Music for Early Elementary - John Feierabend**	COLLABORATION - Demonstrates ability to work effectively and respectfully with diverse teams - Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal - Assume shared responsibility for collaborative work and value the individual contributions made by each team member SOCIAL AND CROSS-CULTURAL SKILLS - Know when it is appropriate to listen and when to speak - Conduct themselves in a respectable, professional manner - Respect cultural differences and work effectively with people from a range of social and cultural backgrounds COMMUNICATIONS AND TECHNOLOGY LITERACY - Use digital technology, communication tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society GLOBAL AWARENESS - Learn from and work collaboratively with individuals representing diverse cultures, religions and lifestyles in a spirit of mutual respect and open dialogue in personal, work and community contexts EMPATHY - Demonstrating understanding of others perspectives and needs - Listen with an open mind to understand others' situations - Understand the concept of community as a means for supporting others in need COMMUNICATION - Articulates thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts - Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions. Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)

	- Communicate effectively in diverse environments (including becoming multilingual) GOAL DIRECTED - Set goals with tangible and intangible success criteria - Persist to accomplish difficult tasks and to overcome academic and personal barriers to meet goals CONTENT MASTERY - Develop and draw from a baseline understanding of knowledge in academic disciplines from our Bristol curriculum CRITICAL THINKING AND PROBLEM SOLVING - Make sound judgments and decisions. Identify, define and solve authentic problems and essential questions. - Reflect critically on learning experience, processes and solutions - Transfer knowledge to other situations
Additional Course Information: ***Knowledge/Skill Dependent courses/prerequisites***	**Link to Completed Equity Audit**
	PreK Music - Equity Audit

Standard Matrix

District Learning Expectations and Standards	Pitch Exploration	Fragment Songs	Movement Exploration	Arioso	Song Tales
CreatingThe Basics					
MU:Cr1.1 Generate and conceptualize artistic ideas and work.		x	x		x
MU:Cr2.1 Organize and develop artistic ideas and work.				x	
MU:Cr3.1 Refine and complete artistic work.	x	x	x	x	
Performing					
MU:Pr4.1 Select, analyze and interpret artistic work for presentation.		x	x	x	x
MU:Pr5.1 Develop and refine artistic techniques and work for presentation.		x	x	x	
MU:Pr6.1 Convey meaning through the presentation of artistic work.	x	x			x
Responding					
MU:Re7.1 Perceive and analyze artistic work.					
MU:Re8.1 Interpret intent and meaning in artistic work.	x	x	x		

MU:Re9.1 Apply criteria to evaluate artistic work.					x
Connecting					
MU:Cn10.0 Synthesize and relate knowledge and personal experiences to make art.				x	
MU:Cn11.1 Relate artistic ideas and works with societal, cultural and historical context to deepen understanding.			x		x

Unit Links

Unit Title:

Pitch Exploration

Relevant Standards: Bold indicates priority

MA:Cr3.1.PK - With substantial guidance, consider personal, peer, and teacher feedback when demonstrating and refining personal musical ideas.
MU:Pr6.1.PK - With substantial guidance, perform music with expression.
MU:Re8.1.PK - With substantial guidance, explore music's expressive qualities (such as dynamics and tempo).

Essential Question(s):	**Enduring Understanding(s):**
Cr3.1: How do musicians improve the quality of their creative work? **Pr6.1:** When is a performance judged ready to present? -How do context and the manner in which musical work is presented influence audience response? **Re8.1:** How do we discern the musical creators' and performers' expressive intent?	**Cr3:** Musicians evaluate, and refine their work through openness to new ideas, persistence, and the application of appropriate criteria. **Pr6:**Musicians judge performance based on criteria that vary across time, place, and cultures. The context and how a work is presented influence the audience response. **Re8:** Through their use of elements and structures of music, creators and performers provide clues to their expressive intent.
Demonstration of Learning:	**Pacing for Unit**

Correct use of head voice Follow a pattern (presented in various forms) with voice correctly Identify patterns that go up Identify patterns that go down	Year-Long
Family Overview (link below)	**Integration of Technology:**
Utilizing a repertoire of games, audio recordings, and exercises, students will be expected to create with, perform with, and respond to melodic contours and patterns.	Smartboard integration • Youtube videos • Feierabend Move It Videos • Google Docs/Slides CD Player/Speakers
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Up Down Singing Voice Talking Voice Pathway	**Tech** Keeping the Beat CD - John Feierabend Old Joe Clark CD - John Feierabend There's a Hole in the Bucket CD - John Feierabend Had a Little Rooster CD - John Feierabend Finding Nemo Whale Scene - Disney Whale Noises Smartboard Speakers **Books** Roller Coaster - **Flashcards** Pitch Pathways - John Feierabend **Other** Puppets Pipe Cleaners Flashlight Pictures of Animals Slide Whistle
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
Cognition Social and Emotional Development Mathematics	• Using chest voice instead of head voice • Using a talking voice instead of a singing voice • Lack of connection between the pathway they see and what the students vocalize • Not singing anything when it's their turn
Connections to Prior Units:	**Connections to Future Units:**
NA	Fragment Songs - Use of head voice vs. chest or talking voice, ability to repeat after someone else, ability to respond to different melodies Movement Exploration - Ability to copy stimuli (Flashlight, puppet, voice, movement, etc.) Arioso - Use of head voice vs. chest or talking voice, ability to respond to a melody, ability to sing their own idea, singing when it's their turn Songtales - Ability to sit and listen to something, ability to respond appropriately
Differentiation through Universal Design for Learning	

UDL Indicator	Teacher Actions:
Physical Action 4.1 Vary the methods for response and navigation	• Provide alternatives in the requirements for rate, timing, speed, and range of motor action required to interact with instructional materials, physical manipulatives, and technologies

Supporting Multilingual/English Learners	
Related CELP standards:	**Learning Targets:**
K.8 An EL can determine the meaning of words and phrases in oral presentations and literary and informational text.	I can manipulate my voice to match the pictures and examples given to me.

Lesson Sequence	Learning Target	Success Criteria/ Assessment	Resources
1	I can use my voice to copy the teacher's movements.	Students follow the contour of the teacher's arms using head voice.	Feierabend - The Book of Pitch Exploration (Pg. 11)
2	I can follow a flashlight path with my voice.	Students follow the contour of the flashlight path using head voice.	Feierabend - The Book of Pitch Exploration (Pg. 12)
3, 8	I can match animals to their sounds.	Students identify which animal makes which sound.	Feierabend - The Book of Pitch Exploration (Pg 14)
3, 8	I can find people making the same sound as me.	Students group with others making the same animal noise as themself.	Feierabend - The Book of Pitch Exploration (Pg 14)
4, 9	I can follow a puppet's path with my voice.	Students follow the contour of the puppet's path using head voice.	Feierabend - The Book of Pitch Exploration (Pg 17)
4, 9	I can echo a puppet's voice.	Students follow the contour of the teacher's voice using head voice.	Feierabend - The Book of Pitch Exploration (Pg 17)
5	I can trace a line with my voice.	Students make a melodic line with a pipe cleaner. Students follow the contour of the pipe cleaner using head voice.	Feierabend - The Book of Pitch Exploration (Pg. 19)
6	I can use my voice to sound like a whale.	Students use head voice to imitate the sound of a whale.	Feierabend - The Book of Pitch Exploration (Pg. 23) Youtube clip of whale sounds
7	I can echo a slide whistle with my voice.	Students use head voice to echo a pathway made by a slide whistle.	Feierabend - The Book of Pitch Exploration (Pg. 9)

10	I can follow a pathway using my voice.	Students use head voice to follow the contour of a pathway.	Feierabend Pitch Pathway Flashcards

Unit Title:	
Fragment Songs	
Relevant Standards: Bold indicates priority	
MU:Cr1.1.PK - With substantial guidance, explore and experience a variety of music. **MA:Cr3.1.PK -** With substantial guidance, consider personal, peer, and teacher feedback when demonstrating and refining personal musical ideas. **MU:Pr4.2.PK -** With substantial guidance, explore and demonstrate awareness of musical contrasts. **MU:Pr5.1.PK** - With substantial guidance, apply personal, peer, and teacher feedback to refine performances. **MU:Pr6.1.PK** - With substantial guidance, perform music with expression. **MU:Re8.1.PK** - With substantial guidance, explore music's expressive qualities (such as dynamics and tempo).	
Essential Question(s):	**Enduring Understanding(s):**
Cr 1: How do musicians generate creative ideas? **Cr3:** How do musicians improve the quality of their creative work? **Pr4:** How does understanding the structure and context of musical works inform performance? **Pr5:** How do musicians improve the quality of their performance? **Pr6:** When is a performance judged ready to present? - How do context and the manner in which musical work is presented influence audience response? **Re8:** How do we discern the musical creators' and performers' expressive intent?	**Cr 1:** The creative ideas, concepts, and feelings that influence musicians' work emerge from a variety of sources. **Cr3:** Musicians evaluate, and refine their work through openness to new ideas, persistence, and the application of appropriate criteria. **Pr4:** Analyzing creators' context and how they manipulate elements of music provides insight into their intent and informs performance. **Pr5:** To express their musical ideas, musicians analyze, evaluate, and refine their performance over time through openness to new ideas, persistence, and the application of appropriate criteria. **Pr6:** Musicians judge performance based on criteria that vary across time, place, and cultures. The context and how a work is presented influence the audience response. **Re8:** Through their use of elements and structures of music, creators and performers provide clues to their expressive intent.
Demonstration of Learning:	**Pacing for Unit**
• Correct use of head voice • Ability to repeat after teacher (Echo Songs) • Ability to respond to teacher (Call and Response) • Students can sing in a group	Year-Long
Family Overview (link below)	**Integration of Technology:**
Utilizing a repertoire of simple songs, games, audio recordings, and tunes, students will be expected to create with, perform with, and respond to melodic	CD Player/Speakers • Feierabend CDs Smartboard

contours and patterns.	• Youtube Videos • Google Docs/Slides Electric Piano
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Repeat Singing Voice Respond Echo	**Tech** Old Joe Clark CD - John Feierabend There's a Hole in the Bucket CD - John Feierabend Had a Little Rooster CD - John Feierabend Smartboard Speakers **Books** My Aunt Came Back - John Feierabend **Flashcards** Oh, In the Woods - John Feierabend Down By the Bay - John Feierabend **Other** Piano Ukulele
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
Cognition Social and Emotional Development Language and Literacy	• Singing when it's not their turn • Using a talking voice instead of singing voice • Repeating what the teacher says when they should sing something else (Call and Response) • Not singing anything when it's their turn
Connections to Prior Units:	**Connections to Future Units:**
Pitch Exploration - Use of head voice vs. chest or talking voice, ability to repeat after someone else, ability to respond to different melodies	Movement Exploration - Ability to copy the teacher, ability to respond to a stimuli appropriately Arioso - Use of head voice vs. chest or talking voice, ability to respond to a melody, singing when it's their turn, singing their own idea Songtales - Ability to sit and listen to something, ability to respond appropriately
Differentiation through Universal Design for Learning	
UDL Indicator	**Teacher Actions:**
Perception 1.2 Offer alternatives for auditory information	• Provide visual diagrams, charts, notations of music or sound • Provide visual or tactile (e.g., vibrations) equivalents for sound effects or alerts
Physical Action 4.1 Vary the methods for response and navigation	• Provide alternatives in the requirements for rate, timing, speed, and range of motor action required to interact with instructional materials, physical manipulatives, and technologies
Self Regulation 9.2 Facilitate personal coping skills and strategies	• Develop internal controls and coping skills

Supporting Multilingual/English Learners			
Related CELP standards:		**Learning Targets:**	
K.9 An EL can create clear and coherent grade appropriate speech and text.		• I can use my singing voice appropriately.	
Lesson Sequence	**Learning Target**	**Success Criteria/ Assessment**	**Resources**
1, 2, 4	I can sing when it's my turn.	Students listen to the teacher singing, then respond appropriately with the lyrics provided to them.	Feierabend - The Book of Call and Response
3, 5, 6, 7, 8, 9, 10	I can echo after the teacher.	Students listen to the teacher singing, then echo the lyrics sung by the teacher.	Feierabend - The Book of Echo Songs

Unit Title:	
Movement Exploration	
Relevant Standards: Bold indicates priority	
MU:Cr1.1.PK - With substantial guidance, explore and experience a variety of music. **MA:Cr3.1.PK** - With substantial guidance, consider personal, peer, and teacher feedback when demonstrating and refining personal musical ideas. **MU:Pr4.2.PK** - With substantial guidance, explore and demonstrate awareness of musical contrasts. **MU:Pr5.1.PK** - With substantial guidance, apply personal, peer, and teacher feedback to refine performances. **MU:Re8.1.PK** - With substantial guidance, explore music's expressive qualities (such as dynamics and tempo). **MU:Cn11.1.PK** - Demonstrate understanding of relationships between music and the other arts, other disciplines, varied contexts, and daily life.	
Essential Question(s):	**Enduring Understanding(s):**
CR1: How do musicians generate creative ideas? **CR3:** How do musicians improve the quality of their creative work? **PR4:** How does understanding the structure and context of musical works inform performance? **PR5:** How do musicians improve the quality of their performance? **PR8:** How do we discern the musical creators' and performers' expressive intent? **CN11:** How do the other arts, other disciplines, contexts, and daily life inform creating, performing, and responding to music?	**CR1:** The creative ideas, concepts, and feelings that influence musicians' work emerge from a variety of sources. **CR3:** Musicians evaluate, and refine their work through openness to new ideas, persistence, and the application of appropriate criteria. **PR4:** Analyzing creators' context and how they manipulate elements of music provides insight into their intent and informs performance. **PR5:** To express their musical ideas, musicians analyze, evaluate, and refine their performance over time through openness to new ideas, persistence, and the application of appropriate criteria. **PR8:** Through their use of elements and structures of music, creators and performers provide clues to their

	expressive intent. **CN11:** Understanding connections to varied contexts and daily life enhances musicians' creating, performing, and responding.
Demonstration of Learning:	**Pacing for Unit**
• Using appropriate body movements • Able to copy movement with their body • Moves their body appropriately to the music (speed, size of movements, etc.)	Year-Long
Family Overview (link below)	**Integration of Technology:**
Utilizing a repertoire of games, video recordings, and move it videos, students will be expected to move to, perform with, and respond to music and solo/unison timbres.	Smartboard • Move It DVDs • GoNoodle Videos • Movement Videos, other CD Player/Speakers Electric Piano
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Move Freeze Safe Body Fast Slow Loud Quiet Beat Steady Beat	**Tech** Move It! Volumes 1 + 2 - John Feierabend Keeping the Beat CD - John Feierabend Old Joe Clark CD - John Feierabend There's a Hole in the Bucket CD - John Feierabend Had a Little Rooster CD - John Feierabend Smartboard Speakers **Other** Piano Ukulele
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
Social and Emotional Development Physical Health and Development	• Students move any way they like • Students don't move • Students don't know how to make their own movement • Students make movements that aren't appropriate to the music being played
Connections to Prior Units:	**Connections to Future Units:**
Pitch Exploration - Ability to copy stimuli (Flashlight, puppet, voice, movement, etc.) Fragment Songs - Ability to copy the teacher, ability to respond to a stimuli appropriately	Arioso - Ability to respond to a melody, moving when it's their turn, responding appropriately to a stimuli Songtales - Ability to sit and listen/watch something, ability to respond appropriately
Differentiation through Universal Design for Learning	
UDL Indicator	**Teacher Actions:**
Physical Action 4.1 Vary the methods for response and navigation	• Provide alternatives in the requirements for rate, timing, speed, and range of motor action

Self Regulation 9.3 Develop self-assessment and reflection	required to interact with instructional materials, physical manipulatives, and technologies • Use activities that include a means by which learners get feedback and have access to alternative scaffolds (e.g., charts, templates, feedback displays) that support understanding progress in a manner that is understandable and timely.

Supporting Multilingual/English Learners

Related CELP standards:	**Learning Targets:**
K2 An EL can participate in grade appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions.	• I can appropriately participate in movement activities

Lesson Sequence	**Learning Target**	**Success Criteria/ Assessment**	**Resources**
1, 8, 9	I can move my body safely to the music.	Students move their bodies appropriately to music.	Feierabend - The Book of Movement Exploration Feierabend Move It DVDs
2	I can name a body part to move to music.	Students pick one body part and move only that body part to music.	Feierabend - The Book of Movement Exploration Feierabend Move It DVDs
3	I can move my body to the speed of the music.	Students keep a steady beat with their body as they move to the music.	Feierabend - The Book of Movement Exploration Feierabend Move It DVDs
4, 10	I can move my body safely while keeping one part still.	Students pick one body part and move their whole body except for that body part.	Feierabend - The Book of Movement Exploration Feierabend Move It DVDs
5	I can move my body safely in different directions.	Students listen to the direction they're to move and appropriately move in that direction (up, down, left, right, etc.)	Feierabend - The Book of Movement Exploration Feierabend Move It DVDs
6	I can move my body safely at different speeds.	Students move their bodies at different speeds as they listen to different pieces of music.	Feierabend - The Book of Movement Exploration Feierabend Move It DVDs
7	I can move my body safely inside my personal bubble.	Students stay inside their own space while moving appropriately to the music.	Feierabend - The Book of Movement Exploration Feierabend Move It DVDs

Unit Title:
Arioso
Relevant Standards: Bold indicates priority
MU:Cr2.1.PK - With substantial guidance, explore favorite musical ideas (such as movements, vocalizations, or instrumental accompaniments). **MA:Cr3.1.PK** - With substantial guidance, consider personal, peer, and teacher feedback when demonstrating and refining personal musical ideas. **MU:Cr3.2.PK** - With substantial guidance, share revised personal musical ideas with peers. **MU:Pr4.3.PK** - With substantial guidance, explore music's expressive qualities (such as voice quality, dynamics, and tempo). **MU:Pr5.1.PK** - With substantial guidance, apply personal, peer, and teacher feedback to refine performances. **MU:Cn10.1.PK** - Demonstrate how interests, knowledge, and skills relate to personal choices and intent when creating, performing, and responding to music.

Essential Question(s):	**Enduring Understanding(s):**
CR2.1: How do musicians make creative decisions? **CR3.1:** How do musicians improve the quality of their creative work? Create 3.2: When is creative work ready to share? Performing 4.3: How do performers interpret musical works? Performing 5: How do musicians improve the quality of their performance? Connecting 10: How do musicians make meaningful connections to creating, performing, and responding?	Create 2.1: Musicians' creative choices are influenced by their expertise, context, and expressive intent. Create 3.1: Musicians evaluate, and refine their work through openness to new ideas, persistence, and the application of appropriate criteria. Create 3.2 Musicians' presentation of creative work is the culmination of a process of creation and communication Performing 4.3: Performers make interpretive decisions based on their understanding of context and expressive intent. Performing 5: To express their musical ideas, musicians analyze, evaluate, and refine their performance over time through openness to new ideas, persistence, and the application of appropriate criteria. Connecting 10: Musicians connect their personal interests, experiences, ideas, and knowledge to creating, performing, and responding.
Demonstration of Learning:	**Pacing for Unit**
• Students can respond to a question using a singing voice • Students can sing by themselves and in a group	Year-long
Family Overview (link below)	**Integration of Technology:**
Utilizing a repertoire of simple songs, games, audio recordings, and tunes, students will be expected to create with, perform with, and respond to the four voice types and solo/unison timbres.	Electric Piano Smartboard • Google Docs/Slides • Youtube Videos
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology**

	(beyond core resources):
Singing Voice Talking Voice	**Flashcards** Pitch Pathways - John Feierabend **Other** Puppets Pipe Cleaners Flashlight Slide Whistle
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
Cognition Social and Emotional Development Language and Literacy Social Studies	• Students use a talking or chest voice instead of a singing/head voice • Students don't respond • Students use a silly voice when unexpected
Connections to Prior Units:	**Connections to Future Units:**
Pitch Exploration - Use of head voice vs. chest or talking voice, ability to respond to a melody, ability to sing their own idea, singing when it's their turn Fragment Songs - Use of head voice vs. chest or talking voice, ability to respond to a melody, singing when it's their turn, singing their own idea Movement Exploration - Ability to respond to a melody, moving when it's their turn, responding appropriately to a stimuli	Songtales - Ability to sit and listen to something, ability to respond appropriately
Differentiation through Universal Design for Learning	
UDL Indicator	**Teacher Actions:**
Physical Action 4.1 Vary the methods for response and navigation	• Provide alternatives in the requirements for rate, timing, speed, and range of motor action required to interact with instructional materials, physical manipulatives, and technologies
Supporting Multilingual/English Learners	
Related CELP standards:	**Learning Targets:**
K.8 An EL can determine the meaning of words and phrases in oral presentations and literary and informational text.	• I can appropriately use my singing voice to create simple phrases.

Lesson Sequence	Learning Target	Success Criteria/ Assessment	Resources
1	I can identify the difference between talking and singing.	Students identify a talking voice, a singing voice, and different situations you would use each for.	Youtube - Whisper, Talk, Shout and Sing
2	I can sing my favorite color.	Students use head voice to sing an answer to a question.	Electric Piano Ukulele

3	I can sing my favorite candy/treat.	Students use head voice to sing an answer to a question.	Electric Piano Ukulele
4	I can sing my favorite holiday.	Students use head voice to sing an answer to a question.	Electric Piano Ukulele
5	I can sing my favorite ice cream.	Students use head voice to sing an answer to a question.	Electric Piano Ukulele
6	I can sing my favorite animal.	Students use head voice to sing an answer to a question.	Electric Piano Ukulele
7	I can sing my favorite fruit.	Students use head voice to sing an answer to a question.	Electric Piano Ukulele
8	I can sing my favorite dessert.	Students use head voice to sing an answer to a question.	Electric Piano Ukulele
9, 10	I can sing and use an egg shaker the way I'm supposed to.	Students use head voice to sing an answer to a question. Students use appropriate technique while playing an egg shaker.	Electric Piano Ukulele Egg Shakers

Unit Title:	
Song Tales	
Relevant Standards: Bold indicates priority	
MU:Cr1.1.PK - With substantial guidance, explore and experience a variety of music. **MU:Pr4.1.PK** - With substantial guidance, demonstrate and state preference for varied musical selections. **MU:Pr4.3.PK** - With substantial guidance, explore music's expressive qualities (such as voice quality, dynamics, and tempo). **MU:Pr6.1.PK** - With substantial guidance, perform music with expression. **MU:Re9.1.PK** - With substantial guidance, talk about personal and expressive preferences in music. **MU:Cn11.1.PK** - Demonstrate understanding of relationships between music and the other arts, other disciplines, varied contexts, and daily life.	
Essential Question(s):	**Enduring Understanding(s):**
CR1: How do musicians generate creative ideas? **PR4.1:** How do performers select repertoire? **PR4.3:** How do performers interpret musical works? **PR6:** When is a performance judged ready to present?	**CR1:** The creative ideas, concepts, and feelings that influence musicians' work emerge from a variety of sources. **PR4.1:** Performers' interest in and knowledge of

How do context and the manner in which musical work is presented influence audience response? **RE9:** How do we judge the quality of musical work(s) and performance(s)? **CN11:** How do the other arts, other disciplines, contexts, and daily life inform creating, performing, and responding to music?	musical works, understanding of their own technical skill, and the context for a performance influence the selection of repertoire. **PR4.3:** Performers make interpretive decisions based on their understanding of context and expressive intent. **PR6:** Musicians judge performance based on criteria that vary across time, place, and cultures. The context and how a work is presented influence the audience response. **RE9:** The personal evaluation of musical work(s) and performance(s) is informed by analysis, interpretation, and established criteria. **CN11:** Understanding connections to varied contexts and daily life enhances musicians' creating, performing, and responding.
Demonstration of Learning:	**Pacing for Unit**
• Students sit quietly listening • Students respond to the story • Students connect to the story using experience from their own lives	Year-Long
Family Overview (link below)	**Integration of Technology:**
Utilizing a repertoire of simple songs, video recordings, songtales and tunes, students will be expected to respond to and connect with a story.	Smartboard • Songtale Videos Electric Piano
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Songtale Repeat-After-Me Song Add-on song (Cumulative Song)	**Books** The Derby Ram - John Feierabend There Was a Man and He Was Mad - John Feierabend The Tailor and the Mouse - John Feierabend Old Joe Clark - John Feierabend Momma, Buy Me a China Doll - John Feierabend Jennie Jenkins - John Feierabend The Crabfish - John Feierabend The Frog and the Mouse - John Feierabend Over in the Meadow - John Feierabend My Aunt Came Back - John Feierabend Kitty Alone - John Feierabend Had a Little Rooster - John Feierabend Risseldy, Rosseldy - John Feierabend **Tech** Smartboard Speakers **Other** Piano Ukulele
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
Cognition Language and Literacy	Students interrupt the story

Mathematics Science	
Connections to Prior Units:	**Connections to Future Units:**
Pitch Exploration - Ability to sit and listen to something, ability to respond appropriately Fragment Songs - Ability to sit and listen to something, ability to respond appropriately Movement Exploration - Ability to sit and listen/move to something, ability to respond appropriately Arioso - Ability to sit and listen to something, ability to respond appropriately	NA
Differentiation through Universal Design for Learning	
UDL Indicator	**Teacher Actions:**
Perception 1.2 Offer alternatives for auditory information **Language and Symbols** 2.4 Promote understanding across languages	• Provide visual or tactile (e.g., vibrations) equivalents for sound effects or alerts • Provide visual and/or emotional description for musical interpretation • Embed visual, non-linguistic supports for vocabulary clarification (pictures, videos, etc)
Supporting Multilingual/English Learners	
Related CELP standards:	**Learning Targets:**
K.1 An EL can construct meaning from oral presentations and literary and informational text through grade appropriate listening, reading, and viewing.	I can identify some key words, attributes, and phrases.

Lesson Sequence	Learning Target	Success Criteria/ Assessment	Resources
1-10	I can use whole body listening.	Students can sit and listen to a story being sung to them.	Feierabend Songtales
1, 2, 5, 8	I can actively participate with the story.	Students can help count, identify colors, make animal noises, or echo the story to connect what they know to the story.	Feierabend Songtales

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
PreK Library	Library Media	**PreK**	N/A

Course Description:

Students learn by doing hands-on activities that relate to stories they are read. These activities allow them to experience math, science, language arts, social studies, art and more. The Bristol library Pre-K curricula embeds this *learn-by-doing* philosophy by focusing on high expectations for all students and providing students with opportunities to learn, grow, and understand through the use of a variety of strategies, tools, and technologies. The library curriculum is responsive to the individual needs of students, while providing a structure tied to the Connecticut Early Learning and Development Standards (CT ELDS).

The *learn-by-doing* philosophy develops Pre-K students who can effectively and efficiently apply lessons learned in the library to their lives to understand the complex world around them. The library curricula allows students to experience listening to a variety of books in different formats. These books relate to their monthly mathematics themes to help to provide interdisciplinary connections. Making connections between library and other disciplines is key to the continued learning process.

Aligned Core Resources:	Connection to the ***BPS Vision of the Graduate***
N/A	**COMMUNICATION** • Articulates thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts **CONTENT MASTERY** • Develop and draw from a baseline understanding of knowledge in academic disciplines from our Bristol curriculum **INFORMATION LITERACY** • Evaluate information critically and competently **CRITICAL THINKING AND PROBLEM SOLVING** • Transfer knowledge to other situations
Additional Course Information: ***Knowledge/Skill Dependent courses/prerequisites***	**Link to *Completed Equity Audit***
N/A	**PreK Library Equity Curriculum Review**

Standard Matrix

District Learning Expectations and Standards	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
Cognition: Strand B: Early learning experiences will support children to use logic and reasoning.									
Attributes, Sorting and Patterns									
C.48.8 Recognize patterns in routines, objects and/or sounds	2	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A

and replicate sequence using objects or language									
C.48.7 Identify similarities and differences in objects, people, events, sounds based on one attribute (e.g., same or different colors, loud or soft sound.)	N/A	N/A	N/A	N/A	N/A	1	1	N/A	N/A
Symbolic Representation									
C.48.10 Use or make a prop to represent an object (e.g., build a telephone)	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
C.48.11 Act out actions or scenarios involving familiar roles (e.g., teacher, doctor, firefighter)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1
Language and Literacy: Strand D: Early learning experiences will support children to gain book appreciation and knowledge									
Understanding of Stories or Information									
L.48.13 Demonstrate comprehension through retelling with use of pictures and props, acting out main events or sharing information learned from nonfiction text	N/A	1	N/A	N/A	1	N/A	N/A	N/A	N/A
L.48.15 Make predictions and/or ask questions about the text by examining the title, cover, pictures	N/A	N/A	N/A	N/A	1	N/A	N/A	1	1
Language and Literacy: Strand F: Early learning experiences will support children to develop phonological awareness									
Phonological Awareness									
L.48.20 Recognize rhyming words in songs, chants or poems	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
L.48.21 Identify when initial sounds in words are the same	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1

Mathematics: Strand C: Early learning experiences will support children to understand the attributes and relative properties of objects									
Data									
M.48.9 Sort objects into two groups, count, and compare the quantity of the groups formed (e.g., indicate which is more)	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sorting and Classifying									
M.48.10 Sort and classify objects by one attribute into two or more groups (e.g., color, size, shape)	1	1	N/A	N/A	N/A	1	N/A	N/A	N/A
Mathematics Stand D: Early Learning Experiences will support children to understand shapes and spatial relationships (geometry and spatial sense)									
Identification of Shapes									
M.48.12 Identify 2-dimensional shapes (starting with familiar shapes such as circle and triangle) in different orientations and sizes	N/A	N/A	2	N/A	N/A.	N/A	N/A	N/A	N/A
Science: Strand C: Early learning experiences will support children to understand patterns, process and relationships of living things									
Unity and Diversity of Life									
S.48.5 Compare and contrast basic features of living things	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
S.48.6 Recognize changes in living things over their lifespan by observing similarities and differences between babies and adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	N/A
Living Things and Their Interactions with the Environment and Each Other									
S.48.7 Explore how animals depend upon the environment for food, water and shelter	N/A	N/A	N/A	N/A	N/A.	N/A	N/A	2	N/A
Science: Strand D: Early learning experiences will support children to understand physical sciences.									

Energy, Force and Motion									
S.48.8 Investigate how objects' speed and direction can be varied	N/A	N/A	N/A	N/A	N/A	N/A	2	N/A	N/A
Matter and its Properties									
S.48.9 Compare and contrast attributes of common materials related to their function (e.g., flexibility, transparency, strength)	N/A	N/A	N/A	N/A	N/A.	N/A	2	N/A	N/A

Unit Links

If unit headings are formatted as a heading, then we can link a Table of Contents to better organize and provide faster access to each unit

Unit Title:

September

(focus: apples)

Relevant Standards: Bold indicates priority

C.48.8 Recognize patterns in routines, objects and/or sounds and replicate sequence using objects or language
M.48.9 Sort objects into two groups, count, and compare the quantity of the groups formed (e.g., indicate which is more)
M.48.10 Sort and classify objects by one attribute into two or more groups (e.g., color, size, shape)

Essential Question(s):

- What skills and knowledge are needed to develop effective approaches to learning?
- What skills and knowledge are needed to understand the attributes and relative properties of objects?

Enduring Understanding(s):

- Sort and classify objects by one attribute (color)
- Create and recognize a pattern

Demonstration of Learning:

Card sorting
Pattern creation

Pacing for Unit

2 lessons over one month

Family Overview (link below)

September Family Overview

Integration of Technology:

Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning

Unit-specific Vocabulary:

apple	seed	pick	pattern
red	yellow	green	sort
tree	tree	branch	stem

Aligned Unit Materials, Resources, and Technology (beyond core resources):

Max and Mo go Apple Picking by Patricia Lakin
Daniel's Apple Picking Adventure by Maggie Testa
Pinkalicious: Apples, Apples, Apples by Victoria Kann
Curious George and the Apple Harvest by H.A. Rey
The Magical Yet by Angela DiTerlizzi

Opportunities for Interdisciplinary Connections:

Math connections with comparing and recognizing patterns
Art connection with color

Anticipated misconceptions:

When different colored objects are provided, instinct may want students to put them together by color, rather than create a pattern.

Connections to Prior Units:

N/A

Connections to Future Units:

The next unit will feature some of the same sorting techniques and classification, so this is a good start for

	future units.
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Recruiting Interest 7.2	• Provide tasks that allow for active participation, exploration and experimentation
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
K-1 construct meaning from oral presentations and literary and informational text through grade appropriate listening, reading, and viewing	I can sort objects by color. I can recognize a color pattern.

Lesson Sequence	Learning Target Success Criteria/ Assessment	Resources
1	I can name, describe, and sort objects into categories. ☐ I can sort by color	*Max and Mo go Apple Picking* by Patricia Lakin *Daniel's Apple Picking Adventure* by Maggie Testa
2	I can name, describe, and sort objects into categories. ☐ I can recognize a pattern ☐ I can create my own pattern	*Pinkalicious: Apples, Apples, Apples* by Victoria Kann *Curious George and the Apple Harvest* by H.A. Rey

Unit Title:
October (Focus: Pumpkins/Leaves)
Relevant Standards: Bold indicates priority
C.60.8 Compare relative attributes of objects, people, events, sounds (e.g., louder, more, less) L.48.13 Demonstrate comprehension through retelling with use of pictures and props, acting out main events or sharing information learned from nonfiction text M.48.10 Sort and classify objects by one attribute into two or more groups (e.g., color, size, shape)

<table>
<tr><td colspan="2"></td></tr>
<tr><td>Essential Question(s):</td><td>Enduring Understanding(s):</td></tr>
<tr><td>• What skills and knowledge are needed to support children to use logic and reasoning?
• What skills and knowledge are needed to support children to gain book appreciation and knowledge?
• What skills and knowledge are needed to understand the attributes and relative properties of objects?</td><td>• Compare relative attributes of objects, people, events, sounds
• Demonstrate comprehension through retelling
• Sort and classify objects by one attribute</td></tr>
<tr><td>Demonstration of Learning:</td><td>Pacing for Unit</td></tr>
<tr><td>• Card Sort
• Attribute Matching</td><td>2 lessons over 1 month</td></tr>
<tr><td>Family Overview (link below)</td><td>Integration of Technology:</td></tr>
<tr><td>October Family Overview</td><td>Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning</td></tr>
<tr><td>Unit-specific Vocabulary:</td><td>Aligned Unit Materials, Resources, and Technology (beyond core resources):</td></tr>
<tr><td><table><tr><td>pumpkin</td><td>seed</td><td>roots</td><td>leaf</td></tr><tr><td>bud</td><td>flower</td><td>small</td><td>medium</td></tr><tr><td>large</td><td>green</td><td>orange</td><td>round</td></tr></table></td><td>The Pumpkin Patch by Margaret McNamara
Little Pumpkin By Suzanne Fossey
Pete the Cat Falling for Autumn by James Dean
Fry Bread by Kevin Noble Maillard</td></tr>
<tr><td>Opportunities for Interdisciplinary Connections:</td><td>Anticipated misconceptions:</td></tr>
<tr><td>• Science connections with seed to plant growth
• Math connections with size comparisons</td><td>• Some students may have a mismatch between the oral words and the size of objects.
• Some students may have a mismatch between the oral words and the order of events</td></tr>
<tr><td>Connections to Prior Units:</td><td>Connections to Future Units:</td></tr>
<tr><td>Relate the science connection to apples (from September lesson)</td><td>Matching and sorting will continue to apply in future lessons</td></tr>
<tr><td colspan="2">Differentiation through Universal Design for Learning</td></tr>
<tr><td>UDL Indicator</td><td>Teacher Actions:</td></tr>
<tr><td>Recruiting Interest 7.2</td><td>• Vary activities and sources of information so that they can be:
○ Socially relevant
○ Age and ability appropriate
• Provide tasks that allow for active participation,</td></tr>
</table>

	exploration and experimentation

Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
K.1- Construct meaning from oral presentations and literary and informational text through grade appropriate listening, reading, and viewing.	• I can identify key attributes within a story. • I can retell events from a story.

Lesson Sequence	**Learning Target Success Criteria/ Assessment**	**Resources**
1	I can name, describe, and sort objects into categories. ☐ I can sort by size	The Pumpkin Patch by Margaret McNamara
2	I can put events in order. ☐ I can tell what comes first, next, last	Little Pumpkin By Suzanne Fossey Pete the Cat Falling for Autumn by James Dean

Unit Title:
November Focus: (Shapes)
Relevant Standards: Bold indicates priority
M.48.12 Identify 2-dimensional shapes (starting with familiar shapes such as circle and triangle) in different orientations and sizes C.48.8 Recognize patterns in routines, objects and/or sounds and replicate sequence using objects or language

Essential Question(s):	**Enduring Understanding(s):**
• What skills and knowledge are needed to support children to understand shapes and spatial relationships? • What skills and knowledge are needed to support children to recognize patterns in objects?	• Identify 2-dimensional shapes • Recognize and make patterns
Demonstration of Learning:	**Pacing for Unit**
• Shape “Bingo” • Make patterns with shapes • Everyday shape matching game	2 lessons over one month
Family Overview (link below)	**Integration of Technology:**

November Family Overview	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
circle, rectangle, triangle, square diamond, octagon, pentagon, oval shape, sides, line, corners	Skippyjon Jones: Shape Up by Judy Schachner National Geographic book on Shapes Thank You, Omu by Oge Mora Gracias, Thanks by Pat Mora Round as a Tortilla by Roseanne Greenfield Thong
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
• Connections to mathematics through identifying shapes • Connections to creative art through making shapes and patterns • Connections to social studies through recognizing shapes in the community	Students may look at a shape and only be able to identify it when it looks a certain way (for example, if a triangle has the point on the top vs. on the bottom) Students may also see a color and a shape and then associate that color with that shape moving forward.
Connections to Prior Units:	**Connections to Future Units:**
Pumpkin matching from October will help with shape matching in this unit	Recognizing shapes will assist in future lessons (snowflakes in December, for example)
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Comprehension 3.1	• Anchor instruction by linking to and activating relevant prior knowledge (e.g., using visual imagery, concept anchoring, or concept mastery routines)
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
K.1- Construct meaning from oral presentations and literary and informational text through grade appropriate listening, reading, and viewing.	• I can identify basic shapes. • I can recognize shapes in the world. • I can make a pattern.

Lesson Sequence	Learning Target Success Criteria/ Assessment	Resources

1	I can name and identify shapes and colors. ☐ I can identify and name a square, circle, triangle and rectangle	Skippyjon Jones: Shape Up by Judy Schachner
2	I can sort everyday items by their shape.. ☐ I can identify and sort a square, circle, triangle, rectangle, oval, diamond, pentagon, octagon ☐ I can make a pattern with shapes	National Geographic book on Shapes Round as a Tortilla by Roseanne Greenfield Thong

Unit Title:	
December (focus: Snowflakes/Winter)	
Relevant Standards: Bold indicates priority	
L.48.20 Recognize rhyming words in songs, chants or poems S.48.5 Compare and contrast basic features of living things C.48.10 Use or make a prop to represent an object (e.g., build a telephone)	
Essential Question(s):	**Enduring Understanding(s):**
• What skills and knowledge are needed to support children to recognize rhyming words in a book? • What skills and knowledge are needed to support children to compare and contrast basic features of living things? • What skills and knowledge are needed to support children to make a prop to represent an object?	• Recognize rhyming words in a book • Compare and contrast features of living things • Make a prop that represents an object
Demonstration of Learning:	**Pacing for Unit**
• Rhyming word activity • Compare and contrasting • Building shapes	2 lessons over 1 month
Family Overview (link below)	**Integration of Technology:**
December Family Overview	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**

bears	hibernate	winter	snow
beaver	den	snowflake	snowman
shape	fur	nest	burrow

Winter Winter Cold and Snow by Sharon Gibson Palermo
The Snowy Day by Ezra Jack Keats
When This World Was New by D.H. Figueredo
Iguanas in the Snow by Maya Christina Gonzalez

Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
• Connections to science through learning about animals in the winter • Connections to creative art through using shapes • Connections to literacy through rhyming	Students may not understand what it means to hibernate or burrow as they don't know what animals do in the winter.
Connections to Prior Units:	**Connections to Future Units:**
Using the shapes learned about in the last unit, students will create a new object.	Comparing and contrasting and learning about animals will provide the foundation for future lessons.

Differentiation through *Universal Design for Learning*

UDL Indicator	**Teacher Actions:**
Language & Symbols 2.1	• Pre-teach vocabulary and symbols, especially in ways that promote connection to the learners' experience and prior knowledge

Supporting Multilingual/English Learners

Related *CELP standards:*	**Learning Targets:**
K-2. participate in grade appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions.	• I can identify one pair of rhyming words • I can identify one way animals stay warm that is different from people • I can use shapes to make another object

Lesson Sequence	**Learning Target Success Criteria/ Assessment**	**Resources**
1	I can identify rhyming words.. ☐ I can identify rhyming words within a story. I can compare and contrast what animals do in the winter and what people do in the winter. ☐ I can identify which activities animals do to stay warm and which activities humans do to stay warm.	Winter Winter Cold and Snow by Sharon Gibson Palermo
2	I can use shapes to make a new object. ☐ I can make a winter shape with squares, circles, triangles and rectangles	The Snowy Day by Ezra Jack Keats

Unit Title:

January

(Focus: Mittens/Scarves/Snow/People)

Relevant Standards: Bold indicates priority

L.48.13 Demonstrate comprehension through retelling with use of pictures and props, acting out main events or sharing information learned from nonfiction text
L.48.15 Make predictions and/or ask questions about the text by examining the title, cover, pictures

Essential Question(s):

- What skills and knowledge are needed to support children to demonstrate comprehension through retelling with pictures?
- What skills and knowledge are needed to support children to make predictions about a book?

Enduring Understanding(s):

- Demonstrate comprehension through retelling
- Making a prediction

Demonstration of Learning:

- Adding elements to a picture
- Making a prediction

Pacing for Unit

2 lessons over one month

Family Overview (link below)

January Family Overview

Integration of Technology:

Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning

Unit-specific Vocabulary:

jacket	zipper	scarf	snow
mittens	sweater	jeans	boots
socks	cap	sled	hill

Aligned Unit Materials, Resources, and Technology (beyond core resources):

The Jacket I Wear in the Snow by Shirley Neitzel
Snow Day by Lester L. Laminack
A Sled for Gabo by Emma Otheguy
Sweetest Kulu by Celina Kalluk

Opportunities for Interdisciplinary Connections:

- Connections to literacy through being able to make a prediction and retell a story

Anticipated misconceptions:

Students may not be familiar with the different articles of clothing in the book. Teacher may have to explain what some of the items are or help use the text to show what they are.

Connections to Prior Units:

The use of shapes will help when it comes to retelling a story as students should be able to identify the shapes

Connections to Future Units:

Making predictions will be a skill that is practiced in future units

Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Recruiting Interest 7.2	• Provide tasks that allow for active participation, exploration and experimentation

Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
K-2. participate in grade appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions.	I can retell a story with pictures. I can make a prediction about a book.

Lesson Sequence	Learning Target Success Criteria/ Assessment	Resources
1	I can retell a story with pictures. ☐ I can put the winter clothing on a person to retell a story	The Jacket I Wear in the Snow by Shirley Neitzel
2	I can make a prediction about what a book will be about.. ☐ I can look at the cover and pictures of a book and make a guess on what the story is about.	Snow Day by Lester L. Laminack

Unit Title:
February (Focus: Teddy Bears)
Relevant Standards: Bold indicates priority
M.48.10 Sort and classify objects by one attribute into two or more groups (e.g. color, size, shape). C.48.7 Identify similarities and differences in objects, people, events, sounds based on one attribute (e.g., same or different colors, loud or soft sound.) L. 60.2 Determine the meanings of unknown words/concepts using the context of conversations, pictures or concrete objects

Essential Question(s):	Enduring Understanding(s):

<table>
<tr><td>

- What skills and knowledge are needed to support children to understand the attributes and relative properties of objects?
- What skills and knowledge are needed to support children to identify similarities and differences?
- What skills and knowledge are needed to support children to determine the meanings of unknown words/concepts using the context of conversations, pictures or concrete objects?

</td><td>Understand the attributes of objects such as color
Use logic to sort objects by color
Determine what words are opposites</td></tr>
<tr><td>Demonstration of Learning:</td><td>Pacing for Unit</td></tr>
<tr><td>

- Sorting and identifying by color
- Identifying opposite words

</td><td>2 lessons over one month</td></tr>
<tr><td>Family Overview (link below)</td><td>Integration of Technology:</td></tr>
<tr><td>February Family Connection</td><td>Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning</td></tr>
<tr><td>Unit-specific Vocabulary:</td><td>Aligned Unit Materials, Resources, and Technology (beyond core resources):</td></tr>
<tr><td>

opposites	over	under	color
fancy	fast	slow	forgot
plain	short	tall	remember

</td><td>What's Up Bear by Frieda Wishinsky
Brown Bear Brown Bear What do you See? by Eric Carle
Corduroy by Don Freeman
The Worst Teddy Ever by Marcelo Verdad</td></tr>
<tr><td>Opportunities for Interdisciplinary Connections:</td><td>Anticipated misconceptions:</td></tr>
<tr><td>

- Connections to literacy through being able to identify opposite words
- Connections to art to identify colors

</td><td>

- Students may get confused when the animals in the book are different colors that they are used to
- Students may not know the word "opposite"

</td></tr>
<tr><td>Connections to Prior Units:</td><td>Connections to Future Units:</td></tr>
<tr><td>Colors have been used in prior units (shapes), so this will build off identifying the colors and now sorting by color as well.</td><td>Practicing sorting and classifying will connect with future lessons.</td></tr>
<tr><td colspan="2">Differentiation through Universal Design for Learning</td></tr>
<tr><td>UDL Indicator</td><td>Teacher Actions:</td></tr>
<tr><td>Comprehension 3.1</td><td>Anchor instruction by linking to and activating relevant prior knowledge</td></tr>
<tr><td colspan="2">Supporting Multilingual/English Learners</td></tr>
<tr><td>Related CELP standards:</td><td>Learning Targets:</td></tr>
</table>

K-2 participate in grade appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions.	I can state the opposite to a word I can identify and sort colors

Lesson Sequence	Learning Target Success Criteria/ Assessment	Resources
1	I can identify opposite words. ☐ I can state a word that is the opposite of another word	What's Up Bear by Frieda Wishinsky
2	I can identify colors. ☐ I can correctly identify 10 different colors. ☐ I can sort objects based on their color	Brown Bear Brown Bear What do you See? by Eric Carle Corduroy by Don Freeman

Unit Title:	
March (Focus: Robots)	
Relevant Standards: Bold indicates priority	
S.48.8 Investigate how objects' speed and direction can be varied S.48.9 Compare and contrast attributes of common materials related to their function (e.g., flexibility, transparency, strength) C.48.7 Identify similarities and differences in objects, people, events, sounds based on one attribute (e.g., same or different colors, loud or soft sound.)	
Essential Question(s):	**Enduring Understanding(s):**
• What skills and knowledge are needed to support children to understand physical sciences? • What skills and knowledge are needed to support children to identify similarities and differences?	Making a prediction Conducting an experiment Comparing and contrasting different materials
Demonstration of Learning:	**Pacing for Unit**
Experimentation with rolling different objects Experimentation with different materials	2 lessons over one month
Family Overview (link below)	**Integration of Technology:**
March Family Overview	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*

Unit-specific Vocabulary:				Aligned Unit Materials, Resources, and Technology (beyond core resources):
robot	prediction	material	object	The Adventures of Otto: Go, Otto Go by David Milgirm Meep and Clank Blast Off by David Vordtriede Junk Yard by Mike Austin Imagination Like Mine by Latashia M. Perry
experiment	compare	junkyard	science	
guess	contrast	space	scientist	

Opportunities for Interdisciplinary Connections:	Anticipated misconceptions:
Connection to science: experimenting, comparing and contrasting and learning about different materials	Students may not know all of the materials and think they are the same (for example a sheet of aluminum foil looks the same as paper)
Connections to Prior Units:	**Connections to Future Units:**
Trying to predict the outcome of something is the same as making a prediction (as seen in previous lessons)	Predictions will continue to be made, but we have now added on an experiment piece. This will connect with future lessons.

Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Language & Symbols 2.1	• Pre-teach vocabulary and symbols, especially in ways that promote connection to the learners' experience and prior knowledge

Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
K-4 construct grade appropriate oral and written claims and support them with reasoning and evidence.	I can make a prediction and talk about it I can indicate what is the same or different about two materials

Lesson Sequence	Learning Target Success Criteria/ Assessment	Resources
1	I can make a prediction and determine if my prediction was correct. ☐ I can conduct an experiment based on my prediction.	The Adventures of Otto: Go, Otto Go by David Milgirm Meep and Clank Blast Off by David Vordtriede
2	I can compare and contrast.	Junk Yard by Mike Austin

	☐ I can discuss what is the same and what is different about two different materials.	

Unit Title:	
April (Focus: Ladybugs/Butterflies)	
Relevant Standards: Bold indicates priority	
S.48.6 Recognize changes in living things over their lifespan by observing similarities and differences between babies and adults L.48.15 Make predictions and/or ask questions about the text by examining the title, cover, pictures S.48.7 Explore how animals depend upon the environment for food, water and shelter	
Essential Question(s):	**Enduring Understanding(s):**
• What skills and knowledge are needed to support children to recognize changes in living things? • What skills and knowledge are needed to support children to make a prediction? • What skills and knowledge are needed to support children to explore how animals depend on their environment?	• Making a prediction • Understanding sequence of events • Understanding how insects and animals live and survive
Demonstration of Learning:	**Pacing for Unit**
Putting the life cycle in order Matching symmetry Making predictions	2 lessons over one month
Family Overview (link below)	**Integration of Technology:**
April Family Overview	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
caterpillar, dragonfly, egg, symmetry ladybug, honeybee, Praying mantis, mosquito stick bug, earwig, larvae, butterfly	The Very Hungry Caterpillar by Eric Carle The Furry Caterpillar by Felicia Law Guess the Insect by Kari Noel Senorita Mariposa - Ben Gundersheimer
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**

• Connections to science by learning about the butterfly life cycle • Connections to art by understanding symmetry	Students may not realize that a caterpillar and a butterfly are the same creature, just in two different forms. It may require some explaining. Students likely will not know all of the bugs in the book, but
Connections to Prior Units:	**Connections to Future Units:**
Making predictions is something that we have done before, in a different context.	We will continue to make predictions and put events in order as we go through different units.
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Expression & Communication 5.1	Use physical manipulatives
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
K-4 Construct grade appropriate oral and written claims and support them with reasoning and evidence.	I can put events in order I can match pieces of a butterfly I can make a prediction

Lesson Sequence	Learning Target Success Criteria/ Assessment	Resources
1	I can put events in order. ☐ I can tell what comes first, next, last I can understand symmetry. ☐ I can match pieces based on symmetry	The Very Hungry Caterpillar by Eric Carle The Furry Caterpillar by Felicia Law
2	I can make a prediction about a book. ☐ Based on the picture and my prior knowledge, I can identify insects in a book.	Guess the Insect by Kari Noel

Unit Title:
May (Focus: Water fun/Ducks)
Relevant Standards: Bold indicates priority
C.48.11 Act out actions or scenarios involving familiar roles (e.g., teacher, doctor, firefighter) L.48.21 Identify when initial sounds in words are the same L.48.15 Make predictions and/or ask questions about the text by examining the title, cover, pictures
Essential Question(s): | **Enduring Understanding(s):**

<table>
<tr><td>

- What skills and knowledge are needed to support children to act out actions or scenarios involving familiar roles?
- What skills and knowledge are needed to support children to identify when initial sounds in words are the same?
- What skills and knowledge are needed to support children to make predictions about the end of the book?

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- Acting in roles based on a text
- Knowing the first letter of their name
- Making a prediction

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<tr><td>Demonstration of Learning:</td><td>Pacing for Unit</td></tr>
<tr><td>

- Role playing
- Identifying the first letter sounds
- Making a prediction

</td><td>3 lessons over 1.5 months</td></tr>
<tr><td>Family Overview (link below)</td><td>Integration of Technology:</td></tr>
<tr><td>May Family Overview</td><td>Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning</td></tr>
<tr><td>Unit-specific Vocabulary:</td><td>Aligned Unit Materials, Resources, and Technology (beyond core resources):</td></tr>
<tr><td>
<table>
<tr><td>duck</td><td>nibble</td><td>egg</td><td>quack</td></tr>
<tr><td>rescue</td><td>knock</td><td>ordinary</td><td>flock</td></tr>
<tr><td>sheep</td><td>hope</td><td>quiet</td><td>flair</td></tr>
</table>
</td><td>Duck to the Rescue by John Himmelman
Click, Clack, Quackity-Quack by Doreen Cronin and Betsy Lewin
Duck at the Door by Jackie Urbanovic
Lala's Words by Gracey Zhang</td></tr>
<tr><td>Opportunities for Interdisciplinary Connections:</td><td>Anticipated misconceptions:</td></tr>
<tr><td>

- Connections to literacy through being able to make a prediction and identify the first letter of their name

</td><td>Students may hear a letter sound but not make the connection to their own name, especially if that letter has different sounds (S, C, CH, K, etc.)</td></tr>
<tr><td>Connections to Prior Units:</td><td>Connections to Future Units:</td></tr>
<tr><td>We have made predictions in the past based on the cover and pictures. This takes it a step further and asks to make a future prediction based on the story.</td><td>Identifying letters and making connections to their name is an important skill for a student. There will be more focus on letters and letter writing in the future.</td></tr>
<tr><td colspan="2">Differentiation through Universal Design for Learning</td></tr>
<tr><td>UDL Indicator</td><td>Teacher Actions:</td></tr>
<tr><td>Expression & Communication 5.1</td><td>

- Solve problems using a variety of strategies

</td></tr>
<tr><td colspan="2">Supporting Multilingual/English Learners</td></tr>
<tr><td>Related CELP standards:</td><td>Learning Targets:</td></tr>
</table>

K-3 Speak and write about grade-appropriate complex literary and informational texts and topics	I can act out the role of the main character in a story. I can identify the first letter of my name. I can make a prediction about a book.

Lesson Sequence	**Learning Target Success Criteria/ Assessment**	**Resources**
1	I can act out a story ☐ I can be "duck" in different situations and show how to come to the rescue.	Duck to the Rescue by John Himmelman
2	I can identify a letter and make a connection to that letter ☐ I can recognize the first letter of my name.	Click, Clack, Quackity-Quack by Doreen Cronin and Betsy Lewin
3	I can make a prediction about a book. ☐ I can make a prediction about what will happen after the end of the book.	Duck at the Door by Jackie Urbanovic

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
AP Precalculus	Mathematics	10-12	1.0

Course Description:

AP Precalculus centers on functions modeling dynamic phenomena. This research-based exploration of functions is designed to better prepare students for college-level calculus and provide grounding for other mathematics and science courses. In this course, students study a broad spectrum of function types that are foundational for careers in mathematics, physics, biology, health science, business, social science, and data science. Furthermore, as AP Precalculus may be the last mathematics course of a student's secondary education, the course is structured to provide a coherent capstone experience rather than exclusively focusing on preparation for future courses.

Throughout this course, students develop and hone symbolic manipulation skills, including solving equations and manipulating expressions, for the many function types throughout the course. Students also learn that functions and their compositions, inverses, and transformations are understood through graphical, numerical, analytical, and verbal representations, which reveal different attributes of the functions and are useful for solving problems in mathematical and applied contexts. In turn, the skills learned in this course are widely applicable to situations that involve quantitative reasoning.

AP Precalculus fosters the development of a deep conceptual understanding of functions. Students learn that a function is a mathematical relation that maps a set of input values— the domain—to a set of output values—the range—such that each input value is uniquely mapped to an output value. Students understand functions and their graphs as embodying dynamic covariation of quantities, a key idea in preparing for calculus. With each function type, students develop and validate function models based on the characteristics of a bivariate data set, characteristics of covarying quantities and their relative rates of change, or a set of characteristics such as zeros, asymptotes, and extrema. These models are used to interpolate, extrapolate, and interpret information with different degrees of accuracy for a given context or data set. Additionally, students also learn that every model is subject to assumptions and limitations related to the context. As a result of examining functions from many perspectives, students develop a conceptual understanding not only of specific function types but also of functions in general.

Aligned Core Resources:	Connection to the *BPS Vision of the Graduate*
AP Classroom (digital-access)	CONTENT MASTERY • Develop and draw from a baseline understanding of knowledge in academic disciplines from our Bristol curriculum. CRITICAL THINKING AND PROBLEM SOLVING • Collect, assess and analyze relevant information • Reason effectively. Use systems thinking. • Make sound judgments and decisions. Identify, define and solve authentic problems and essential questions. • Reflect critically on learning experience, processes and solutions. • Transfer knowledge to other situations.
Additional Course Information: ***Knowledge/Skill Dependent courses/prerequisites***	**Link to *Completed Equity Audit***
	AP Precalculus Equity Audit

Standard Matrix

AP/College Board Mathematical Practices

	Unit 1	Unit 2	Unit 3
Practice 1: Procedural and Symbolic Fluency			
1.A Solve equations and inequalities represented analytically with and without technology.			X
1.B Express function equations, or expressions in analytically equivalent forms that are useful in given mathematical or applied content.			X
1.C Construct new functions, using transformations, compositions, inverses, or regressions, that may be useful in modeling contexts, criteria, or data with and without technology.			X
Practice 2: Multiple Representations			
2.A Identify information from graphical, numerical, analytical and verbal representations to answer a question or construct a model with or without technology.		X	
2.B Construct equivalent graphical, numerical, analytical, and verbal representations of functions that are useful in a given mathematical or applied context, with and without technology.		X	X
Practice 3: Communication and Reasoning			
3.A Describe the characteristics of a function with varying levels of precision, depending on the function representation and available mathematical tools.	X		
3.B Apply numerical results given mathematical or applied context.	X		
3.C Support conclusions or choices with a logical rationale or appropriate data.			X

Unit Links

If unit headings are formatted as a heading, then we can link a Table of Contents to better organize and provide faster access to each unit

Unit Title:	
Polynomial and Rational Functions	
Relevant Standards: Bold indicates priority	
3.A 3.B Throughout the course, students should practice communicating mathematics and developing notational fluency—and that practice should begin in Unit 1. Students should use precise language such as, “On the closed interval 0 to 1, as the value of x increases, the value of y increases then decreases.” To the fullest extent possible, students should work on functions presented in contextual scenarios such as graphs showing distance vs. time, tables showing velocity vs. time, or scenarios involving volume vs. time. In these contexts, students should use clear language when referring to variables and functions, including units of measure as appropriate. For example, when considering a problem of filling a pool with water, a student may write, “The input values of the function V are times in minutes, and the output values are volumes in cubic meters. The average rate of change of the function V over the time interval t equals 2 minutes to t equals 5 minutes is 0.4 cubic meters per minute.” Practicing communicating with precise language can help students clarify their thinking and make important connections while revealing misconceptions.	
Essential Question(s):	**Enduring Understanding(s):**
• How do we model the intensity of light from its source? • How can I use data and graphs to figure out the best time to purchase event tickets? • How can we adjust known projectile motion models to account for changes in conditions?	After studying Unit 1, students should be able to describe, represent, and model polynomial and rational functions and their additive and multiplicative transformations. Because part of the exam relies on technology, students should be able to identify zeros, points of intersection, and extrema using graphing calculator technology. Students should be able to calculate linear, quadratic, cubic, and quartic regressions to model a data set. In the free-response section of the exam, students will not only be required to arrive at a solution but also explain and provide rationales for their conclusions. Students should practice providing reasons for conclusions throughout the unit in both spoken and written form and continually refine their explanations to improve precision.
Demonstration of Learning:	**Pacing for Unit**
Certified AP assessments and released items.	8 Weeks
Family Overview (link below)	**Integration of Technology:**
AP Classroom Resources (requires student login)	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	
Graphical, Numerical, Analytical, Verbal, Rate of change, Average rate of change, Function, Domain, Range, Even/Odd Function, Increasing, Decreasing, Input, Output, Independent, Dependent, Linear, Quadratic, Polynomial, Rational, Asymptote, Horizontal, Vertical, Zeros, Intersections, Roots, Interval,	

Secant Line, Tangent Line, Equal-Length , Consecutive, Covariation, Variable, Distinct, Extrema, Absolute, Global, Maximum, Minimum, Local, Relative, Multiplicity, Complex, Conjugate, Multiplicative transformation, Additive transformation, Contextual, Limit, Dilation, Continuous, Parent Function, Quadratic, Cubic, Quartic, End Behavior , Degree, Regression, Boundedness, Successive differences, Inflection point, Multiplicity of zeros, Concavity

Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Comprehension: • Activate or supply background knowledge	• Anchor instruction by linking to and activating relevant prior knowledge (e.g., using visual imagery, concept anchoring, or concept mastery routines) • Use advanced organizers (e.g., KWL methods, concept maps) • Pre-teach critical prerequisite concepts through demonstration or models • Bridge concepts with relevant analogies and metaphors

Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An EL can construct grade appropriate oral and written claims and support them with reasoning and evidence.	All learning targets in this unit support CELP standard 9-12.

Lesson Sequence	**Learning Target**	**Success Criteria/Assessment**
1 Change in Tandem	I can describe how the input and output values of a function vary together by comparing function values. I can construct a graph representing two quantities that vary with respect to each other in a contextual scenario.	• I can identify the domain and range of a function. • I can compare two quantities that are changing. • I can identify the intervals of increase and decrease of a function given a table or graph. • I can identify over which intervals the graph of a function is concave up or concave down and justify my reasoning.
2 Rates of Change	I can compare the rates of change at two points using average rates of change near the points. I can describe how two quantities vary together at different points and over different intervals of a function	• I can determine the average rate of change of a function given a table and an equation. • I can determine the average rate of change of a function at a point given an equation. • I can use the average rate of change to describe how the function behaves over an interval or at a point.
3 Polynomial Functions and Rates of Change	I can determine the average rates of change or sequences and functions, including linear, quadratic, and other function types. I can determine the change in the average rates of change for linear,	• I can identify a linear function by finding the average rate of change from a table. • I can identify a quadratic function by finding the average rate of change from a table. • I can determine if a function is concave up or down by calculating the average rate of change over equal length intervals from a table.

	quadratic, and other function types.	
4 Polynomial Function and Rates of Change	I can identify key characteristics of polynomial functions related to rates of change.	• I can identify the degree, relative extrema, absolute extrema, and inflection points of a function given a graph. • I can determine if a polynomial function is increasing or decreasing by calculating the average rate of change over various intervals.
5 Polynomial Functions and Complex Zeros	I can identify key characteristics of a polynomial function related to its zeros when suitable factorizations are available or with technology. I can determine if a polynomial function is even or odd	• I can determine the number of complex zeros of a polynomial function. • I can find the zeros of a polynomial function. • I can determine the multiplicity of a zero of a polynomial function given its graph. • I can determine if a function is even or odd given a table, graph, or equation.
6 Polynomial Functions and End Behavior	I can describe end behaviors of polynomial functions.	• I can state the end behavior of a function using limit notation given a graph, table, or equation.
7 Rational Functions and End Behavior	I can describe the end behaviors of rational functions.	• I can analyze the degree of the numerator and denominator of a rational function to determine if a function has a horizontal/slant asymptote. • I can determine the end behavior of a rational function given a table, graph or an equation using limit notation.
8 Rational Functions and Zeros	I can determine the zeros of rational functions	• I can simplify the equation of a rational function by factoring its numerator and denominator. • I can determine the zeros of a rational function by analyzing the numerator of its simplified form. • I can use a sign chart to solve a rational inequality.
9 Rational Functions and Vertical Asymptotes	I can determine vertical asymptotes of graphs of rational functions	• I can determine the zeros of a rational function by simplifying the function and analyzing the denominator. • I can determine where the values of a rational function increase or decrease without bound using limit notation from a graph or table.
10 Rational Functions and Holes	I can determine holes in graphs of rational functions.	• I can determine the holes of a rational function by factoring the function and analyzing both the numerator and denominator. • I can determine the location of a hole at $x = c$ by examining the behavior of a rational function as x approaches c using limit notation.
11 Equivalent Representations of	I can rewrite polynomial and rational expressions in equivalent forms. I can determine the quotient of two	• I can convert a polynomial function between standard form and factored form. • I can convert a rational function between standard form and factored form.

Polynomial and Rational Expressions	polynomial functions using long division. I can rewrite the repeated product of binomial using the binomial theorem.	• I can use long division to determine the equations of a slant asymptote of a rational function. • I can use Pascal's triangle to perform a binomial expansion.
12 Transformations of Functions	I can construct a function that is an additive and/or multiplicative transformation of another function.	• I can vertically/horizontally translate a function given an equation or a graph. • I can vertically/ horizontally dilate a function given a graph or an equation. • I can reflect a function given a graph or an equation. • I can determine the domain or range of a transformed function.
13 Function Model Selection and Assumption Articulation	I can identify an appropriate function type to construct a function model given a scenario. I can describe assumptions and restrictions related to building a function model.	• I can determine a linear function to model data that demonstrates a roughly constant rate of change. • I can determine a quadratic function to model data that demonstrates roughly linear rate of change. • I can determine a cubic function to model data regarding volume or three dimensions. • I can determine a polynomial to model scenarios with multiple real zeros or multiple maxima or minima. • I can determine a piecewise function to model contextual scenarios that demonstrate different characteristics over different intervals.
14 Function Model Construction and Application	I can construct a linear, quadratic, cubic, quartic, polynomial of degree n, or related piecewise-defined function model. I can construct a rational function model based on a context. I can apply a function model to answer questions about a data set or contextual scenario.	• I can use technology to determine a polynomial (linear, quadratic, cubic, or quartic) model to represent a set of data. • I can use a model to draw conclusions about a data set or contextual scenario.

Unit Title:	
Exponential and Logarithmic Functions	
Relevant Standards: Bold indicates priority	
2.A; 2.B Students should learn to communicate differences and similarities among arithmetic sequences, linear functions, geometric sequences, and exponential functions. Students can develop a deeper understanding of these four function types by considering how each would be represented in a graph, in a table, in an analytical representation, and through verbal descriptions of related scenarios. Examining multiple representations is also powerful in understanding composition of functions and relationships between functions and their inverse functions. In this unit, multiple representations should be used to explore the inverse relationship between exponential and logarithmic functions.	
Essential Question(s):	**Enduring Understanding(s):**
• How can I make a single model that merges the interest I earn from my bank with the taxes that are due so I can know how much I will have in the end? • How can we adjust the scale of distance for a model of planets in the solar system so the relationships among the planets are easier to see? • If different functions can be used to model data, how do we pick which one is best?	In Unit 2, students build an understanding of exponential and logarithmic functions. Exponential and logarithmic function models are widespread in the natural and social sciences. When an aspect of a phenomenon changes proportionally to the existing amount, exponential and logarithmic models are employed to harness the information. Exponential functions are key to modeling population growth, radioactive decay, interest rates, and the amount of medication in a patient. Logarithmic functions are useful in modeling sound intensity and frequency, the magnitude of earthquakes, the pH scale in chemistry, and the working memory in humans. The study of these two function types touches careers in business, medicine, chemistry, physics, education, and human geography, among others.
Demonstration of Learning:	**Pacing for Unit**
Certified AP assessments and released items.	10 Weeks
Family Overview (link below)	**Integration of Technology:**
	Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning
Unit-specific Vocabulary:	
Sequence, Discrete, Arithmetic, Geometric, Common Difference, Constant Rate, Common ratio, Constant proportional change, Validate, Exponential, Logarithmic, Proportional Output Value, Logarithmically scaled, Semi-Log Plot, Residual, Linearization, Composition, Decomposition, Inverse	
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**

Comprehension: Highlight patterns, critical features, big ideas, and relationships	• Highlight or emphasize key elements in text, graphics, diagrams, formulas • Use outlines, graphic organizers, unit organizer routines, concept organizer routines, and concept mastery routines to emphasize key ideas and relationships • Use multiple examples and non-examples to emphasize critical features • Use cues and prompts to draw attention to critical features • Highlight previously learned skills that can be used to solve unfamiliar problems

Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An EL can construct grade appropriate oral and written claims and support them with reasoning and evidence.	All learning targets in this unit support CELP standard 9-12.

Lesson Sequence	**Learning Target**	**Success Criteria/ Assessment**
1 Change in Arithmetic and Geometric Sequences	I can express arithmetic sequences found in mathematical and contextual scenarios as functions of the whole numbers. I can express geometric sequences found in mathematical and contextual scenarios as functions of the whole numbers.	• I can find a common difference of an arithmetic sequence and use it to write the equation for the sequence. • I can find a common ratio of a geometric sequence and use it to write the equation for the sequence.
2 Change in Linear and Exponential Functions	I can construct functions of the real numbers that are comparable to arithmetic and geometric sequences. I can describe similarities and differences between linear and exponential functions.	• I can write a linear function that is comparable to an arithmetic sequence. • I can write a linear function that is comparable to a geometric sequence. • I can determine if a function is linear or exponential from a table, graph or an equation by examining a rate of change.
3 Exponential Functions	I can identify key characteristics of exponential functions.	• I can find the initial value of an exponential function. • I can find the growth factor of an exponential function. • I can determine if an exponential function represents growth or decay given a table, graph or an equation. • I can use limit notation to describe the end behavior of an exponential function. • I can identify exponential functions that has been vertically translated.
4 Exponential Function Manipulation	I can rewrite exponential expressions in equivalent forms.	• I can use the product property for exponents to rewrite an exponential expression. • I can use the power property for exponents to rewrite an exponential expression.

		• I can use the negative exponent property for exponents to rewrite an exponential expression. • I can rewrite an exponential expression containing a rational exponent as a radical expression.
5 Exponential Function Context and Data Modeling	I can construct a model for situations involving proportional output values over equal length input value intervals. I can apply exponential models to answer questions about a data set or contextual scenario.	• I can use exponential functions to model growth patterns. • I can construct an exponential model from a ratio and initial value or given two input output pairs. • I can transform $f(x) = ab^x$ to create an exponential model based on a scenario or data set. • I can use technology to determine exponential regression models. • I can rewrite an exponential function to determine growth rates over different intervals of time.
6 Competing Function Model Validation	I can construct linear, quadratic, and exponential models based on a data set. I can validate a model constructed from a data set.	• I can determine the most appropriate model (linear, quadratic or exponential) for a data set. • I can determine the residual of a data value. • I can validate a model by creating a residual plot.
7 Composition of Functions	I can evaluate the composition of two or more functions for given values. I can construct a representation of the composition of two or more functions. I can rewrite a given function as a composition of two or more functions.	• I can determine the composition of two functions. • I can calculate values of a composite function from tables, graphs or equations. • I can decompose a function into two or more less complicated functions.
8 Inverse Functions	I can determine the input-output pairs of the inverse of a function. I can determine the inverse of a function on an invertible domain.	• I can determine if a function is invertible from its graph. • I can determine an inverse function value given a table, graph or equation. • I can determine the equation of a function's inverse. • I can show that two functions are inverses of each other by composing them.
9 Logarithmic Expressions	I can evaluate logarithmic expressions.	• I can evaluate logarithmic expressions with or without the use of technology.
10 Inverses of Exponential Functions	I can construct representations of the inverse of an exponential function with an initial value of 1.	• I can show that logarithms and exponentials are inverses of each other.
11. Logarithmic Functions	I can identify key characteristics of logarithmic functions.	• I can determine the domain and range of logarithmic functions. • I can determine if a logarithmic function is increasing or decreasing. • I can determine the concavity of a logarithmic function. • I can determine the end behavior of a logarithmic function given a table, graph or an equation using

		limit notation.
12 Logarithmic Function Manipulation	I can rewrite logarithmic expressions in equivalent forms.	• I can use the product property for logarithms to rewrite a logarithmic expression. • I can use the power property for logarithms to rewrite a logarithmic expression. • I can use the change of base property for logarithms to rewrite a logarithmic expression.
13 Exponential and Logarithmic Equations and Inequalities	I can solve exponential and logarithmic equations and inequalities. I can construct the inverse function or exponential and logarithmic functions.	• I can use the properties of exponents and logarithms to solve exponential and logarithmic equations. • I can identify the extraneous solutions. • I can use the properties of exponents and logarithms to solve exponential and logarithmic inequalities. • I can determine the equation of the inverse of an exponential function that has been transformed. • I can determine the equation of the inverse of a logarithmic function that has been transformed.
14 Logarithmic Function Context and Data Modeling	I can construct a logarithmic function model.	• I can construct a logarithmic model from an appropriate proportion and real zero or from two input-output pairs. • I can transform the function $f(x) = a \cdot log_b x$ to create logarithmic function models based on a problem scenario or data set. • I can use technology to construct logarithmic function models • I can use logarithmic function models to predict values for the dependent variable.
15 Semi-log Plots	I can determine if an exponential model is appropriate by examining a semi-log plot of a data set. I can construct the linearization of exponential data.	• I can construct a semi-log plot. • I can determine if a function is exponential by analyzing a semi log plot. • I can model exponential data using a linear model.

Unit Title:	
Trigonometric and Polar Functions	
Relevant Standards: Bold indicates priority	
1.A; 1.B; 1.C; 2.B; 3.A Students should have multiple experiences transitioning among, and communicating about, the various representations of trigonometric functions, especially sinusoidal functions. It is important that, in addition to solving trigonometric equations and finding equivalent trigonometric expressions, students build sinusoidal models with and without technology and practice constructing different representations. As students transition to thinking in the polar plane, they will refine their communications related to characteristics of functions. The more casual language that students may have adopted such as “goes up” and “goes down” will need to be replaced with more careful language that addresses a function’s behavior related to angles and radii.	
Essential Question(s):	**Enduring Understanding(s):**
• Since energy usage goes up and down through the year, how can I use trends in data to predict my monthly electricity bills when I get my first apartment? • How do we model aspects of circular and spinning objects without using complex equations from the x-y rectangular-based coordinate system? • How does right triangle trigonometry from geometry relate to trigonometric functions?	In Unit 3, students explore trigonometric functions and their relation to the angles and arcs of a circle. Since their output values repeat with every full revolution around the circle, trigonometric functions are ideal for modeling periodic, or repeated pattern phenomena, such as: the highs and lows of a wave, the blood pressure produced by a heart, and the angle from the North Pole to the Sun year to year. Furthermore, periodicity is found in human inventions and social phenomena. For example, moving parts of an analog clock are modeled by a trigonometric function with respect to each other or with respect to time; traffic flow at an intersection over the course of a week demonstrates daily periodicity; and demand for a particular product over the course of a year falls into an annually repeating pattern. Polar functions, which are also explored in this unit, have deep ties to trigonometric functions as they are both based on the circle. Polar functions are defined on the polar coordinate system that uses the circular concepts of radii and angles to describe location instead of rectangular concepts of left-right and up-down, which students have worked with previously. Trigonometry serves as the bridge between the two systems.
Demonstration of Learning:	**Pacing for Unit**
Certified AP assessments and released items.	10 Weeks
Family Overview (link below)	**Integration of Technology:**
	Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning

Unit-specific Vocabulary:		
Periodic, Secant, Cosecant, Reciprocal, Pole, Reflect, Tangent, Cotangent, Origin, Cosine (horizontal displacement), Sine (vertical displacement), Unit Circle, Identity, Rectangular, Carteasian, Polar, Angle Θ, Radius, Directed distance, Terminal Ray		
Differentiation through *Universal Design for Learning*		
UDL Indicator		**Teacher Actions:**
Comprehension: Highlight patterns, critical features, big ideas, and relationships		• Highlight or emphasize key elements in text, graphics, diagrams, formulas • Use outlines, graphic organizers, unit organizer routines, concept organizer routines, and concept mastery routines to emphasize key ideas and relationships • Use multiple examples and non-examples to emphasize critical features • Use cues and prompts to draw attention to critical features • Highlight previously learned skills that can be used to solve unfamiliar problems
Supporting Multilingual/English Learners		
Related *CELP standards:*		**Learning Targets:**
An EL can construct grade appropriate oral and written claims and support them with reasoning and evidence.		All learning targets in this unit support CELP standard 9-12.
Lesson Sequence	**Learning Target**	**Success Criteria**
1 Periodic Phenomena	I can construct graphs of periodic relationships based on verbal representations. I can describe key characteristics of a periodic function based on a verbal representation.	• I can identify a period behavior between two variables. • I can graph period function from the single cycle of the relationship based on a verbal description. • I can find a period of a period function.
2 Sine, Cosine, and Tangent	I can determine the sine, cosine, and tangent of an angle using the unit circle.	• I can name and draw angles in standard position. • I can find coterminal angles of an angle. • I can determine sine, cosine and tangent ratio on a unit circle. • I can represent angles using radian measure.
3 Sine and Cosine Function Values	I can determine the coordinates of points on a circle centered at the origin.	• I can identify points on a circle centered at the origin. • I can use a unit circle to find the exact values of sine and cosine of angles that are multiples of $\frac{\pi}{4}$ and $\frac{\pi}{6}$.

4 Sine and Cosine Function Graphs	I can construct representations of sine and cosine functions using the unit circle.	• I can graph sine and cosine functions as functions of θ using a unit circle. • I can determine the domain and range of a sine and cosine function.
5 Sinusoidal Functions	I can identify key characteristics of the sine and cosine functions.	• I can find a period of a sinusoidal function given an equation or a graph. • I can find an amplitude of a sinusoidal function given an equation or a graph. • I can find a midline of a sine and cosine function given an equation or a graph. • I can find the intervals of change in concavity for sinusoidal functions. • I can understand that the frequency of a sinusoidal function is a reciprocal of a period.
6 Sinusoidal Transformations	I can identify the amplitude, vertical shift, period, and phase shift of a sinusoidal function.	• I can identify a period and an amplitude of a sinusoidal function given an equation or a graph. • I can identify the vertical shift of a sinusoidal function given an equation or a graph. • I can identify a phase shift of a sinusoidal function given an equation or a graph. • I can write an equation of a sinusoidal function given a graph.
7 Sinusoidal Function Context and Data Modeling	I can construct sinusoidal function models of periodic phenomena.	• I can write a sinusoidal function modeling a contextual scenario using key points. • I can use sinusoidal regression to find a sinusoidal model or a data set. • I can use the sinusoidal model to answer questions about a contextual scenario.
8 The Tangent Function	I can construct representations of the tangent function using the unit circle. I can describe key characteristics of the tangent function. I can describe additive and multiplicative transformations involving the tangent function.	• I can define a tangent function on a unit circle. • I can find a period of a tangent function. • I can find the domain and range of a tangent function. • I can find the intervals of concavity of a tangent function given a graph. • I can graph a tangent function and its transformations.
9 Inverse Trigonometric Functions	I can construct analytical and graphical representations of the inverse of the sine, cosine, and tangent functions over a restricted domain.	• I can understand that restricted domain is necessary to find inverses of trigonometric functions. • I can evaluate the exact value of inverse trigonometric functions. • I can evaluate the value of inverse trigonometric functions using technology.
10 Trigonometric Equations and	I can solve equations and inequalities involving trigonometric functions.	• I can solve trigonometric equations on restricted and unrestricted domains. • I can solve trigonometric inequalities. • I can solve trigonometric equations and inequalities

Inequalities		arising from contextual scenarios and apply appropriate domain restrictions for those scenarios.
11 The Secant, Cosecant, and Cotangent Functions	I can identify key characteristics of functions that involve quotients of the sine and cosine functions.	• I can define secant, cosecant and cotangent functions. • I can graph secant, cosecant and cotangent functions. • I can find the domain and range of secant, cosecant and cotangent functions.
12 Equivalent Representations of Trigonometric Functions	I can rewrite trigonometric expressions in equivalent forms with the Pythagorean identity. I can rewrite trigonometric expressions in equivalent forms with sine and cosine sum identities. I can solve equations using equivalent analytic representations of trigonometric functions.	• I can use Pythagorean trigonometric identities to rewrite trigonometric expressions in equivalent forms. • I can use sum identities to rewrite trigonometric expressions in equivalent forms. • I can solve trigonometric equations and identities using trigonometric identities.
13 Trigonometry and Polar Coordinates	I can determine the location of a point in the plane using both rectangular and polar coordinates.	• I can plot points using polar coordinates • I can convert coordinates from polar to rectangular forms and vice versa. • I can represent complex numbers in a complex plane. • I can write complex numbers in trigonometric form.
14 Polar function Graphs	I can construct graphs of polar functions.	• I can create a table of input-output pairs of polar functions. • I can graph polar functions in the polar plane.
15 Rates of Change in Polar Functions	I can describe characteristics of the graph of a polar function.	• I can determine the intervals on which a polar function is positive and increasing or negative and decreasing and vice versa. • I can determine the intervals on which the distance between a polar function and the origin is increasing or decreasing. • I can find the relative extrema of a polar function. • I can find an average rate of change of r values over an interval of θ. • I can use the average rate of change of r with respect to θ to estimate values of the function on an interval.

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
Grade 7 Mathematics	Mathematics	Grade 7	

Course Description:

Students start grade 7 by studying scale drawings, an engaging geometric topic that supports the subsequent work on proportional relationships in the second and fourth units. It also makes use of grade 6 arithmetic understanding and skill, without arithmetic becoming the major focus of attention at this point. Geometry and proportional relationships are also interwoven in the third unit on circles, where the important proportional relationship between a circle's circumference and its diameter is studied. By the time students reach the fifth unit on operations with rational numbers, both positive and negative, students have had time to brush up on and solidify their understanding and skill in grade 6 arithmetic. The work on operations on rational numbers, with its emphasis on the role of the properties of operations in determining the rules for operating with negative numbers, is a natural lead-in to the work on expressions and equations in the next unit. Students then put their arithmetical and algebraic skills to work in the last two units, on angles, triangles, and prisms, and on probability and sampling.

Aligned Core Resources:	Connection to the *BPS Vision of the Graduate*
Kendall Hunt Illustrative Mathematics	Critical Thinking and Problem Solving Collect, assess and analyze relevant information • Reason effectively. Use systems thinking • Make sound judgments and decisions. Identify, define and solve authentic problems and essential questions. • Reflect critically on learning experience, processes and solutions • Transfer knowledge to other situations
Additional Course Information: ***Knowledge/Skill Dependent courses/prerequisites***	**Link to *Completed Equity Audit***

Standard Matrix

Standards	Aligned Lessons
7.EE.A	7.7.3
7.EE.A.1	7.6.18, 7.6.19, 7.6.20, 7.6.21, 7.6.22, 7.9.7
7.EE.A.2	7.6.12
7.EE.B	7.9.8
7.EE.B.3	7.3.11, 7.5.12, 7.5.17, 7.6.2, 7.6.3, 7.6.4, 7.6.5, 7.6.6, 7.6.11, 7.6.12
7.EE.B.4	7.5.15, 7.6.5, 7.6.9, 7.6.11, 7.6.12, 7.6.13, 7.6.15, 7.7.5, 7.9.3
7.EE.B.4.a	7.5.15, 7.5.16, 7.6.4, 7.6.5, 7.6.7, 7.6.8, 7.6.9, 7.6.10, 7.6.11, 7.6.12, 7.9.7
7.EE.B.4.b	7.6.14, 7.6.16, 7.6.17
7.G.A	7.3.2, 7.3.7, 7.7.1, 7.7.4, 7.7.9
7.G.A.1	7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7, 7.1.8, 7.1.9, 7.1.10, 7.1.11, 7.1.12, 7.1.13, 7.2.1, 7.3.6, 7.3.11,

	7.9.4, 7.9.13
7.G.A.2	7.3.2, 7.7.6, 7.7.7, 7.7.8, 7.7.9, 7.7.10, 7.7.17
7.G.A.3	7.7.11, 7.7.13
7.G.B	7.3.6, 7.3.7, 7.7.1, 7.7.2, 7.7.4, 7.7.15, 7.7.16, 7.9.6
7.G.B.4	7.3.3, 7.3.4, 7.3.5, 7.3.7, 7.3.8, 7.3.9, 7.3.10, 7.3.11, 7.9.4, 7.9.11, 7.9.12
7.G.B.5	7.7.2, 7.7.3, 7.7.4, 7.7.5
7.G.B.6	7.1.6, 7.2.8, 7.3.6, 7.7.12, 7.7.13, 7.7.14, 7.7.15, 7.7.16, 7.7.17, 7.9.4, 7.9.5, 7.9.9
7.NS.A	7.5.13
7.NS.A.1	7.5.1, 7.5.4, 7.5.6, 7.6.18, 7.7.6
7.NS.A.1.a	7.5.2, 7.5.3
7.NS.A.1.b	7.5.1, 7.5.2, 7.5.3
7.NS.A.1.c	7.5.1, 7.5.3, 7.5.5, 7.5.6, 7.5.7, 7.6.18
7.NS.A.1.d	7.5.3
7.NS.A.2	7.5.9, 7.5.11
7.NS.A.2.a	7.5.8, 7.5.9
7.NS.A.2.b	7.5.11
7.NS.A.2.c	7.5.9, 7.5.10
7.NS.A.2.d	7.4.5, 7.5.1, 7.8.16, 7.9.4
7.NS.A.3	7.5.7, 7.5.12, 7.5.13, 7.5.14, 7.5.15, 7.5.16, 7.5.17, 7.9.3, 7.9.6
7.RP.A	7.2.5, 7.2.9, 7.2.11, 7.2.14, 7.5.8, 7.7.16, 7.8.4, 7.8.7, 7.8.16, 7.8.20, 7.9.6, 7.9.10, 7.9.11, 7.9.12, 7.9.13
7.RP.A.1	7.2.8, 7.4.2, 7.4.3, 7.9.5
7.RP.A.2	7.2.2, 7.2.3, 7.2.4, 7.2.5, 7.2.6, 7.2.7, 7.2.8, 7.2.9, 7.2.10, 7.2.11, 7.2.12, 7.2.13, 7.2.14, 7.2.15, 7.3.3, 7.4.3, 7.4.4, 7.4.5, 7.5.9, 7.5.12, 7.5.14, 7.9.3, 7.9.5
7.RP.A.2.a	7.2.2, 7.2.3, 7.2.10, 7.3.1, 7.3.3, 7.3.5, 7.3.7
7.RP.A.2.b	7.2.2, 7.2.3, 7.2.5
7.RP.A.2.c	7.2.4, 7.2.5, 7.2.6, 7.3.5
7.RP.A.2.d	7.2.11
7.RP.A.3	7.3.5, 7.4.6, 7.4.7, 7.4.8, 7.4.9, 7.4.10, 7.4.11, 7.4.12, 7.4.13, 7.4.14, 7.4.15, 7.4.16, 7.9.1, 7.9.2, 7.9.3, 7.9.4, 7.9.6, 7.9.8, 7.9.13
7.SP.A	7.8.13, 7.8.16, 7.8.17, 7.8.20
7.SP.A.1	7.8.12, 7.8.13, 7.8.14, 7.8.15, 7.8.20
7.SP.A.2	7.8.13, 7.8.14, 7.8.15, 7.8.16, 7.8.17, 7.8.20
7.SP.B	7.8.11, 7.8.12

7.SP.B.3	7.8.11, 7.8.18
7.SP.B.4	7.8.15, 7.8.16, 7.8.18, 7.8.19, 7.8.20, 7.9.3
7.SP.C	7.8.6
7.SP.C.5	7.8.2, 7.8.3, 7.8.4, 7.8.5, 7.8.6
7.SP.C.6	7.8.1, 7.8.3, 7.8.4, 7.8.5, 7.8.6
7.SP.C.7	7.8.3, 7.8.4, 7.8.5, 7.8.14
7.SP.C.7.a	7.8.3, 7.8.20
7.SP.C.7.b	7.8.4, 7.8.5, 7.8.6
7.SP.C.8.a	7.8.9
7.SP.C.8.b	7.8.8, 7.8.9
7.SP.C.8.c	7.8.6, 7.8.7, 7.8.10

Unit Links

Unit 1: Scale Drawings
Unit 2: Introducing Proportional Relationships
Unit 3: Measuring Circles
Unit 4: Proportional Relationships and Percentages
Unit 5: Rational Number Arithmetic
Unit 6: Expressions, Equations, and Inequalities
Unit 7: Angles, Triangles, and Prisms
Unit 8: Probability and Sampling

Unit Title:

Unit 1: Scale Drawings

Relevant Standards: Bold indicates priority

Lesson	Standards
7.1.1	7.G.A.1
7.1.2	7.G.A.1, 7.RP.A.2
7.1.3	7.G.A.1, 7.RP.A.2
7.1.4	7.G.A.1
7.1.5	7.G.A.1, 7.RP.A.2
7.1.6	7.G.A.1, 7.G.B.4, 7.G.B.6, 7.RP.A.2.a
7.1.7	7.G.A.1
7.1.8	7.G.A.1, 7.RP.A, 7.RP.A.2.b
7.1.9	7.G.A.1
7.1.10	7.G.A.1, 7.G.B.6, 7.RP.A, 7.RP.A.3
7.1.11	7.G.A.1
7.1.12	7.G.A.1
7.1.13	7.G.A.1

Unit Narrative

In this unit, students learn to understand and use the terms “scaled copy,” “to scale,” “scale factor,” “scale drawing,” and “scale,” and recognize when two pictures or plane figures are or are not scaled copies of each other. They use tables to reason about measurements in scaled copies, and recognize that angle measures are preserved in scaled copies, but lengths are scaled by a scale factor and areas by the square of the scale factor. They make, interpret, and reason about scale drawings. These include maps and floor plans that have scales with and without units.

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 3 CFA 2: Lesson 7 CFA 3: Lesson 11 EoU: Assessment A	15 Days
Family Overview (link below)	**Integration of Technology:**
Scale Drawings	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning.*

Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Area, corresponding, reciprocal, scale, scale drawing, scale factor, scaled copy	• *DESMOS* • *Edulastic*
Connections to Prior Units:	**Connections to Future Units:**
Grade 6, Unit 2; Grade 6, Unit 6	Grade 8, Unit 2
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Representation: Illustrate through multiple media	Classroom materials are often dominated by information in text. But text is a weak format for presenting many concepts and for explicating most processes. Furthermore, text is a particularly weak form of presentation for learners who have text- or language-related disabilities. Providing alternatives—especially illustrations, simulations, images or interactive graphics—can make the information in text more comprehensible for any learner and accessible for some who would find it completely inaccessible in text. • Make explicit links between information provided in texts and any accompanying representation of that information in illustrations, equations, charts, or diagrams
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An EL can construct grade appropriate oral and written claims and support them with reasoning and evidence.	See Italicized Learning Targets/Success Criteria

Lesson Sequence	**Learning Target(s)**	**Success Criteria/ Assessment**
1	• I can create a scaled copy with a given scale factor. (Lessons 1-3) • I can make sense of corresponding distances and angles in scaled copies. (Lessons 4-6)	Lesson 1: What are Scaled Copies? • I can describe some characteristics of a scaled copy. • I can tell whether or not a figure is a scaled copy of another figure. Lesson 2: Corresponding Parts and Scale Factors • *I can describe what the scale factor has to do with a figure and its scaled copy.* • In a pair of figures, I can identify corresponding points, corresponding segments, and corresponding angles. Lesson 3: Making Scaled Copies • I can draw a scaled copy of a figure using a given scale factor. • *I know what operation to use on the side lengths of a figure to produce a scaled copy.*

		Lesson 4: Scaled Relationships ● I can use corresponding distances and corresponding angles to tell whether one figure is a scaled copy of another. ● *When I see a figure and its scaled copy, I can explain what is true about corresponding angles.* ● *When I see a figure and its scaled copy, I can explain what is true about corresponding distances.* Lesson 5: The Size of the Scale Factor ● *I can describe the effect on a scaled copy when I use a scale factor that is greater than 1, less than 1, or equal to 1.* ● *I can explain how the scale factor that takes Figure A to its copy Figure B is related to the scale factor that takes Figure B to Figure A.* Lesson 6: Scaling and Area ● *I can describe how the area of a scaled copy is related to the area of the original figure and the scale factor that was used.*
2	● I can use scale drawings to find actual distances and areas. (Lessons 7-8) ● I can calculate scale drawing distances using different scales (Lesson 9-10) ● I can express scales with and without units (Lesson 11-12)	Lesson 7: Scale Drawings ● *I can explain what a scale drawing is, and I can explain what its scale means.* ● I can use actual distances and a scale to find scaled distances. ● I can use a scale drawing and its scale to find actual distances. Lesson 8: Scale Drawings and Maps ● I can use a map and its scale to solve problems about traveling. Lesson 9: Creating Scale Drawings ● I can determine the scale of a scale drawing when I know lengths on the drawing and corresponding actual lengths. ● I know how different scales affect the lengths in the scale drawing. ● *When I know the actual measurements, I can create a scale drawing at a given scale.* Lesson 10: Changing Scales in Scale Drawings ● *Given a scale drawing, I can create another scale drawing that shows the same thing at a different scale.* ● I can use a scale drawing to find actual areas. Lesson 11: Scales without Units ● I can explain the meaning of scales expressed without units. ● I can use scales without units to find scaled distances or actual distances. Lesson 12: Units in Scale Drawings ● *I can tell whether two scales are equivalent.* ● *I can write scales with units as scales without units.*

3	• I can create a scale drawing of my classroom.	Lesson 13: Draw It to Scale • When given requirements on drawing size, I can choose an appropriate scale to represent an actual object.

Unit Title:

Unit 2: Introducing Proportional Relationships

Relevant Standards: Bold indicates priority

Lesson	Standards
7.2.1	7.G.A.1, 7.RP.A
7.2.2	7.RP.A.2, 7.RP.A.2.a, 7.RP.A.2.b
7.2.3	7.RP.A.2, 7.RP.A.2.a, 7.RP.A.2.b
7.2.4	7.RP.A.2, 7.RP.A.2.c
7.2.5	7.RP.A, 7.RP.A.2, 7.RP.A.2.b, 7.RP.A.2.c
7.2.6	7.RP.A.2, 7.RP.A.2.c
7.2.7	7.RP.A.1, 7.RP.A.2
7.2.8	7.G.B.6, 7.RP.A.1, 7.RP.A.2
7.2.9	7.RP.A, 7.RP.A.2
7.2.10	7.RP.A.2, 7.RP.A.2.a
7.2.11	7.RP.A, 7.RP.A.2, 7.RP.A.2.d
7.2.12	7.RP.A.1, 7.RP.A.2
7.2.13	7.EE.A, 7.RP.A.2
7.2.14	7.RP.A, 7.RP.A.2
7.2.15	7.RP.A.2

Unit Narrative:

In this unit, students learn to understand and use the terms “proportional,” “constant of proportionality,” and “proportional relationship,” and recognize when a relationship is or is not proportional. They represent proportional relationships with tables, equations, and graphs. Students use these terms and representations in reasoning about situations that involve constant speed, unit pricing, and measurement conversions.

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 3 + “what does it represent? For #3” CFA 2: Lesson 7 CFA 3: Lesson 11 EoU: Assessment A	18 Days
Family Overview (link below)	**Integration of Technology:**

Introducing Proportional Relationships	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Area, constant of proportionality, coordinate plane, corresponding, equivalent ratios, origin, proportional relationship, reciprocal, scale, scale drawing, scale factor, scaled copy,	• DESMOS • Edulastic
Connections to Prior Units:	**Connections to Future Units:**
Grade 6, Unit 3; Grade 6, Unit 6	Grade 7, Unit 3; Grade 7, Unit4
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Representation: Illustrate through multiple media	Classroom materials are often dominated by information in text. But text is a weak format for presenting many concepts and for explicating most processes. Furthermore, text is a particularly weak form of presentation for learners who have text- or language-related disabilities. Providing alternatives—especially illustrations, simulations, images or interactive graphics—can make the information in text more comprehensible for any learner and accessible for some who would find it completely inaccessible in text. • Make explicit links between information provided in texts and any accompanying representation of that information in illustrations, equations, charts, or diagrams
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An EL can construct grade appropriate oral and written claims and support them with reasoning and evidence.	See Italicized Learning Targets/Success Criteria

Lesson Sequence	**Learning Target**	**Success Criteria/ Assessment**
1	• I can make sense of representations showing equivalent ratios. (Lessons 1-3)	Lesson 1: One of These Things Is Not Like the Others • I can use equivalent ratios to describe scaled copies of shapes. • I know that two recipes will taste the same if the ingredients are in equivalent ratios. Lesson 2: Introducing Proportional Relationships with Tables • *I can use a table to reason about two quantities that are in a proportional relationship.* • I understand the terms proportional relationship and constant of proportionality.

		Lesson 3: More about Constant of Proportionality ● I can find missing information in a proportional relationship using a table. ● *I can find the constant of proportionality from information given in a table.*
2	● I can explain how equations can represent proportional relationships (Lesson 4 & 5) ● I can compare approaches to solving problems involving proportional relationships (Lesson 6)	Lesson 4: Proportional Relationships and Equations ● *I can write an equation of the form $y = kx$ to represent a proportional relationship described by a table or a story.* ● I can write the constant of proportionality as an entry in a table. Lesson 5: Two Equations for Each Relationship ● I can find two constants of proportionality for a proportional relationship. ● I can write two equations representing a proportional relationship described by a table or story. Lesson 6: Using Equations to Solve Problems ● I can find missing information in a proportional relationship using the constant of proportionality. ● *I can relate all parts of an equation like $y = kx$ to the situation it represents.*
3	● I can interpret situations involving proportional relationships (Lesson 7) ● I can compare proportional relationships with nonproportional relationships using tables and equations. (Lesson 8 & 9)	Lesson 7: Comparing Relationships with Tables ● *I can decide if a relationship represented by a table could be proportional and when it is definitely not proportional.* Lesson 8: Comparing Relationships with Equations ● *I can decide if a relationship represented by an equation is proportional or not.* Lesson 9: Solving Problems about Proportional Relationships ● *I can ask questions about a situation to determine whether two quantities are in a proportional relationship.* ● I can solve all kinds of problems involving proportional relationships.
4	● I can compare tables, descriptions, and graphs representing the same situations (Lesson 10) ● I can interpret how a graph represents features of a situation (Lesson 11) ● I can compare graphs of proportional relationships (Lesson 12) ● I can explain how a constant of proportionality is represented by graphs and tables (Lesson 13)	Lesson 10: Introducing Graphs of Proportional Relationships ● I know that the graph of a proportional relationship lies on a line through. Lesson 11: Interpreting Graphs of Proportional Relationships ● I can draw the graph of a proportional relationship given a single point on the graph (other than the origin). ● I can find the constant of proportionality from a graph. I understand the information given by graphs of proportional relationships that are made up of points or a line. Lesson 12: Using Graphs to Compare Relationships

		• *I can compare two, related proportional relationships based on their graphs.* • I know that the steeper graph of two proportional relationships has a larger constant of proportionality. Lesson 13: Two Graphs for Each Relationship • *I can interpret a graph of a proportional relationship using the situation.* • I can write an equation representing a proportional relationship from a graph.
5	• I can make connections between the graphs, tables, and equations of a proportional relationship. (Lessons 14 & 15)	Lesson 14: Four Representations • I can use units to help me understand information about proportional relationships. Lesson 15: Using Water Efficiently • *I can answer a question by representing a situation using proportional relationships.*

Unit Title:

Unit 3: Measuring Circles

Relevant Standards: Bold indicates priority

Lesson	Standards
7.3.1	7.G.B.4, 7.RP.A.2.a, 7.RP.A.3
7.3.2	7.G.A, 7.G.A.2, 7.G.B.4
7.3.3	7.G.B.4, 7.RP.A.2, 7.RP.A.2.a
7.3.4	7.G.B.4
7.3.5	7.G.B.4, 7.RP.A.2.a, 7.RP.A.2.c, 7.RP.A.3
7.3.6	7.G.A.1, 7.G.B, 7.G.B.6
7.3.7	7.G.A, 7.G.B, 7.G.B.4, 7.RP.A.2.a
7.3.8	7.G.B.4
7.3.9	7.G.B.4
7.3.10	7.G.B.4
7.3.11	7.EE.B.3, 7.G.A.1, 7.G.B.4

Unit Narrative:

In this unit, students learn to understand and use the term "circle" to mean the set of points that are equally distant from a point called the "center." They gain an understanding of why the circumference of a circle is proportional to its diameter, with constant of proportionality π. They see informal derivations of the fact that the area of a circle is equal to π times the square of its radius. Students use the relationships of circumference, radius, diameter, and area of a circle to find lengths and areas, expressing these in terms of π or using appropriate approximations to express them numerically.

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 3 CFA 2: Lesson 8/9 combo (add in "find the area ***and perimeter***") EoU: Assessment A	13 Days
Family Overview (link below)	**Integration of Technology:**
Measuring Circles	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**

Area, area of a circle, circle, circumference, constant of proportionality, coordinate plane, corresponding, diameter, equivalent ratios, origin, pi, proportional relationship, radius, reciprocal, scale, scale drawing, scale factor, scaled copy, squared	• DESMOS • Edulastic
Connections to Prior Units:	**Connections to Future Units:**
Grade 6, Unit 1	Grade 8, Unit 5
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Representation: Illustrate through multiple media	Classroom materials are often dominated by information in text. But text is a weak format for presenting many concepts and for explaining most processes. Furthermore, text is a particularly weak form of presentation for learners who have text- or language-related disabilities. Providing alternatives—especially illustrations, simulations, images or interactive graphics—can make the information in text more comprehensible for any learner and accessible for some who would find it completely inaccessible in text. • Make explicit links between information provided in texts and any accompanying representation of that information in illustrations, equations, charts, or diagrams
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An EL can construct grade appropriate oral and written claims and support them with reasoning and evidence.	See Italicized Learning Targets/Success Criteria

Lesson Sequence	**Learning Target**	**Success Criteria/Assessment**
1	I can explain the relationship between circumference, radius and diameter (Lesson 1-3) I can solve problems involving circumference, perimeter and rotations (Lesson 4 & 5)	Lesson 1: How Well Can You Measure? • I can examine quotients and use a graph to decide whether two associated quantities are in a proportional relationship. • *I understand that it can be difficult to measure the quantities in a proportional relationship accurately.* Lesson 2: Exploring Circles • *I can describe the characteristics that make a shape a circle.* • I can identify the diameter, center, radius, and circumference of a circle. Lesson 3: Exploring Circumference • *I can describe the relationship between circumference and diameter of any circle.* • *I can explain what π means.* Lesson 4: Applying Circumference

		• I can choose an approximation for π based on the situation or problem. • If I know the radius, diameter, or circumference of a circle, I can find the other two. Lesson 5: Circumference and Wheels • If I know the radius or diameter of a wheel, I can find the distance the wheel travels in some number of revolutions.
2	I can calculate the areas of circles using relationships between components of circles. (Lesson 6 - 8) I can justify reasoning about areas of curved figures (Lesson 9)	Lesson 6: Estimating Areas • I can calculate the area of a complicated shape by breaking it into shapes whose area I know how to calculate. Lesson 7: Exploring the Area of a Circle • If I know a circle's radius or diameter, I can find an approximation for its area. • *I know whether or not the relationship between the diameter and area of a circle is proportional and can explain how I know.* Lesson 8: Relating Area to Circumference • *I can explain how the area of a circle and its circumference are related to each other.* • I know the formula for area of a circle. Lesson 9: Applying Area of Circles • I can calculate the area of more complicated shapes that include fractions of circles. • I can write exact answers in terms of π.
3	I can identify and solve problems involving circumference and area formulas. (Lesson 10 -11)	Lesson 10: Distinguishing Circumference and Area • *I can decide whether a situation about a circle has to do with area or circumference.* • I can use formulas for circumference and area of a circle to solve problems. Lesson 11: Stained-Glass Windows • *I can apply my understanding of area and circumference of circles to solve more complicated problems.*

Unit Title:

Unit 4: Proportional Relationships and Percentages

Relevant Standards: Bold indicates priority

Lesson	Standards
7.4.1	7.RP.A, 7.RP.A.1, 7.RP.A.2.a
7.4.2	7.RP.A, 7.RP.A.1
7.4.3	7.RP.A.1, 7.RP.A.2
7.4.4	7.EE.A.1, 7.RP.A.2, 7.RP.A.3
7.4.5	7.NS.A.2.d, 7.RP.A.2, 7.RP.A.3
7.4.6	7.RP.A.3
7.4.7	7.RP.A.3
7.4.8	7.RP.A.3
7.4.9	7.RP.A.3
7.4.10	7.RP.A.3
7.4.11	7.RP.A.3
7.4.12	7.RP.A.3
7.4.13	7.RP.A.3
7.4.14	7.RP.A.3
7.4.15	7.RP.A.3
7.4.16	7.RP.A.3

Unit Narrative:

In this unit, students use ratios, scale factors, unit rates (also called constants of proportionality), and proportional relationships to solve multi-step, real-world problems that involve fractions and percentages. They use long division to write fractions presented in the form $\frac{a}{b}$ as decimals, e.g. $\frac{11}{35} = 0.3\overline{6},$. They learn to understand and use the terms “repeating decimal,” “terminating decimal,” “percent increase,” “percent decrease,” “percent error,” and “measurement error.” They represent amounts and corresponding percent rates with double number line diagrams and tables. They use these terms and representations in reasoning about situations involving sales taxes, tips, markdowns, markups, sales commissions, interest, depreciation, and scaling a picture. Students use equations to represent proportional relationships in which the constant of proportionality arises from a percentage, e.g., relationship between price paid and amount of sales tax paid.

Demonstration of Learning:	**Pacing for Unit**

CFA 1: Lesson 4 CFA 2: Lesson 8 CFA 3: Lesson 11 EoU: Assessment A	19 Days
Family Overview (link below)	**Integration of Technology:**
Proportional Relationships and Percentages	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Area, area of a circle, circle, circumference, constant of proportionality, coordinate plane, corresponding, diameter, equivalent ratios, long division, measurement error, origin, percent error, percentage, percentage, percentage decrease, percentage increases, pi, proportional relationship, radius, reciprocal, repeating decimal, scale, scale drawing, scaled copy, squared, tape diagram, unit rate	• DESMOS • Edulastic
Connections to Prior Units:	**Connections to Future Units:**
Grade 6, Unit 5	Gade 7, Unit 8
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Representation: Clarify syntax and structure	Single elements of meaning (like words or numbers) can be combined to make new meanings. Those new meanings, however, depend upon understanding the rules or structures (like syntax in a sentence or the properties of equations) of how those elements are combined. When the syntax of a sentence or the structure of a graphical representation is not obvious or familiar to learners, comprehension suffers. To ensure that all learners have equal access to information, provide alternative representations that clarify, or make more explicit, the syntactic or structural relationships between elements of meaning. • Clarify unfamiliar syntax (in language or in math formulas) or underlying structure (in diagrams, graphs, illustrations, extended expositions or narratives) through alternatives that: • Highlight structural relations or make them more explicit • Make connections to previously learned structures • Make relationships between elements explicit (e.g., highlighting the transition words in an essay, links between ideas in a concept map, etc.)
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An EL can construct grade appropriate oral and	See Italicized Learning Targets/Success Criteria

written claims and support them with reasoning and evidence.		
Lesson Sequence	**Learning Target**	**Success Criteria/Assessment**
1	I can explain how to solve concrete and abstract problems involving an amount plus (or minus) a fraction of that amount (Lesson 1-3) I can write and solve equations to represent percent change. (Lessons 4 & 5)	Lesson 1: Lots of Flags ● I can find dimensions on scaled copies of a rectangle. ● I remember how to compute percentages. Lesson 2: Ratios and Rates With Fractions ● I can solve problems about ratios of fractions and decimals. Lesson 3: Revisiting Proportional Relationships ● I can use a table with 2 rows and 2 columns to find an unknown value in a proportional relationship. ● *When there is a constant rate, I can identify the two quantities that are in a proportional relationship.* Lesson 4: Half as Much Again ● I can use the distributive property to rewrite an expression like $x + \frac{1}{2}x$ as $(1 + \frac{1}{2})x$. ● *I understand that "half as much again" and "multiply by $\frac{3}{2}$" mean the same thing.* Lesson 5: Say It with Decimals ● I can use the distributive property to rewrite an equation like $x + 0.5x = 1.5x$. ● *I can write fractions as decimals. I understand that "half as much again" and "multiply by 1.5" mean the same thing.*
2	I can explain how to solve percent change problems (Lesson 6) I can interpret and represent concrete problems involving percent increase and decrease (Lesson 7 & 8) I can explain strategies for solving percent problems with fractional percentages (Lesson 9)	Lesson 6: Increasing and Decreasing ● I can draw a tape diagram that represents a percent increase or decrease. ● When I know the starting amount and the percent increase or decrease, I can find the new amount. Lesson 7: One Hundred Percent ● I can use a double number line diagram to help me solve percent increase and decrease problems. ● *I understand that if I know how much a quantity has grown, then the original amount represents 100%.* ● When I know the new amount and the percentage of increase or decrease, I can find the original amount. Lesson 8: Percent Increase and Decrease with Equations ● *I can solve percent increase and decrease problems by writing an equation to represent the situation and solving it.* Lesson 9: More and Less than 1% ● I can find percentages of quantities like 12.5% and 0.4%. ● *I understand that to find 0.1% of an amount I have to multiply by 0.001.*
3	I can solve problems involving different real world elements of sales. (Lesson 10-12)	Lesson 10: Tax and Tip ● *I understand and can solve problems about sales tax and tip.* Lesson 11: Percentage Contexts ● *I understand and can solve problems about commission, interest, markups, and discounts.*

	I can explain strategies and solve concrete situations involving percent error (Lesson 13 - 15)	Lesson 12: Finding the Percentage ● I can find the percentage increase or decrease when I know the original amount and the new amount. Lesson 13: Measurement Error ● I can represent measurement error as a percentage of the correct measurement. ● *I understand that all measurements include some error.* Lesson 14: Percent Error ● I can solve problems that involve percent error. Lesson 15: Error Intervals ● I can find a range of possible values for a quantity if I know the maximum percent error and the correct value.
4	I can represent situations from the news involving percent change (Lesson 16)	Lesson 16: Posing Percentage Problems ● *I can write and solve problems about real-world situations that involve percent increase and decrease.*

Unit Title:

Unit 5: Rational Number Arithmetic

Relevant Standards: Bold indicates priority

Lesson	Standards
7.5.1	7.NS.A.1, 7.NS.A.1.b, 7.NS.A.1.c, 7.NS.A.2.d
7.5.2	7.NS.A.1, 7.NS.A.1.a, 7.NS.A.1.b
7.5.3	7.NS.A.1.a, 7.NS.A.1.b, 7.NS.A.1.c, 7.NS.A.1.d
7.5.4	7.NS.A.1
7.5.5	7.NS.A.1, 7.NS.A.1.c
7.5.6	7.NS.A.1, 7.NS.A.1.c
7.5.7	7.EE.B.4, 7.NS.A.1.c, 7.NS.A.3
7.5.8	7.NS.A.2.a, 7.RP.A
7.5.9	7.NS.A.2, 7.NS.A.2.a, 7.NS.A.2.c, 7.RP.A.2
7.5.10	7.EE.B, 7.NS.A.2.c
7.5.11	7.EE.B.4.a, 7.NS.A.2, 7.NS.A.2.b
7.5.12	7.EE.B.3, 7.NS.A.3, 7.RP.A.2
7.5.13	7.NS.A, 7.NS.A.3
7.5.14	7.EE.B.4.a, 7.NS.A.3, 7.RP.A.2
7.5.15	7.EE.B, 7.EE.B.4, 7.EE.B.4.a, 7.NS.A.3
7.5.16	7.EE.B.4.a, 7.NS.A.3
7.5.17	7.EE.B.3, 7.NS.A.3

Unit Narrative:

In this unit, students interpret signed numbers in contexts (e.g., temperature, elevation, deposit and withdrawal, position, direction, speed and velocity, percent change) together with their sums, differences, products, and quotients. ("Signed numbers" include all rational numbers, written as decimals or in the form $\frac{a}{b}$.) Students use tables and number line diagrams to represent sums and differences of signed numbers or changes in quantities represented by signed numbers such as temperature or elevation, becoming more fluent in writing different numerical addition and subtraction equations that express the same relationship. They compute sums and differences of signed numbers. They plot points in the plane with signed number coordinates, representing and interpreting sums and differences of coordinates. They view situations in which objects are traveling at constant speed (familiar from previous units) as proportional relationships. For these situations, students use multiplication equations to represent changes in position on number line diagrams or distance traveled, and interpret positive and negative velocities in context. They become more fluent in writing different numerical multiplication and division equations for the same relationship. Students extend their use of the "next to" notation (which they used in expressions such as $5x$ and $6(3 + 2)$ in grade 6) to include negative numbers and products of numbers, e.g.,

writing and rather than $(-5) \cdot (x)$ and $(-5 \cdot (-10)$. They extend their use of the fraction bar to include variables as well as numbers, writing $-8.5 \div x$ as well as $\frac{-8.5}{x}$.

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 3 CFA 2: Lesson 6 CFA 3: Lesson 12 CFA 4: Lesson 15 EoU: Version B	20 Days
Family Overview (link below)	**Integration of Technology:**
Rational Number Arithmetic	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Absolute value, area, area of a circle, circumference, constant of proportionality, coordinate plane, corresponding, deposit, diameter, equivalent ratios, long division, measurement error, negative number, origin, percent error, percentage, percentage decrease, percentage increase, pi, positive number, proportional relationship, radius, rational number, reciprocal, scale, scale drawing, scale factor, scaled copy, solution to an equation, squared, tape diagram, unit rate, variable, withdrawal	• DESMOS • Edulastic
Connections to Prior Units:	**Connections to Future Units:**
Grade 6, Unit 7	Grade 8, Unit 3
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Support decoding of text, mathematical notation, and symbols	The ability to fluently decode words, numbers or symbols that have been presented in an encoded format (e.g., visual symbols for text, haptic symbols for Braille, algebraic expressions for relationships) takes practice for any learner, but some learners will reach automaticity more quickly than others. Learners need consistent and meaningful exposure to symbols so that they can comprehend and use them effectively. • Allow for flexibility and easy access to multiple representations of notation where appropriate (e.g., formulas, word problems, graphs) • Offer clarification of notation through lists of key terms

Supporting Multilingual/English Learners		
Related *CELP standards:*		**Learning Targets:**
An EL can construct grade appropriate oral and written claims and support them with reasoning and evidence.		See Italicized Learning Targets/Success Criteria
Lesson Sequence	**Learning Target**	**Success Criteria/Assessment**
1	I can interpret situations involving signed numbers (Lesson 1)	Lesson 1: Interpreting Negative Numbers • I can compare rational numbers. • I can use rational numbers to describe temperature and elevation.
2	I can represent addition of signed numbers on a number line and interpret them in tables. (Lesson 2 & 3) I can interpret real world scenarios with signed numbers (Lesson 4) I can generalize about subtracting and adding signed numbers (Lesson 5) I can represent changes in elevation and generalize about differences and magnitude (Lesson 6 & 7)	Lesson 2: Changing Temperatures • I can use a number line to add positive and negative numbers. Lesson 3: Changing Elevation • I understand how to add positive and negative numbers in general. Lesson 4: Money and Debts • I understand what positive and negative numbers mean in a situation involving money. Lesson 5: Representing Subtraction • I can explain the relationship between addition and subtraction of rational numbers. • I can use a number line to subtract positive and negative numbers. Lesson 6: Subtracting Rational Numbers • I can find the difference between two rational numbers. • I understand how to subtract positive and negative numbers in general. Lesson 7: Adding and Subtracting to Solve Problems • I can solve problems that involve adding and subtracting rational numbers.
3	I can represent position, speed, and direction (Lesson 8) I can generalize about multiplying and dividing negative numbers (Lesson 9-12) I can represent situations involving signed numbers and negative rates (Lessons 12)	Lesson 8: Position, Speed, and Direction • I can multiply a positive number with a negative number. • I can use rational numbers to represent speed and direction. Lesson 9: Multiplying Rational Numbers • I can explain what it means when time is represented with a negative number in a situation about speed and direction. • I can multiply two negative numbers. Lesson 10: Multiply! • I can solve problems that involve multiplying rational numbers. Lesson 11: Dividing Rational Numbers • I can divide rational numbers. Lesson 12: Negative Rates

		• I can solve problems that involve multiplying and dividing rational numbers. • I can solve problems that involve negative rates.
4	I can solve problems using the four operations with rational numbers. (Lesson 13 & 14)	Lesson 13: Expressions with Rational Numbers • I can add, subtract, multiply, and divide rational numbers. • I can evaluate expressions that involve rational numbers. Lesson 14: Solving Problems with Rational Numbers • I can represent situations with expressions that include rational numbers.
5	I can generalize about additive and multiplicative inverses (Lesson 15) I can write and solve equations to represent situations that involve rational numbers. (Lesson 16)	Lesson 15: Solving Equations with Rational Numbers • I can solve equations that include rational numbers and have rational solutions. Lesson 16: Representing Contexts with Equations • I can explain what the solution to an equation means for the situation.
6	I can solve real world scenarios using rational numbers and percentages. (Lesson 17)	Lesson 17: The Stock Market • I can solve problems about the stock market using rational numbers and percentages.

Unit Title:

Unit 6: Expressions, Equations, and Inequalities

Relevant Standards: Bold indicates priority

Lesson	Standards
7.6.1	7.EE.B, 7.EE.B.4, 7.EE.B.4.a
7.6.2	7.EE.B.3, 7.EE.B.4
7.6.3	7.EE.B.3, 7.EE.B.4
7.6.4	7.EE.B.3, 7.EE.B.4.a
7.6.5	7.EE.B.3, 7.EE.B.4, 7.EE.B.4.a
7.6.6	7.EE.B.3, 7.EE.B.4.a
7.6.7	7.EE.B.4.a
7.6.8	7.EE.B.4.a
7.6.9	7.EE.B.4, 7.EE.B.4.a
7.6.10	7.EE.B.4.a
7.6.11	7.EE.B.3, 7.EE.B.4, 7.EE.B.4.a
7.6.12	7.EE.A.2, 7.EE.B.3, 7.EE.B.4, 7.EE.B.4.a
7.6.13	7.EE.B.4, 7.EE.B.4.b
7.6.14	7.EE.B.4.b
7.6.15	7.EE.B.4, 7.EE.B.4.b
7.6.16	7.EE.B.4.b
7.6.17	7.EE.B.4.b
7.6.18	7.EE.A.1, 7.NS.A.1, 7.NS.A.1.c
7.6.19	7.EE.A.1
7.6.20	7.EE.A.1
7.6.21	7.EE.A.1
7.6.22	7.EE.A.1

Unit Narrative:

In this unit, students solve equations of the forms $px + q = r$ and $p(x + q) = r$ where p, q, and r are rational numbers. They draw, interpret, and write equations in one variable for balanced "hanger diagrams," and write expressions for sequences of instructions, e.g., "number puzzles." They use tape diagrams together with equations to represent situations with one unknown quantity. They learn algebraic methods for solving equations. Students solve linear inequalities in one variable and represent their solutions on the number line. They understand and use the terms "less than or equal to" and "greater than or equal to," and the corresponding symbols. They generate expressions that are equivalent to a given numerical or linear expression. Students formulate and solve linear equations and inequalities that represent real-world situations.

Demonstration of Learning:	**Pacing for Unit**
• CFA 1: Lesson 4&5 combo • CFA 2: Lesson 10 • MOU: Version A • CFA 3: Lesson 16 • CFA 4: Lesson 21 • EoU: Version B	28 Days
Family Overview (link below)	**Integration of Technology:**
Expressions, Equations, and Inequalities	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Area, area of a circle, circle, circumference, constant of proportionality, coordinate plane, corresponding, deposit, diameter, equivalent expressions, equivalent ratios, expand, factor, long division, measurement error, negative number, origin, percent error, percentage, percentage decrease, percentage increase, pi, positive number, proportional relationship, radius, rational number, reciprocal, repeating decimal, scale, scale drawing, scaled copy, solution to an equation, solution to an inequality, squared, tape diagram, term, unit rate, variable, withdrawal	DESMOS Edulastic
Connections to Prior Units:	**Connections to Future Units:**
Grade 6, Unit 6	Grade 8, Unit 4
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Representation: Clarify vocabulary and symbols	The semantic elements through which information is presented—the words, symbols, numbers, and icons—are differentially accessible to learners with varying backgrounds, languages, and lexical knowledge. To ensure accessibility for all, key vocabulary, labels, icons, and symbols should be linked to, or associated with, alternate representations of their meaning (e.g., an embedded glossary or definition, a graphic equivalent, a chart or map). Idioms, archaic expressions, culturally exclusive phrases, and slang, should be translated. • Pre-teach vocabulary and symbols, especially in ways that promote connection to the learners' experience and prior knowledge • Provide graphic symbols with alternative text descriptions • Highlight how complex terms, expressions, or equations are composed of simpler words or

		symbols
Supporting Multilingual/English Learners		
Related *CELP standards:*		**Learning Targets:**
An EL can construct grade appropriate oral and written claims and support them with reasoning and evidence.		See Italicized Learning Targets/Success Criteria
Lesson Sequence	**Learning Target**	**Success Criteria/Assessment**
1	I can compare stories with corresponding tables and diagrams (Lesson 1 & 2) I can compare, draw and solve tape diagrams with corresponding equations (Lesson 3 - 5) When I have a situation or a tape diagram, I can represent it with an equation. (Lesson 6)	Lesson 1: Relationships between Quantities • I can think of ways to solve some more complicated word problems. Lesson 2: Reasoning about Contexts with Tape Diagrams • I can explain how a tape diagram represents parts of a situation and relationships between them. • I can use a tape diagram to find an unknown amount in a situation. Lesson 3: Reasoning about Equations with Tape Diagrams • I can match equations and tape diagrams that represent the same situation. • If I have an equation, I can draw a tape diagram that shows the same relationship. Lesson 4: Reasoning about Equations and Tape Diagrams (Part 1) • I can draw a tape diagram to represent a situation where there is a known amount and several copies of an unknown amount and explain what the parts of the diagram represent. • I can find a solution to an equation by reasoning about a tape diagram or about what value would make the equation true. Lesson 5: Reasoning about Equations and Tape Diagrams (Part 2) • I can draw a tape diagram to represent a situation where there is more than one copy of the same sum and explain what the parts of the diagram represent. • I can find a solution to an equation by reasoning about a tape diagram or about what value would make the equation true. Lesson 6: Distinguishing between Two Types of Situations • I understand the similarities and differences between the two main types of equations we are studying in this unit.
2	I can compare and explain strategies for hanger diagrams and equations (Lesson 7)	Lesson 7: Reasoning about Solving Equations (Part 1) • I can explain how a balanced hanger and an equation represent the same situation. • I can find an unknown weight on a hanger diagram and solve an equation that represents the diagram.

	I can explain strategies for using hanger diagrams to solve equations (Lesson 8) I can explain different strategies and pathways for solving equations (Lesson 9 & 10) I can explain reasoning about situations, tape diagrams, and equations (Lesson 11 & 12)	• I can write an equation that describes the weights on a balanced hanger. Lesson 8: Reasoning about Solving Equations (Part 2) • I can explain how a balanced hanger and an equation represent the same situation. • I can explain why some balanced hangers can be described by two different equations, one with parentheses and one without. • I can find an unknown weight on a hanger diagram and solve an equation that represents the diagram. • I can write an equation that describes the weights on a balanced hanger. Lesson 9: Dealing with Negative Numbers • I can use the idea of doing the same to each side to solve equations that have negative numbers or solutions. Lesson 10: Different Options for Solving One Equation • For an equation like $3(x + 2) = 15$, I can solve it in two different ways: by first dividing each side by 3, or by first rewriting $3(x + 2)$ using the distributive property. • For equations with more than one way to solve, I can choose the easier way depending on the numbers in the equation. Lesson 11: Using Equations to Solve Problems • I can solve story problems by drawing and reasoning about a tape diagram or by writing and solving an equation. Lesson 12: Solving Problems about Percent Increase or Decrease • I can solve story problems about percent increase or decrease by drawing and reasoning about a tape diagram or by writing and solving an equation.
3	I can write and reason about inequalities (Lesson 13 & 14) I can justify reasoning about solutions to inequalities (Lesson 15) I can compare descriptions of situations with corresponding inequalities (Lesson 16) I can justify the need for specific information in order to write and solve inequalities (Lesson 17)	Lesson 13: Reintroducing Inequalities • I can explain what the symbols ≤ and ≥ mean. • I can represent an inequality on a number line. • I understand what it means for a number to make an inequality true. Lesson 14: Finding Solutions to Inequalities in Context • I can describe the solutions to an inequality by solving a related equation and then reasoning about values that make the inequality true. • I can write an inequality to represent a situation. Lesson 15: Efficiently Solving Inequalities • I can graph the solutions to an inequality on a number line. • I can solve inequalities by solving a related equation and then checking which values are solutions to the original inequality. Lesson 16: Interpreting Inequalities • I can match an inequality to a situation it represents, solve it, and then explain what the solution means in the situation. • If I have a situation and an inequality that represents it, I can explain what the parts of the inequality mean in the situation.

		Lesson 17: Modeling with Inequalities ● I can use what I know about inequalities to solve real-world problems.
4	I can explain strategies for identifying and writing equivalent expressions (Lesson 18 - 22)	Lesson 18: Subtraction in Equivalent Expressions ● I can organize my work when I use the distributive property. ● I can re-write subtraction as adding the opposite and then rearrange terms in an expression. Lesson 19: Expanding and Factoring ● I can organize my work when I use the distributive property. ● I can use the distributive property to rewrite expressions with positive and negative numbers. ● I understand that factoring and expanding are words used to describe using the distributive property to write equivalent expressions. Lesson 20: Combining Like Terms (Part 1) ● I can figure out whether two expressions are equivalent to each other. ● When possible, I can write an equivalent expression that has fewer terms. Lesson 21: Combining Like Terms (Part 2) ● I am aware of some common pitfalls when writing equivalent expressions, and I can avoid them. ● When possible, I can write an equivalent expression that has fewer terms. Lesson 22: Combining Like Terms (Part 3) ● Given an expression, I can use various strategies to write an equivalent expression. ● When I look at an expression, I can notice if some parts have common factors and make the expression shorter by combining those parts.
5	I can justify whether different sequences of calculations give the same result. (Lesson 23)	Lesson 23: Applications of Expressions ● I can write algebraic expressions to understand and justify a choice between two options.

Unit Title:

Unit 7: Angles, Triangles, and Prisms

Relevant Standards: Bold indicates priority

Lesson	Standards
7.7.2	7.G.B, 7.G.B.5
7.7.3	7.EE.A, 7.G.B.5
7.7.4	7.G.A, 7.G.B, 7.G.B.5
7.7.5	7.EE.B.4, 7.G.B.5
7.7.6	7.G.A.2, 7.NS.A.1
7.7.7	7.G.A.2
7.7.8	7.G.A.2
7.7.9	7.G.A, 7.G.A.2
7.7.10	7.G.A.2
7.7.11	7.G.A.3, 7.G.B.6
7.7.12	7.G.B.6
7.7.13	7.G.A.3, 7.G.B.6
7.7.14	7.G.B.6
7.7.15	7.G.B, 7.G.B.6
7.7.16	7.G.B, 7.G.B.6, 7.RP.A
7.7.17	7.G.A.2, 7.G.B.6

Unit Narrative:

In this unit, students investigate whether sets of angle and side length measurements determine unique triangles or multiple triangles, or fail to determine triangles. Students also study and apply angle relationships, learning to understand and use the terms “complementary,” “supplementary,” “vertical angles,” and “unique.” The work gives them practice working with rational numbers and equations for angle relationships. Students analyze and describe cross-sections of prisms, pyramids, and polyhedra. They understand and use the formula for the volume of a right rectangular prism, and solve problems involving area, surface area, and volume.

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 2 CFA 2: Lesson 5 CFA 3: Lesson 9 CFA 4: Lesson 16 EoU: Version A	20 Days
Family Overview (link below)	**Integration of Technology:**
Angles, Triangles and Prisms	*Intentionally aligned use of digital tools and resources to*

	support acquisition of content, researching, organizing and communicating learning
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Absolute value, adjacent angles, area, base, circle, circumference, complementary, constant of proportionality, coordinate plane, corresponding, cross section, deposit, diameter, equivalent expressions, equivalent ratios, expand, factor, long division, measurement error, negative number, origin, percent error, percentage, percentage decrease, percentage increase, pi, positive number, prism, proportional relationship, pyramid, radius, rational number, reciprocal, repeating decimal, right triangle, scale, scale drawing, scale factor, scaled copy, solution to an equation, solution to an inequality, squared, straight angle, supplementary, tape diagram, term, unit rate, variable, vertical angles, volume, withdrawal	DESMOS Edulastic
Connections to Prior Units:	**Connections to Future Units:**
Grade 6, Unit 1	Grade 8, Unit 5
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Representation: Highlight patterns, critical features, big ideas, and relationships	One of the big differences between experts and novices in any domain is the facility with which they distinguish what is critical from what is unimportant or irrelevant. Since experts quickly recognize the most important features in information, they allocate their time efficiently, quickly identifying what is valuable and finding the right "hooks" with which to assimilate the most valuable information into existing knowledge. As a consequence, one of the most effective ways to make information more accessible is to provide explicit cues or prompts that assist individuals in attending to those features that matter most while avoiding those that matter least. • Highlight or emphasize key elements in text, graphics, diagrams, formulas • Use outlines, graphic organizers, unit organizer routines, concept organizer routines, and concept mastery routines to emphasize key ideas and relationships • Use multiple examples and non-examples to emphasize critical features • Use cues and prompts to draw attention to critical features • Highlight previously learned skills that can be used to solve unfamiliar problems
Supporting Multilingual/English Learners	

Related *CELP standards:*		**Learning Targets:**
An EL can construct grade appropriate oral and written claims and support them with reasoning and evidence.		See Italicized Learning Targets/Success Criteria
Lesson Sequence	**Learning Target**	**Success Criteria/Assessment**
1	I can critique reasoning about measuring angles. (Lesson 1) I can explain how to measure angles. (Lesson 2) I can interpret situations involving intersecting lines in order to form a conjecture. (Lesson 3) I can interpret and explain which information is relevant to find unknown angle measurements. (Lessons 4 & 5) I can interpret and solve equations representing angle measurements. (Lesson 5)	Lesson 1: Relationships of Angles • I can find unknown angle measures by reasoning about adjacent angles with known measures. • I can recognize when an angle measures 90°, 180°, or 360°. Lesson 2: Adjacent Angles • I can find unknown angle measures by reasoning about complementary or supplementary angles. • I can recognize when adjacent angles are complementary or supplementary. Lesson 3: Nonadjacent Angles • I can determine if angles that are not adjacent are complementary or supplementary. • I can explain what vertical angles are in my own words. Lesson 4: Solving for Unknown Angles • I can reason through multiple steps to find unknown angle measures. • I can recognize when an equation represents a relationship between angle measures. Lesson 5: Using Equations to Solve for Unknown Angles • I can write an equation to represent a relationship between angle measures and solve the equation to find unknown angle measures.
2	I can determine whether or not *shapes* are identical copies (Lesson 6) I can show whether or not 3 side lengths will make a triangle (Lesson 7 & 8) I can justify whether or not *measurements* determine identical copies (Lesson 9) I can justify whether or not measurements determine unique triangles (Lesson 10)	Lesson 6: Building Polygons (Part 1) • I can show that the 3 side lengths that form a triangle cannot be rearranged to form a different triangle. • I can show that the 4 side lengths that form a quadrilateral can be rearranged to form different quadrilaterals. Lesson 7: Building Polygons (Part 2) • I can reason about a figure with an unknown angle. Lesson 8: Triangles with 3 Common Measures • I understand that changing which sides and angles are next to each other can make different triangles. Lesson 9: Drawing Triangles (Part 1) • Given two angle measures and one side length, I can draw different triangles with these measurements or show that these measurements determine one unique triangle or no triangle. Lesson 10: Drawing Triangles (Part 2) • Given two side lengths and one angle measure, I can draw different triangles with these measurements or show that these measurements determine one unique triangle or no triangle.

3	I can correctly identify a cross section of any three dimensional figure (Lesson 11) I can explain how to find the volume of prisms (Lessons 12) I can critique reasoning about decomposition of prisms (Lesson 13) I can explain and critique how to find the surface area of prisms (Lesson 14) I can interpret situations involving volume and surface area (Lesson 15 and 16)	Lesson 11: Slicing Solids ● I can explain that when a three dimensional figure is sliced it creates a face that is two dimensional. ● I can picture different cross sections of prisms and pyramids. Lesson 12: Volume of Right Prisms ● I can explain why the volume of a prism can be found by multiplying the area of the base and the height of the prism. Lesson 13: Decomposing Bases for Area ● I can calculate the volume of a prism with a complicated base by decomposing the base into quadrilaterals or triangles. Lesson 14: Surface Area of Right Prisms ● I can find and use shortcuts when calculating the surface area of a prism. ● I can picture the net of a prism to help me calculate its surface area. Lesson 15: Distinguishing Volume and Surface Area ● I can decide whether I need to find the surface area or volume when solving a problem about a real-world situation. Lesson 16: Applying Volume and Surface Area ● I can solve problems involving the volume and surface area of children's play structures.	
4	I can build a triangular prism from scratch.	Lesson 17: Building Prisms ● I can draw and assemble a net of a triangular prism, given two side lengths of the prism's base and one angle measure.	

Unit Title:

Unit 8: Probability and Sampling

Relevant Standards: Bold indicates priority

Lesson	Standards
7.8.1	7.SP.C.6
7.8.2	7.SP.C.5
7.8.3	7.SP.C.5, 7.SP.C.6, 7.SP.C.7, 7.SP.C.7.a
7.8.4	7.RP.A, 7.SP.C.5, 7.SP.C.6, 7.SP.C.7, 7.SP.C.7.b
7.8.5	7.SP.C.5, 7.SP.C.6, 7.SP.C.7, 7.SP.C.7.b
7.8.6	7.SP.C, 7.SP.C.5, 7.SP.C.6, 7.SP.C.7.b, 7.SP.C.8.c
7.8.7	7.RP.A, 7.SP.C.8.c
7.8.8	7.SP.C.8.b
7.8.9	7.SP.C.8.a, 7.SP.C.8.b
7.8.10	7.SP.C.8.c
7.8.11	7.SP.B, 7.SP.B.3
7.8.12	7.SP.A.1, 7.SP.B
7.8.13	7.SP.A, 7.SP.A.1, 7.SP.A.2
7.8.14	7.SP.A.1, 7.SP.A.2, 7.SP.C.7
7.8.15	7.SP.A.1, 7.SP.A.2, 7.SP.B.4
7.8.16	7.NS.A.2.d, 7.RP.A, 7.SP.A, 7.SP.A.1, 7.SP.A.2, 7.SP.B.4
7.8.17	7.SP.A, 7.SP.A.2
7.8.18	7.SP.B, 7.SP.B.3, 7.SP.B.4
7.8.19	7.SP.B.4
7.8.20	7.RP.A, 7.SP.A, 7.SP.A.1, 7.SP.A.2, 7.SP.B.4, 7.SP.C.7.a

Unit Narrative:

In this unit, students understand and use the terms “event,” “sample space,” “outcome,” “chance experiment,” “probability,” “simulation,” “random,” “sample,” “random sample,” “representative sample,” “overrepresented,” “underrepresented,” “population,” and “proportion.” They design and use simulations to estimate probabilities of outcomes of chance experiments and understand the probability of an outcome as its long-run relative frequency. They represent sample spaces (that is, all possible outcomes of a chance experiment) in tables and tree diagrams and as lists. They calculate the number of outcomes in a given sample space to find the probability of a given event. They consider the strengths and weaknesses of different methods for obtaining a representative sample from a given population. They generate samples from a given population, e.g., by drawing numbered papers from a bag

and recording the numbers, and examine the distributions of the samples, comparing these to the distribution of the population. They compare two populations by comparing samples from each population.	
Demonstration of Learning:	**Pacing for Unit**
CFA 1: CGA 2: CFA 3: MoU: EoU:	18 Days
Family Overview (link below)	**Integration of Technology:**
Probability and Sampling	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Absolute value, adjacent angles, area, area of a circle, base, chance experiment, circle, circumference, complementary, constant of proportionality, coordinate plane, corresponding, cross section, deposit, diameter, equivalent expressions, equivalent ratios, event, expand, factor, interquartile range, long division, mean, measurement error, median, negative number, origin, outcome, percent error, percentage, percentage decrease, percentage increase, pi, population, positive number, prism, probability, proportional relationship, pyramid, radius, random, rational number, reciprocal, repeating decimal, representative, right angle, sample, sample space, scale drawing, scale factor, scaled copy, simulation, solution to an equation, solution to an inequality, squared, straight angle, supplementary, surface area, tape diagram, term, unit rate, variable, vertical angles, volume, withdrawal	Edulastic DESMOS
Connections to Prior Units:	**Connections to Future Units:**
Grade 6, Unit 8	Grade 8, Unit 6
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Representation: Highlight patterns, critical features, big ideas, and relationships	• Highlight or emphasize key elements in text, graphics, diagrams, formulas • Use outlines, graphic organizers, unit organizer routines, concept organizer routines, and concept mastery routines to emphasize key ideas and relationships • Use multiple examples and non-examples to emphasize

		critical features • Use cues and prompts to draw attention to critical features • Highlight previously learned skills that can be used to solve unfamiliar problems
Supporting Multilingual/English Learners		
Related *CELP standards:*		**Learning Targets:**
An EL can construct grade appropriate oral and written claims and support them with reasoning and evidence.		See Italicized Learning Targets/Success Criteria
Lesson Sequence	**Learning Target**	**Success Criteria/ Assessment**
1	*I can describe observations and predictions during a game (Lesson 1)* *I can explain predictions (Lesson 2)* *I can explain how to determine which events are more likely (Lesson 3)* *I can describe patterns observed in repeated experiments (Lesson 4)* *I can justify whether situations are surprising and possible (Lesson 4)* *I can explain possible differences in experimental and theoretical probability (Lesson 5)* *I can compare sample spaces and probably of outcomes for different spinners (Lesson 5)* *I can describe chance experiments to model situations (Lessons 6 and 7)*	Lesson 1: Mystery Bags • I can get an idea for the likelihood of an event by using results from previous experiments. Lesson 2: Chance Experiments • I can describe the likelihood of events using the words impossible, unlikely, equally likely as not, likely, or certain. • I can tell which event is more likely when the chances of different events are expressed as fractions, decimals, or percentages. Lesson 3: What Are Probabilities? • I can use the sample space to calculate the probability of an event when all outcomes are equally likely. • I can write out the sample space for a simple chance experiment. Lesson 4: Estimating Probabilities Through Repeated Experiments • I can estimate the probability of an event based on the results from repeating an experiment. • I can explain whether certain results from repeated experiments would be surprising or not. Lesson 5: More Estimating Probabilities • I can calculate the probability of an event when the outcomes in the sample space are not equally likely. • I can explain why results from repeating an experiment may not exactly match the expected probability for an event. Lesson 6: Estimating Probabilities Using Simulation • I can simulate a real-world situation using a simple experiment that reflects the probability of the actual event.
2	*I can describe chance experiments to model situations (Lessons 6 and 7)* *I can explain how to use simulations to estimate probability (Lesson 7)*	Lesson 7: Simulating Multi-step Experiments • I can use a simulation to estimate the probability of a multi-step event. Lesson 8: Keeping Track of All Possible Outcomes • I can write out the sample space for a multi-step experiment, using a list, table, or tree diagram. Lesson 9: Multi-step Experiments

	I can compare methods for writing sample spaces (Lesson 8) *I can describe a simulation used to model a situation (Lesson 10)* *I can explain how to use a simulation to answer questions about the situation (Lesson 10)*	• I can use the sample space to calculate the probability of an event in a multi-step experiment. Lesson 10: Designing Simulations • I can design a simulation to estimate the probability of a multi-step real-world situation.
3	I can describe observations about data sets (Lessons 11 and 17) I can compare heights of two groups (Lesson 11) I can justify which samples are or are not representative of a larger population (Lesson 13) I can compare measures of center with samples (Lesson 13) I can compare sampling methods (Lesson 14)	Lesson 11: Comparing Groups • I can calculate the difference between two means as a multiple of the mean absolute deviation. • When looking at a pair of dot plots, I can determine whether the distributions are very different or have a lot of overlap. Lesson 12: Larger Populations • I can explain why it may be useful to gather data on a sample of a population. • When I read or hear a statistical question, I can name the population of interest and give an example of a sample for that population. Lesson 13: What Makes a Good Sample? • I can determine whether a sample is representative of a population by considering the shape, center, and spread of each of them. • I know that some samples may represent the population better than others. • I remember that when a distribution is not symmetric, the median is a better estimate of a typical value than the mean. Lesson 14: Sampling in a Fair Way • I can describe ways to get a random sample from a population. • I know that selecting a sample at random is usually a good way to get a representative sample
4	I can describe observations about data sets (Lessons 11 and 17) I can justify which samples correspond with each show, which show is most appropriate for a commercial, and whether a movie is eligible for an award (Lesson 15) I can justify reasoning about samples and populations (Lesson 16) I can justify whether or not differences between samples are meaningful (Lesson 18, 19, and	Lesson 15: Estimating Population Measures of Center • I can consider the variability of a sample to get an idea for how accurate my estimate is. • I can estimate the mean or median of a population based on a sample of the population. Lesson 16: Estimating Population Proportions • I can estimate the proportion of population data that are in a certain category based on a sample. Lesson 17: More about Sampling Variability • I can use the means from many samples to judge how accurate an estimate for the population mean is. • I know that as the sample size gets bigger, the sample mean is more likely to be close to the population mean. Lesson 18: Comparing Populations Using Samples • I can calculate the difference between two medians as a multiple of the interquartile range. • I can determine whether there is a meaningful difference between two populations based on a sample

	20) I can compare populations based on samples (Lessons 18 and 20)	from each population. Lesson 19: Comparing Populations With Friends • I can decide what information I need to know to be able to compare two populations based on a sample from each.
5	*I can justify whether or not differences between samples are meaningful (Lesson 18, 19, and 20)* *I can compare populations based on samples (Lessons 18 and 20)*	Lesson 20: Memory Test • I can compare two groups by taking a random sample, calculating important measures, and determining whether the populations are meaningfully different.

Course Assessment Map

Edulastic Links to be Added at a later time

Unit	Assessment 1	Assessment 2	Assessment 3	Assessment 4	Assessment 5	Assessment 6
Unit 1-Scale Drawings	CFA 1 (L3)	CFA 2 (L7)	CFA 3 (L11)	EOU (A)		
Unit 2-Introducing Proportional Relationships	CFA 1 (L3)	CFA 2 (L7)	CFA 3 (L11)	EOU (A)		
Unit 3-Measuring Circles	CFA 1 (L3)	CFA 2 (L8/9)	EOU (A)			
Unit 4-Proportional relationships and Percentages	CFA 1 (L4)	CFA 2 (L8)	CFA 3 (L11)	EOU (A)		
Unit 5-Rational Number Arithmetic	CFA 1 (L3)	CFA 2 (L6)	CFA 3 (L12)	CFA 4 (L15)	EOU (B)	
Unit 6-Expressions, Equations, and Inequalities	CFA 1 (L4/5)	CFA 2 (10)	MOU (A)	CFA 3 (L16)	CFA 4 (l21)	EOU (B)
Unit 7-Angles, Triangles and Prisms	CFA 1 (L2)	CFA 2 (L5)	CFA 3 (L9)	CFA 4 (L16)	EOU (A)	
Unit 8-Probability and Sampling						

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
ACC Grade 7 Mathematics: Bridge to Algebra	Mathematics	7	

Course Description:

This accelerated mathematics course blends the priority content of grades 7 and 8 into one course. The Bridge course is aligned with the College and Career Ready Standards for seventh grade and eighth grade. In this course students develop a coherent understanding of grade level major works and build fluency with the real number system focusing on rational numbers. Students use linear equations to analyze, represent, and solve problems related to data distributions. They apply knowledge from previous mathematics courses to work in preparation for concepts that will begin in Algebra 1. Application is emphasized.

Aligned Core Resources:	Connection to the *BPS Vision of the Graduate*
Kendall Hunt Illustrative Mathematics Workbook	CRITICAL THINKING AND PROBLEM SOLVING • Collect, assess and analyze relevant information • Reason effectively. Use systems thinking • Make sound judgments and decisions. Identify, define and solve authentic problems and essential questions. • Reflect critically on learning experience, processes and solutions. • Transfer knowledge to other situations.
Additional Course Information: ***Knowledge/Skill Dependent courses/prerequisites***	**Link to *Completed Equity Audit***

Standard Matrix

Aligned Lessons	Standards
Acc6.5.9, Acc6.7.15, Acc6.7.19	7.EE.A
Acc6.6.1, Acc7.4.7, Acc7.4.8, Acc7.4.9,Acc7.4.10, Acc7.4.11	7.EE.A.1
Acc7.3.12	7.EE.A.2
Acc7.3.1, Acc6.7.14, Acc6.7.19	7.EE.B
Acc6.5.20, Acc6.7.17, Acc6.7.22, Acc7.3.2,Acc7.3.3, Acc7.3.4, Acc7.3.5Acc7.3.6, Acc7.3.11, Acc7.3.12	7.EE.B.3
Acc6.7.19, Acc6.7.20. Acc7.3.1,Acc7.3.2, Acc7.3.3,Acc7.3.5,Acc7.3.9, Acc7.3.11, Acc7.3.12, Acc7.3.13, Acc7.4.5	7.EE.B.4
Acc6.7.16,Acc6.7.19,Acc6.7.20, Acc7.3.1, Acc7.3.4Acc7.3.5, Acc7.3.6, Acc7.3.7, Acc7.3.8, Acc7.3.9, Acc7.3.10, Acc7.3.11, Acc7.3.12	7.EE.B.4.a
Acc7.4.4, Acc7.4.5, Acc7.4.6	7.EE.B.4.b
Acc7.8.11	8.EE.A

Acc7.8.1, Acc7.8.2, Acc7.8.3,Acc7.8.4, Acc7.8.8, Acc7.8.10	8.EE.A.2
Acc7.5.1, Acc7.5.3, Acc7.5.4, Acc7.5.5,Acc7.5.6, Acc7.5.7, Acc7.5.8, Acc7.5.9, Acc7.5.10	8.EE.B
Acc7.5.1, Acc7.5.3, Acc7.5.5	8.EE.B.5
Acc7.2.15, Acc7.2.16, Acc7.2.17, Acc7.5.6Acc7.5.9, Acc7.5.25	8.EE.B.6
Acc7.4.12, Acc7.4.13, Acc7.4.17, Acc7.5.10Acc7.5.11,	8.EE.C
Acc7.4.12, Acc7.4.13, Acc7.4.14, Acc7.4.17	8.EE.C.7
Acc7.4.15, Acc7.4.16	8.EE.C.7.a
Acc7.4.14	8.EE.C.7.b
Acc7.4.17,Acc7.5.11, Acc7.5.12, Acc7.5.13,Acc7.5.14, Acc7.5.15,Acc7.5.16	8.EE.C.8
Acc7.5.11, Acc7.5.13, Acc7.5.14, Acc7.5.25	8.EE.C.8.a
Acc7.5.13Acc7.5.16,	8.EE.C.8.b
Acc7.5.16, Acc7.5.26	8.EE.C.8.c
Acc6.5.14, Acc6.5.20, Acc7.2.1, Acc7.2.2, Acc7.2.3, Acc7.2.4, Acc7.2.5, Acc7.2.6, Acc7.2.7, Acc7.2.18	7.G.A.1
Acc7.6.26, Acc6.5.11	7.G.A.2
Acc7.6.11, Acc7.6.15	7.G.A.3
Acc6.5.14, Acc7.6.17	7.G.B
Acc6.5.10	7.G.B.4
Acc6.5.10	7.G.B.4
Acc6.5.10, Acc6.5.12, Acc6.5.15,, Acc6.5.19, Acc6.5.20	7.G.B.4
Acc7.3.13, Acc7.Acc7.2.61.12	7.G.B.5
Acc6.5.5, Acc6.5.14, Acc7.6.11, Acc7.6.14, Acc7.6.15, Acc7.6.16, Acc7.6.17Acc7.6.26,	7.G.B.6
Acc7.1.18, Acc7.2.8, Acc7.2.9, Acc7.2.10, Acc7.2.16,Acc7.2.17	8.G.A
Acc7.1.1, Acc7.1.2, Acc7.1.3, Acc7.1.5, Acc7.1.10, Acc7.1.12, Acc7.2.13, Acc7.5.7	8.G.A.1
Acc7.1.6, Acc7.1.7, Acc7.1.8, Acc7.1.9,Acc7.1.11	8.G.A.1.a
Acc7.1.6, Acc7.1.7, Acc7.1.8, Acc7.1.9	8.G.A.1.b
Acc7.1.7, Acc7.1.8	8.G.A.1.c
Acc7.1.10, Acc7.1.11, Acc7.1.13, Acc7.2.11,Acc7.2.12	8.G.A.2
Acc7.1.4, Acc7.1.5, Acc7.2.10,Acc7.2.17	8.G.A.3
Acc7.2.11, Acc7.2.12, Acc7.2.19	8.G.A.4
Acc7.1.12, Acc7.1.13, Acc7.1.14, Acc7.2.13Acc7.2.19,	8.G.A.5
Acc7.8.1, Acc7.8.5Acc7.8.7,	8.G.B
Acc7.1.14, Acc7.8.1,Acc7.8.5, Acc7.8.6, Acc7.8.7	8.G.B.6
Acc7.8.5, Acc7.8.6, Acc7.8.8, Acc7.8.13	8.G.B.7
Acc7.8.9	8.G.B.8

Acc7.6.12, Acc7.6.13Acc7.6.21, Acc7.6.23, Acc7.6.24	8.G.C
Acc7.6.18, Acc7.6.19, Acc7.6.20, Acc7.6.21, Acc7.6.22, Acc7.6.23, Acc7.6.24, Acc7.6.25,	8.G.C.9
Acc6.7.18	7.NS.A
Acc6.7.6, Acc6.7.8, Acc6.7.9, Acc6.7.10	7.NS.A.1,,
Acc6.7.6, Acc6.7.7	7.NS.A.1.a
Acc6.7.6,Acc6.7.7	7.NS.A.1.b
Acc6.7.7, Acc6.7.9, Acc6.7.10	7.NS.A.1.c,
Acc6.7.7	7.NS.A.1.d
Acc6.7.14, Acc6.7.16,	7.NS.A.2
Acc6.7.14	7.NS.A.2.a
Acc6.7.16	7.NS.A.2.b
Acc6.7.14	7.NS.A.2.c
Acc6.7.10Acc6.7.17, Acc6.7.18, Acc6.7.19Acc6.7.20,	7.NS.A.3

Unit Links

If unit headings are formatted as a heading, then we can link a Table of Contents to better organize and provide faster access to each unit

Unit Title:

Unit 1-Proportional Relationships (ACC 6, Unit 5)

Relevant Standards: Bold indicates priority

Lesson	Standard
Acc6.5.2	7.RP.A, 7.RP.A.2, 7.RP.A.2.b, 7.RP.A.2.c
Acc6.5.3	7.RP.A.2, 7.RP.A.2.c
Acc6.5.4	7.RP.A.1, 7.RP.A.2
Acc6.5.5	7.G.B.6, 7.RP.A.1, 7.RP.A.2
Acc6.5.6	7.RP.A, 7.RP.A.2
Acc6.5.7	7.RP.A, 7.RP.A.2, 7.RP.A.2.a
Acc6.5.8	7.RP.A.1, 7.RP.A.2
Acc6.5.9	7.EE.A, 7.RP.A.2
Acc6.5.10	7.G.B.4, 7.RP.A.2.a, 7.RP.A.3
Acc6.5.11	7.G.A, 7.G.A.2, 7.G.B.4
Acc6.5.12	7.G.B.4, 7.RP.A.2, 7.RP.A.2.a
Acc6.5.13	7.G.B.4
Acc6.5.14	7.G.A.1, 7.G.B, 7.G.B.6
Acc6.5.15	7.G.B.4, 7.RP.A.2.a
Acc6.5.16	7.G.B.4
Acc6.5.17	7.RP.A, 7.RP.A.2
Acc6.5.18	7.RP.A.2
Acc6.5.19	7.G.B.4
Acc6.5.20	7.EE.B.3, 7.G.A.1, 7.G.B.4

Unit Narrative

In this unit, students learn to understand and use the terms “proportional,” “constant of proportionality,” and “proportional relationship,” and recognize when a relationship is or is not proportional. They represent proportional relationships with tables, equations, and graphs. Students use these terms and representations in reasoning about situations that involve constant speed, unit pricing, and measurement conversions. Then, special focus is given to circumference and area of circles as examples of proportional and nonproportional relationships, respectively. Students informally derive the formulas for circumference and area of a circle and are introduced to the value π.

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 3 CFA 2: Lesson 7 CFA 3: Lesson 16 EoU: Version B	18 Days
Family Overview (link below)	**Integration of Technology:**
Proportional Relationships	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Area, base, circle, coefficient, compose, constant of proportionality, coordinate plane, cubed, decompose, dependent variable, diameter, double number line, equivalent expressions, equivalent ratios, exponent, face, height, independent variable, long division, net, opposite vertex, origin, parallelogram, per, percent, percentage, pi, polygon, polyhedron, prism, proportional relationship, pyramid, quadrilateral, radius, ratio,	DESMOS Edulastic
Connections to Prior Units:	**Connections to Future Units:**
ACC 6, Unit 1; ACC 6, Unit 4	ACC 6, Unit 6
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Comprehension: Highlight patterns, critical features, big ideas, and relationships	●Highlight or emphasize key elements in text, graphics, diagrams, formulas ●Use multiple examples and non-examples to emphasize critical features ●Use cues and prompts to draw attention to critical features ●Highlight previously learned skills that can be used to solve unfamiliar problems
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An ML can construct grade appropriate oral and written claims and support them with reasoning and evidence.	All targets apply and require reasoning with evidence.

Lesson Sequence	**Learning Target**	**Success Criteria/ Assessment/Resources**

1 (lessons 1-3)	I can compare approaches to solving problems involving proportional relationships.	●I can write an equation of the form y=kx to represent a proportional relationship described by a table or a story. ●I can write the constant of proportionality as an entry in a table. ●I can find two constants of proportionality for a proportional relationship. ●I can write two equations representing a proportional relationship described by a table or story. ●I can find missing information in a proportional relationship using the constant of proportionality. ●I can relate all parts of an equation like y=kx to the situation it represents.
2 (lessons 4-6)	I can compare proportional relationships to nonproportional relationships. (Lessons 4-5) I can identify the relationship between variables in a given situation as proportional. (Lesson 6)	●I can decide if a relationship represented by a table could be proportional and when it is definitely not proportional. ●I can decide if a relationship represented by an equation is proportional or not. ●I can ask questions about a situation to determine whether two quantities are in a proportional relationship. ●I can solve all kinds of problems involving proportional relationships.
3 (lessons 7-9)	I can compare descriptions, tables, equations, and graphs representing the same situations. I can compare graphs of proportional relationships.	●I can find the constant of proportionality from a graph. ●I know that the graph of a proportional relationship lies on a line through (0,0). ●I can compare two, related proportional relationships based on their graphs. ●I know that the steeper graph of two proportional relationships has a larger constant of proportionality. ●I can interpret a graph of a proportional relationship using the situation. ●I can write an equation representing a proportional relationship from a graph.

4 (lessons 10-13)	I can describe the relationships between circumference and diameter that are always true. (Lessons 10-13)	●I can examine quotients and use a graph to decide whether two associated quantities are in a proportional relationship. ●I understand that it can be difficult to measure the quantities in a proportional relationship accurately. ●I can describe the characteristics that make a shape a circle. ●I can identify the diameter, center, radius, and circumference of a circle. ●I can describe the relationship between circumference and diameter of any circle. ●I can explain what pi means/represents. ●I can choose an approximation for pi based on the situation or problem. ●If I know the radius, diameter, or circumference of a circle, I can find the other two.
5 (lessons 15-16) *SKIP lesson 14	I can compare the relationships of diameters and circumferences to diameters and areas. (lesson 15) I can justify reasoning about areas of curved figures. (lesson 16)	●I know the formula for the area of a circle. ●I know whether or not the relationship between the diameter and area of a circle is proportional and can explain how I know. ●I can calculate the area of more complicated shapes that include fractions of circles. ●I can write exact answers in terms of pi.
6 (lessons 17-20) *SKIP lesson 19	I can justify whether or not a relationship is proportional. (lesson 17-18) I can justify my understanding of area and circumference of circles to solve more complicated real world problems. (lesson 20)	●I can make connections between the graphs, tables, and equations of a proportional relationship. ●I can use units to help me understand information about proportional relationships. ●I can answer a question by representing a situation using proportional relationships. ●I can decide whether a situation about a circle has to do with area or circumference. ●I can use formulas for circumference and area of a circle to solve problems. ●I can apply my understanding of area and circumference of circles to solve more complicated problems.

Unit Title:

Unit 2-Percentage Increase and Decrease (ACC 6, Unit 6)

Relevant Standards: Bold indicates priority

Lesson	Standards
Acc6.6.1	7.EE.A.1, 7.RP.A.2, 7.RP.A.3
Acc6.6.2	7.NS.A.2.d, 7.RP.A.2, 7.RP.A.3
Acc6.6.3	7.RP.A.3
Acc6.6.4	7.RP.A.3
Acc6.6.5	7.RP.A.3
Acc6.6.6	7.RP.A.3
Acc6.6.7	7.RP.A.3
Acc6.6.8	7.RP.A.3
Acc6.6.9	7.RP.A.3
Acc6.6.10	7.RP.A.3
Acc6.6.11	7.RP.A.3
Acc6.6.12	7.RP.A.3

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 4 CFA 2: Lesson 8 CFA 3: Lesson 10 EoU: Version A	
Family Overview (link below)	**Integration of Technology:**
Percentage Increase and Decrease	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Area, base, (triangle), base (prism), circle, circumference, coefficient, compose, constant of proportionality, coordinate plane, cubed, decompose, dependent variable, diameter, double number line diagram, equivalent expressions, equivalent ratios, exponent,	DESMOS Edulastic

face, height, independent variable, long division, measurement error, net, opposite vertex, origin,parallelogram, perpercent, percent error, percentage, percentage decrease, percentage increase, pi, polygon, polyhedron, prism, proportional relationship, pyramid, quadrilateral, radius, ratio, reciprocal, region, repeating decimal, same rate, solution to an equation, squared, surface area, table, tape diagram, term, unit price, unit rate, variable	
Connections to Prior Units:	**Connections to Future Units:**
ACC 6, Unit 5	ACC 6, Unit 8
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Comprehension: Highlight patterns, critical features, big ideas, and relationships	●Highlight or emphasize key elements in text, graphics, diagrams, formulas ●Use multiple examples and non-examples to emphasize critical features ●Use cues and prompts to draw attention to critical features ●Highlight previously learned skills that can be used to solve unfamiliar problems
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An ML can construct grade appropriate oral and written claims and support them with reasoning and evidence.	All italicized targets and their related success criteria.

Lesson Sequence	**Learning Target**	**Success Criteria/Assessment/Resources**
1 (lessons 1-2)	*I can generate an algebraic expression that represents a situation involving adding or subtracting a fraction or a decimal of the initial value.*	●I can use the distributive property to rewrite an expression like x+1/2 x as (1+1/2)x. ●I understand that “half as much again” and “multiply by 3/2” mean the same thing. ●I can use the distributive property to rewrite an equation like x+0.5x=1.5x. ●I can write fractions as decimals. ●*I understand that “half as much again” and “multiply by 1.5” mean the same thing.*
2 (Lessons	I can calculate and explain percent change problems (Lesson 3).	●I can draw a tape diagram that represents a percent increase or decrease (L3).

3-6)	*I can interpret concrete problems involving percent increase and decrease (Lesson 4).* *I can represent situations involving percent increase and decrease (Lesson 5-6).*	●When I know the starting amount and the percent increase or decrease, I can find the new amount. (L3) ●I can use a double number line diagram to help me solve percent increase and decrease problems. (4) ●I understand that if I know how much a quantity has grown, then the original amount represents 100%. (4) ●When I know the new amount and the percentage of increase or decrease, I can find the original amount. (4) ●I can solve percent increase and decrease problems by writing an equation to represent the situation and solving it. (5) ●I can find percentages of quantities like 12.5% and 0.4%. (6) ●I understand that to find 0.1% of an amount I have to multiply by 0.001. (6)
3 (Lessons 7-11)	*I can calculate and interpret real world situations using percent increase and decrease. (L7-8)* *I can use percentages to describe situations that involve error. (L9-11)*	●I understand and can solve problems about sales tax and tip. (L7) ●I can find the percentage increase or decrease when I know the original amount and the new amount. (L8) ●I understand and can solve problems about commission, interest, markups, and discounts. (L8) ●I can represent measurement error as a percentage of the correct measurement. ●I understand that all measurements include some error. ●I can solve problems that involve percent error. ●I can find a range of possible values for a quantity if I know the maximum percent error and the correct value.

Unit Title:

Unit 3-Rational Numbers (ACC 6 Unit 7)

Relevant Standards: Bold indicates priority

Lesson	Standards
Acc6.7.1	6.NS.C.5, 6.NS.C.6, 7.NS.A.1
Acc6.7.2	6.NS.C.7.a, 6.NS.C.7.b, 6.NS.C.7.d
Acc6.7.3	6.NS.C, 6.NS.C.5, 6.NS.C.6, 6.NS.C.6.a, 6.NS.C.7
Acc6.7.4	6.NS.C.7, 6.NS.C.7.c, 6.NS.C.7.d
Acc6.7.5	6.NS.C.6, 6.NS.C.6.a, 6.NS.C.7, 6.NS.C.7.d
Acc6.7.6	7.NS.A.1, 7.NS.A.1.a, 7.NS.A.1.b
Acc6.7.7	7.NS.A.1.a, 7.NS.A.1.b, 7.NS.A.1.c, 7.NS.A.1.d
Acc6.7.8	7.NS.A.1
Acc6.7.9	7.NS.A.1, 7.NS.A.1.c
Acc6.7.10	7.NS.A.1, 7.NS.A.1.c, 7.NS.A.3
Acc6.7.11	6.NS.C.6, 6.NS.C.6.b, 6.NS.C.6.c, 6.NS.C.8
Acc6.7.12	6.NS.C.6.c, 6.NS.C.7.c, 6.NS.C.8
Acc6.7.13	6.G.A.3, 6.NS.C.6, 6.NS.C.6.b, 6.NS.C.6.c, 6.NS.C.8
Acc6.7.14	7.NS.A.2.a, 7.RP.A
Acc6.7.15	7.EE.B, 7.NS.A.2.c
Acc6.7.16	7.EE.B.4.a, 7.NS.A.2, 7.NS.A.2.b
Acc6.7.17	7.EE.B.3, 7.NS.A.3, 7.RP.A.2
Acc6.7.18	7.NS.A, 7.NS.A.3
Acc6.7.19	7.EE.B, 7.EE.B.4, 7.EE.B.4.a, 7.NS.A.3
Acc6.7.20	7.EE.B.4.a, 7.NS.A.3
Acc6.7.21	6.G.A.3, 6.NS.C.8
Acc6.7.22	7.EE.B.3, 7.NS.A.3

Demonstration of Learning:	Pacing for Unit
CFA 1: Lesson 9 CFA 2: Lesson 16 CFA 3: Lesson 20	

EoU: Version B, remove question 6	
Family Overview (link below)	**Integration of Technology:**
Rational Numbers	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Absolute value, area, base, (triangle), base (prism), circle, circumference, coefficient, compose, constant of proportionality, coordinate plane, cubed, decompose, dependent variable, deposit, diameter, double number line diagram, equivalent expressions, equivalent ratios, exponent, face, height, independent variable, long division, measurement error, net, opposite vertex, origin, parallelogram, percent, percent error, percentage, percentage decrease, percentage increase, pi, polygon, polyhedron, prism, proportional relationship, pyramid, quadrant, quadrilateral, radius, ratio, rational number, reciprocal, region, repeating decimal, same rate, sign, solution to an equation, squared, surface area, table, tape diagram, term, unit price, unit rate, variable, withdrawal	DESMOS Edulastic
Connections to Prior Units:	**Connections to Future Units:**
ACC 6, Unit 4	ACC 7, Unit 3
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Comprehension: Highlight patterns, critical features, big ideas, and relationships	●Highlight or emphasize key elements in text, graphics, diagrams, formulas ●Use multiple examples and non-examples to emphasize critical features ●Use cues and prompts to draw attention to critical features ●Highlight previously learned skills that can be used to solve unfamiliar problems
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An ML can construct grade appropriate oral and written claims and support them with reasoning and evidence.	All italicized targets and their related success criteria.

Lesson Sequence	**Learning Target**	**Success Criteria/Assessment/Resources**

1 (Lesson 1 ONLY) SKIP Lessons 2-5	*I can describe and interpret signed numbers.*	●I can explain what 0, positive numbers, and negative numbers mean in the context of temperature and elevation. ●I can use positive and negative numbers to describe temperature and elevation. ●I know what positive and negative numbers are.
2 (Lessons 6-10)	*I can model and compute addition and subtraction situations that involve signed numbers.*	●I can use a number line to add positive and negative numbers. ●I understand how to add positive and negative numbers in general. ●I understand what positive and negative numbers mean in a situation involving money. ●I can explain the relationship between addition and subtraction of rational numbers. ●I can use a number line to subtract positive and negative numbers. ●I can find the difference between two rational numbers. ●I can solve problems that involve adding and subtracting rational numbers. ●I understand how to subtract positive and negative numbers in general.
***SKIP lessons 11-13**		
3 (Lessons 14-17)	*I can model and compute multiplication and division situations that involve signed numbers.*	●I can explain what it means when time is represented with a negative number in a situation about speed and direction. ●I can multiply two negative numbers. ●I can use rational numbers to represent speed and direction. ●I can solve problems that involve multiplying rational numbers. ●I can divide rational numbers. ●I can solve problems that involve multiplying and dividing rational numbers. ●I can solve problems that involve negative rates.

4 (Lessons 18-20)	*I can use rational numbers to write and solve equations that describe real world situations.*	●I can add, subtract, multiply, and divide rational numbers. ●I can evaluate expressions that involve rational numbers. ●I can solve equations that include rational numbers and have rational solutions. ●I can explain what the solution to an equation means for the situation. ●I can write and solve equations to represent situations that involve rational numbers.

Unit Title:
Unit 4-Writing and Solving Equations (ACC 7, Unit 3)
Relevant Standards: Bold indicates priority

Lesson	Standards
Acc7.3.1	7.EE.B, 7.EE.B.4, 7.EE.B.4.a
Acc7.3.2	7.EE.B.3, 7.EE.B.4
Acc7.3.3	7.EE.B.3, 7.EE.B.4
Acc7.3.4	7.EE.B.3, 7.EE.B.4.a
Acc7.3.5	7.EE.B.3, 7.EE.B.4, 7.EE.B.4.a
Acc7.3.6	7.EE.B.3, 7.EE.B.4.a
Acc7.3.7	7.EE.B.4.a
Acc7.3.8	7.EE.B.4.a
Acc7.3.9	7.EE.B.4, 7.EE.B.4.a
Acc7.3.10	7.EE.B.4.a
Acc7.3.11	7.EE.B.3, 7.EE.B.4, 7.EE.B.4.a
Acc7.3.12	7.EE.A.2, 7.EE.B.3, 7.EE.B.4, 7.EE.B.4.a
Acc7.3.13	7.EE.B.4, 7.G.B.5

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 6 CFA 2: Lesson 9 CFA 3: Lesson 11 EOU: Assessment A	
Family Overview (link below)	**Integration of Technology:**
Writing and Solving Equations	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Alternate interior angles, center of a dilation, clockwise, complementary, congruent, coordinate plane, corresponding, counterclockwise, dilation, equivalent	

expressions, image, reflection, right angle, rigid transformation, rotation, scale, scale drawing, scale factor, scaled copy, sequence of transformations, similar, slope, straight angle, supplementary, tessellation, transformation, translation, transversal, vertex, vertical angles	
Connections to Prior Units:	**Connections to Future Units:**
Acc6.4 Acc6.7	Acc7.4
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Comprehension: Highlight patterns, critical features, big ideas, and relationships	●Highlight or emphasize key elements in text, graphics, diagrams, formulas ●Use multiple examples and non-examples to emphasize critical features ●Use cues and prompts to draw attention to critical features ●Highlight previously learned skills that can be used to solve unfamiliar problems
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An ML can . . . construct grade level appropriate oral and written claims and support them with reasoning and evidence.	All targets apply and require reasoning with evidence.

Lesson Sequence	Learning Target	Success Criteria
1 (Lessons 1-6)	●I can interpret non-proportional situations with constant rates of change (Lesson 1) ●I can compare stories with multiple representations (Lessons 2 and 3) ●I can interpret solutions to equations (Lesson 4 and 5)	●I can think of ways to solve some more complicated word problems. ●I can explain how a tape diagram represents parts of a situation and relationships between them. ●I can use a tape diagram to find an unknown amount in a situation. ●I can match equations and tape diagrams that represent the same situation. ●If I have an equation, I can draw a tape diagram that shows the same relationship. ●I can draw a tape diagram to represent a situation where there is a known amount and

		several copies of an unknown amount and explain what the parts of the diagram represent. ●I can find a solution to an equation by reasoning about a tape diagram or about what value would make the equation true. ●I can draw a tape diagram to represent a situation where there is more than one copy of the same sum and explain what the parts of the diagram represent. ●I can find a solution to an equation by reasoning about a tape diagram or about what value would make the equation true. ●I understand the similarities and differences between the two main types of equations we are studying in this unit. ●When I have a situation or a tape diagram, I can represent it with an equation.
2 (Lessons 7-13)	●I can explain and compare strategies for solving equations with multiple representations (Lessons 8, 9, and 10) ●I can interpret non-proportional situations with constant rates of change using equations and other representations (Lesson 11 and 12) ●I can interpret equations involving angle relationships and solve for unknown angle measurements (Lesson 13)	●I can explain how a balanced hanger and an equation represent the same situation. ●I can find an unknown weight on a hanger diagram and solve an equation that represents the diagram. ●I can write an equation that describes the weights on a balanced hanger. ●I can explain how a balanced hanger and an equation represent the same situation. ●I can explain why some balanced hangers can be described by two different equations, one with parentheses and one without. ●I can find an unknown weight on a hanger diagram and solve an equation that represents the diagram. ●I can write an equation that describes the weights on a balanced hanger. ●I can use the idea of doing the same to each side to solve equations that have negative numbers or solutions. ●"For an equation like 3(x+2)=15, I can solve it in two different ways: by first dividing each side by 3, or by first rewriting 3(x+2) using the distributive property.

		●For equations with more than one way to solve, I can choose the easier way depending on the numbers in the equation." ●I can solve story problems by drawing and reasoning about a tape diagram or by writing and solving an equation. ●I can solve story problems about percent increase or decrease by drawing and reasoning about a tape diagram or by writing and solving an equation. ●I can write an equation to represent a relationship between angle measures and solve the equation to find unknown angle measures.

Unit Title:
Unit 5-Inequalities, Expressions, and Equations (ACC 7 Unit 4)

Relevant Standards: Bold indicates priority

Lesson	Standards
Acc7.4.1	6.EE.B.6, 6.EE.B.8, 6.NS.C.7.b
Acc7.4.2	6.EE.B.5, 6.EE.B.8, 6.NS.C.7.a
Acc7.4.3	6.EE.A.2.b, 6.EE.B.5, 6.EE.B.6, 6.EE.B.8
Acc7.4.4	7.EE.B.4.b
Acc7.4.5	7.EE.B.4, 7.EE.B.4.b
Acc7.4.6	7.EE.B.4.b
Acc7.4.7	7.EE.A.1, 7.NS.A.1, 7.NS.A.1.c
Acc7.4.8	7.EE.A.1
Acc7.4.9	7.EE.A.1
Acc7.4.10	7.EE.A.1
Acc7.4.11	7.EE.A.1
Acc7.4.12	8.EE.C, 8.EE.C.7
Acc7.4.13	8.EE.C, 8.EE.C.7
Acc7.4.14	8.EE.C.7, 8.EE.C.7.b
Acc7.4.15	8.EE.C.7.a
Acc7.4.16	8.EE.C.7.a
Acc7.4.17	8.EE.C, 8.EE.C.7, 8.EE.C.8

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 4 CFA 2: Lesson 9 CFA 3: Lesson 13 EOU: Assessment B	
Family Overview (link below)	**Integration of Technology:**
Inequalities, Expressions, and Equations	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*

Unit-specific Vocabulary:	Aligned Unit Materials, Resources, and Technology (beyond core resources):
Alternate interior angles, center of a dilation, clockwise, coefficient, complementary, congruent, constant term, coordinate plane, corresponding, counterclockwise, dilation, equivalent expressions, expand, factor (an expressions), image, reflection, right angle, rigid transformation, rotation, scale, scale drawing, scale factor, scaled copy, sequence of transformations, similar, slope, solution to inequality, straight angle, supplementary,term, tessellation, transformation, translation, transversal, vertex, vertical angles	●DESMOS ●Edulastic
Connections to Prior Units:	**Connections to Future Units:**
ACC 7, Unit 3	ACC 7, Unit 5
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Comprehension: Highlight patterns, critical features, big ideas, and relationships	●Highlight or emphasize key elements in text, graphics, diagrams, formulas ●Use multiple examples and non-examples to emphasize critical features ●Use cues and prompts to draw attention to critical features ●Highlight previously learned skills that can be used to solve unfamiliar problems
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An ML can construct grade appropriate oral and written claims and support them with reasoning and evidence.	All targets apply as they require mathematical reasoning with evidence.

Lesson Sequence	Learning Target	Success Criteria
1 (Lessons 1-6)	●I can justify reasoning about solutions to inequalities (Lesson 2-5) ●I can critique the reasoning of others using multiple representations (Lesson 3) ●I can justify the need for specific information in order to write and solve inequalities (Lesson 6)	●I can graph inequalities on a number line. ●I can write an inequality to represent a situation. ●I can determine if a particular number is a solution to an inequality. ●I can explain what it means for a number to be a solution to an inequality. ●I can graph the solutions to an inequality on a number line.

		●I can explain what the solution to an inequality means in a situation. ●I can write inequalities that involves more than one variable. ●I can describe the solutions to a inequality by solving a related equation and then reasoning about values that make the inequality true. ●I can write an inequality to represent a situation. ●I can graph the solutions to an inequality on a number line. ●I can solve inequalities by solving a related equation and then checking which values are solutions to the original inequality. ●I can use what I know about inequalities to solve real-world problems.
2 (Lessons 7-11)	●I can justify reasoning about the distributive property (Lesson 7 and 8) ●I can generalize about when expressions are equivalent (Lesson 9) ●I can critique reasoning about equivalent expressions (Lesson 10)	●I can organize my work when I use the distributive property. ●I can rewrite subtraction as adding the opposite and then rearrange terms in an expression. ●I can organize my work when I use the distributive property. ●I can use the distributive property to rewrite expressions with positive and negative numbers. ●I understand that factoring and expanding are words used to describe using the distributive property to write equivalent expressions. ●I can figure out whether two expressions are equivalent to each other. ●When possible, I can write an equivalent expression that has fewer terms. ●I am aware of some common pitfalls when writing equivalent expressions, and I can avoid them. ●When possible, I can write an equivalent expression that has fewer terms. ●Given an expression, I can use various strategies to write an equivalent expression. ●When I look at an expression, I can notice if some parts have common factors and make the expression shorter by combining those parts.

3 (Lessons 12-17)	●I can critique reasoning about maintaining balance in equations (Lesson 12) ●I can critique solutions of linear equations (Lesson 13) ●I can generalize about the structures of equations that have one, infinite, and no solutions (Lessons 14-16)	●I can add, subtract, multiply, or divide each side of an equation by the same expression to get a new equation with the same solution. ●I can make sense of multiple ways to solve an equation. ●I can solve linear equations in one variable. ●I can determine whether an equation has no solutions, one solution, or infinitely many solutions. ●I can solve equations with different numbers of solutions. ●I can use an expression to find when two things, like height, are the same in a real-world situation.

Unit Title:
Unit 6-Rigid Transformations and Congruence (ACC 7, Unit 1)
Relevant Standards: Bold indicates priority

Lesson	Standards
Acc7.1.1	8.G.A.1
Acc7.1.2	8.G.A.1
Acc7.1.3	8.G.A.1
Acc7.1.4	8.G.A.3
Acc7.1.5	8.G.A.1, 8.G.A.3
Acc7.1.6	8.G.A.1.a, 8.G.A.1.b
Acc7.1.7	8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c
Acc7.1.8	8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c
Acc7.1.9	8.G.A.1.a, 8.G.A.1.b
Acc7.1.10	8.G.A.1, 8.G.A.2
Acc7.1.11	8.G.A.1.a, 8.G.A.2
Acc7.1.12	7.G.B.5, 8.G.A.1, 8.G.A.5
Acc7.1.13	8.G.A.2, 8.G.A.5
Acc7.1.14	8.G.A.5, 8.G.B.6
Acc7.1.18	8.G.A

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 3 CFA2: Lesson 6 MoU: Assessment (B) CFA 3: Lesson 12 EoU: Assessment (A) - eliminate Q 3 & Q 7	
Family Overview (link below)	**Integration of Technology:**
Rigid Transformations and Congruence	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology**

	(beyond core resources):
Alternate interior angles, clockwise, complementary, congruent, coordinate plane, corresponding, counterclockwise, image, reflection, right angle, rigid transformation, rotation, sequence of transformations, straight angle, supplementary, tessellation, transformations, translation, transversal, vertex, vertical angles	●DESMOS ●Edulastic
Connections to Prior Units:	**Connections to Future Units:**
None	Acc7.2
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Comprehension: Guide information processing and visualization	●Give explicit prompts for each step in a sequential process ●Provide options for organizational methods and approaches (tables and algorithms for processing mathematical operations) ●Provide interactive models that guide exploration and new understandings ●Introduce graduated scaffolds that support information processing strategies ●Progressively release information (e.g., sequential highlighting) ●Remove unnecessary distractions unless they are essential to the instructional goal
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An EL can determine the meaning of words and phrases in informational text.	Applies to ALL learning targets in this unit.

Lesson Sequence	**Learning Target**	**Success Criteria**
1 (Lessons 1-5)	●I can identify and describe the movements of figures. (Lessons 1-3) ●I can apply transformations to points on a grid if I know their coordinates. (Lesson 4)	Lesson 1 ●I can describe how a figure moves and turns to get from one position to another. Lesson 2 ●I can identify corresponding points before and after a transformation. ●I know the difference between translations, rotations, and reflections. Lesson 3 ●I can use grids to carry out transformations of figures.

		●I can use the terms translation, rotation, and reflection to precisely describe transformations. Lesson 4 ●I can apply transformations to points on a grid if I know their coordinates. Lesson 5 ●I can apply transformations to a polygon on a grid if I know the coordinates of its vertices.
2 (Lessons 6-9)	●I can justify whether or not rigid transformations could produce an image. (Lessons 6) ●I can generalize about rotating line segments 180 degrees. (Lesson 7) ●I can generalize about the relationship between vertical angles. (Lesson 8) ●I can describe transformations using corresponding points, line segments and angles. (Lesson 9)	Lesson 6 ●I can describe the effects of a rigid transformation on the lengths and angles in a polygon. Lesson 7 ●I can describe how to move one part of a figure to another using a rigid transformation. Lesson 8 ●I can describe the effects of a rigid transformation on a pair of parallel lines. ●If I have a pair of vertical angles and know the angle measure of one of them, I can find the angle measure of the other. Lesson 9 ●I can find missing side lengths and angle measures using properties of rigid transformations.
3 (Lessons 10-11)	●I can justify whether or not shapes are congruent. (10) ●I can determine if a polygon is congruent and justify it with reasoning. (11)	Lesson 10 ●I can decide visually whether or not two figures are congruent. Lesson 11 ●I can decide using rigid transformations whether or not two figures are congruent. ●I can use distances between points to decide if two figures are congruent.
4 (Lessons 12-14)	●I can generalize the triangle sum theorem using rigid transformations or the congruence or alternate interior angles of parallel lines cut by a transversal. (14)	Lesson 12 ●I can find unknown angle measures by reasoning about complementary or supplementary angles. ●If I have two parallel lines cut by a transversal, I can identify alternate interior angles and use that to find missing angle measurements. Lesson 13

		●If I know two of the angle measures in a triangle, I can find the third angle measure. Lesson 14 ●I can explain using pictures why the sum of the angles in any triangle is 180 degrees.

Unit Title:
Unit 7-Scale Drawings, Similarity, and Slope (ACC 7, Unit 2)

Relevant Standards: Bold indicates priority

Lesson	Standards
Acc7.2.1	7.G.A.1
Acc7.2.2	7.G.A.1, 7.RP.A.2
Acc7.2.3	7.G.A.1, 7.RP.A.2
Acc7.2.4	7.G.A.1
Acc7.2.5	7.G.A.1
Acc7.2.6	7.G.A.1, 7.G.B.6, 7.RP.A, 7.RP.A.3
Acc7.2.7	7.G.A.1
Acc7.2.8	8.G.A
Acc7.2.9	8.G.A
Acc7.2.10	8.G.A, 8.G.A.3
Acc7.2.11	8.G.A.2, 8.G.A.4
Acc7.2.12	8.G.A.2, 8.G.A.4
Acc7.2.13	8.G.A, 8.G.A.5
Acc7.2.14	8.G.A, 8.G.A.4
Acc7.2.15	8.EE.B.6
Acc7.2.16	8.EE.B.6, 8.G.A
Acc7.2.17	8.EE.B.6, 8.G.A, 8.G.A.3
Acc7.2.18	7.G.A.1
Acc7.2.19	8.G.A.4, 8.G.A.5

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 5 MoU: Assessment (A) CFA 2: Lesson 13 CFA 3: Lesson 15 EoU: Assessment (A)	

Family Overview (link below)	**Integration of Technology:**
Scale Drawings, Similarity, and Slope	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Alternate interior angles, center of a dilation, clockwise, complementary, congruent, coordinate plane, corresponding, counterclockwise, dilation, image, reflection,right angle, rigid transformation, rotation, scale, scale drawing, scale factor, scaled copy, sequence of transformations, similar, slope, straight angle, supplementary, tessellation, transformation, transversal,	DESMOS Edulastic
Connections to Prior Units:	**Connections to Future Units:**
ACC 6, Unit 2; ACC 7, Unit 1	ACC7, Unit 4
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Comprehension: Activate or Supply Background Knowledge	●Anchor instruction by linking to and activating relevant prior knowledge (e.g., using visual imagery, concept anchoring, or concept mastery routines) ●Use advanced organizers (e.g., KWL methods, concept maps) ●Pre-teach critical prerequisite concepts through demonstration or models ●Make explicit cross-curricular connections (e.g., teaching literacy strategies in the social studies classroom)
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An EL can evaluate and communicate findings to answer questions or solve problems.	See Italicized Learning Target

Lesson Sequence	**Learning Target**	**Success Criteria**
1 (Lesson 1-3)	●*I can describe the features of scaled copies.* (Lesson 1) ●I can create a scale copy given the scale factor (Lesson 2)	Lesson 1 ●I can describe some characteristics of a scaled copy.

	●*I can describe the relationship between a scale factor and a scale copy of its original figure* (Lesson 3)	●I can tell whether or not a figure is a scaled copy of another figure. Lesson 2: ●I can describe what the scale factor has to do with a figure and its scaled copy. ●I can draw a scaled copy of a figure using a given scale factor. ●I know what operation to use on the side lengths of a figure to produce a scaled copy. Lesson 3 ●I can describe the effect on a scaled copy when I use a scale factor that is greater than 1, less than 1, or equal to 1. ●I can explain how the scale factor that takes Figure A to its copy Figure B is related to the scale factor that takes Figure B to Figure A.
2 (Lessons 4-6) *Skip Lesson 7*	●*I can explain how to use scale drawings to find actual distances and areas* (Lessons 4-6)	Lesson 4 ●I can explain what a scale drawing is, and I can explain what its scale means. ●I can use actual distances and a scale to find scaled distances. ●I can use a scale drawing and its scale to find actual distances. Lesson 5 ●I can determine the scale of a scale drawing when I know lengths on the drawing and corresponding actual lengths. ●I know how different scales affect the lengths in the scale drawing. ●When I know the actual measurements, I can create a scale drawing at a given scale. Lesson 6 ●Given a scale drawing, I can create another scale drawing that shows the same thing at a different scale. ●I can use a scale drawing to find actual areas. *Skip lesson 7*
3 (Lessons 8-10)	●*I can describe the effects of a dilation on a figure* (Lesson 8-9) ●*I can explain how to apply dilations to images on a coordinate plane.* (Lesson 10)	Lesson 8 ●I can decide if one rectangle is a dilation of another rectangle. ●I know how to use a center and a scale factor to describe a dilation.

		Lesson 9 ●I can apply a dilation to a polygon using a ruler. ●I can apply dilations to figures on a circular grid when the center of dilation is the center of the grid. Lesson 10 ●I can apply dilations to figures on a square grid. ●I can apply dilations to polygons on a rectangular grid if I know the coordinates of the vertices and of the center of dilation. ●If I know the angle measures and side lengths of a polygon, I know the angles measures and side lengths of the polygon if I apply a dilation with a certain scale factor.
4 (Lessons 11-14)	●*I can describe sequences of transformations to justify if two polygons are similar* (Lessons 11-12) ●*I can explain how to determine whether triangles are congruent, similar, or neither.* (Lesson 13) ●*I can use properties of similar figures to find missing side lengths.* (Lesson 14)	Lesson 11 ●I can apply a sequence of transformations to one figure to get a similar figure. ●I can use a sequence of transformations to explain why two figures are similar. Lesson 12 ●I can use angle measures and side lengths to conclude that two polygons are not similar. ●I know the relationship between angle measures and side lengths in similar polygons. Lesson 13 ●I know how to decide if two triangles are similar just by looking at their angle measures. Lesson 14 ●I can decide if two triangles are similar by looking at quotients of lengths of corresponding sides. ●I can find missing side lengths in a pair of similar triangles using quotients of side lengths.
5 (Lessons 15-17)	●*I can justify that slope triangles are similar.* (15) ●*I can determine if a point is on a line.* (Lesson 16 & 17)	Lesson 15 ●I can draw a line on a grid with a given slope. ●I can find the slope of a line on a grid. Lesson 16 ●I can decide whether a point is on a line by finding quotients of horizontal and vertical distances. Lesson 17

		●I can find an equation for a line and use that to decide which points are on that line.

Unit Title:

Unit 8-Linear Relationships (ACC 7, Unit 5)

Relevant Standards: Bold indicates priority

Lesson	Standards
Acc7.5.1	8.EE.B, 8.EE.B.5
Acc7.5.2	8.EE.B, 8.EE.B.5
Acc7.5.3	8.EE.B, 8.EE.B.5
Acc7.5.4	8.EE.B
Acc7.5.5	8.EE.B, 8.EE.B.5
Acc7.5.6	8.EE.B, 8.EE.B.6
Acc7.5.7	8.EE.B, 8.G.A.1
Acc7.5.8	8.EE.B
Acc7.5.9	8.EE.B, 8.EE.B.6
Acc7.5.10	8.EE.B, 8.EE.C
Acc7.5.11	8.EE.C, 8.EE.C.8, 8.EE.C.8.a
Acc7.5.12	8.EE.C.8
Acc7.5.13	8.EE.C.8, 8.EE.C.8.a, 8.EE.C.8.b
Acc7.5.14	8.EE.C.8, 8.EE.C.8.a
Acc7.5.15	8.EE.C.8
Acc7.5.16	8.EE.C.8, 8.EE.C.8.b, 8.EE.C.8.c
Acc7.5.17	8.SP.A, 8.SP.A.1
Acc7.5.18	8.SP.A.1, 8.SP.A.3
Acc7.5.19	8.SP.A.1, 8.SP.A.2
Acc7.5.20	8.SP.A.1, 8.SP.A.2
Acc7.5.21	8.SP.A.1, 8.SP.A.2, 8.SP.A.3
Acc7.5.22	8.SP.A.1, 8.SP.A.2, 8.SP.A.3
Acc7.5.23	8.SP.A.4
Acc7.5.24	8.SP.A.4

Acc7.5.25	8.EE.B.6, 8.EE.C.8.a
Acc7.5.26	8.EE.C.8.c
Acc7.5.27	8.SP.A

Demonstration of Learning:	**Pacing for Unit**
CFA 1: Lesson 5 CFA 2: Lesson 10 MoU: Assessment (A) CFA 3: Lesson 15 EoU: Assessment (B) - add questions 1 & 3 from (A)	
Family Overview (link below)	**Integration of Technology:**
Linear Relationships	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Alternate interior angles, center of a dilation,clockwise, coefficient, complementary, congruent, constant of proportionality, constant term, coordinate plane, corresponding, counterclockwise, dilation, equivalent expressions, expand, factor, image, linear relationship, negative association, outlier, positive association, rate of change, reflection, relative frequency, right angle, rotation, scale, scale drawing, scale factor, scaled copy, scatter plot, segmented bar graph, sequence of transformations, similar, slope, solution to an equation with two variables, solution to an inequality, straight angle, supplementary, system of equations, term, tessellation, transformation, translation, transversal, two-way table, vertex, vertical angles, vertical intercept	DESMOS Edulastic
Connections to Prior Units:	**Connections to Future Units:**
Acc6.8	Acc7.6
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Expression & Communication: Use multiple media for communication	• Compose in multiple media such as text, speech, drawing, illustration, comics, storyboards, design, film, music, dance/movement, visual art, sculpture, or video • Use physical manipulatives (e.g., blocks, 3D models, base-ten blocks) • Use social media and interactive web tools (e.g., discussion forums, chats, web design,

	annotation tools, storyboards, comic strips, animation presentations) • Solve problems using a variety of strategies

Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An ML can construct appropriate oral and written claims and support them with reasoning and evidence.	Applies to ALL learning targets in this unit.

Lesson Sequence	**Learning Target**	**Success Criteria**
1 Lessons 1-3	●I can represent situations involving proportional relationships. (1) ●I can interpret situations involving proportional relationships. (1) ●I can represent constants of proportionality in different ways (2). ●I can interpret graphs sing different scales (2)	Lesson 1 ●I can graph a proportional relationship from a story. ●I can use the constant of proportionality to compare the pace of different animals. Lesson 2 ●I can graph a proportional relationship from an equation. ●I can scale and label coordinate axes in order to graph a proportional relationship. ●I can tell when two graphs are of the same proportional relationship even if the scales are different. Lesson 3 ●I can compare proportional relationships represented in different ways.
2 Lessons 4-7	●I can explain how to use a graph to determine information about a linear situation (4). ●I can interpret slopes and intercepts of linear graphs (5). ●I can explain how to determine slope from a graph (5). ●I can represent slope using expressions (6).	Lesson 4 ●I can find the rate of change of a linear relationship by figuring out the slope of the line representing the relationship. Lesson 5 ●I can interpret the vertical intercept of a graph of a real-world situation. ●I can match graphs to the real-world situations they represent by identifying the slope and the vertical intercept. Lesson 6 ●I can use patterns to write a linear equation to represent a situation. ●I can write an equation for the relationship between the total volume in a graduated

		cylinder and the number of objects added to the graduated cylinder. Lesson 7 ●I can explain where to find the slope and vertical intercept in both an equation and its graph. ●I can write equations of lines using y=mx+b.
3 Lessons 8-11	●I can represent situations using negative slopes and slopes of zero. (8) ●I can interpret situations using negative slopes and slopes of zero (8). ●I can represent situations by graphing lines and writing equations (10). ●I can explain how slope relates to changes in a situation (10).	Lesson 8 ●I can give an example of a situation that would have a negative slope when graphed. ●I can look at a graph and tell if the slope is positive or negative and explain how I know. Lesson 9 ●I can calculate positive and negative slopes given two points on the line. ●I can write equations of vertical and horizontal lines. Lesson 10 ●I know that the graph of an equation is a visual representation of all the solutions to the equation. ●I understand what the solution to an equation in two variables is. Lesson 11 ●I can find solutions (x,y) to linear equations given either the x- or the y-value to start from.
4 Lessons 12-16 *Skip lessons 17-24*	●I can represent situations involving systems of linear equations (12,13, 16) ●I can interpret situations involving systems of linear equations (13).	Lesson 12 ●I can use graphs to find an ordered pair that two real-world situations have in common. Lesson 13 ●I can explain the solution to a system of equations in a real-world context. ●I can explain what a system of equations is. ●I can make graphs to find an ordered pair that two real-world situations have in common. Lesson 14 ●I can graph a system of equations. ●I can solve systems of equations using algebra. Lesson 15 ●I can use the structure of equations to help me figure out how many solutions a system of equations has. Lesson 16

		●I can write a system of equations from a real-world situation.
5 *Optional Lessons 25-26*	●I can represent situations involving linear relationships. (25) ●I can interpret situations involving linear relationships (25). ●I can explain how to answer questions about systems of equations (26).	Lesson 25 ●I can write linear equations to reason about real-world situations. Lesson 26 ●I can use a system of equations to represent a real-world situation and answer questions about the situation.

Unit Title:

Unit 9-Functions and Volume (ACC 7, Unit 6)

Relevant Standards: Bold indicates priority

Lesson	Standards
Acc7.6.1	8.F.A.1
Acc7.6.2	8.F.A.1
Acc7.6.3	8.F.A, 8.F.A.1, 8.F.B.4
Acc7.6.4	8.F.A.1, 8.F.A.3
Acc7.6.5	8.F.A.1, 8.F.B, 8.F.B.5
Acc7.6.6	8.F.B.5
Acc7.6.7	8.F.A.2, 8.F.A.3
Acc7.6.8	8.F.A.2, 8.F.A.3, 8.F.B.4
Acc7.6.9	8.F.B.4
Acc7.6.10	8.F.B, 8.F.B.4, 8.F.B.5
Acc7.6.11	7.G.A.3, 7.G.B.6
Acc7.6.12	8.F.B, 8.F.B.4, 8.G.C
Acc7.6.13	8.G.C
Acc7.6.14	7.G.B.6
Acc7.6.15	7.G.A.3, 7.G.B.6
Acc7.6.16	7.G.B.6
Acc7.6.17	7.G.B, 7.G.B.6, 7.RP.A
Acc7.6.18	8.G.C.9
Acc7.6.19	8.G.C.9
Acc7.6.20	8.G.C.9
Acc7.6.21	8.F.A.1, 8.F.B, 8.G.C, 8.G.C.9
Acc7.6.22	8.F.A.3, 8.F.B, 8.G.C.9
Acc7.6.23	8.G.C, 8.G.C.9
Acc7.6.24	8.G.C, 8.G.C.9
Acc7.6.25	8.G.C.9
Acc7.6.26	7.G.A.2, 7.G.B.6

Acc7.6.27	8.F.A, 8.G.C.9

Demonstration of Learning:	**Pacing for Unit**
CFA 1 Lesson 5 MoU Assessment (B) CFA 2 Lesson 20 CFA 3 Lesson 24 EoU Assessment (A)	
Family Overview (link below)	**Integration of Technology:**
Functions and Volume	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Alternate interior angles, base, center of a dilation, clockwise, coefficient, complementary, cone, congruent, constant of proportionality, constant term, coordinate plane, corresponding, counterclockwise, cross section, cylinder, dependent variable, dilation, equivalent expressions, expand, factor, function, image, independent variable, linear relationship, negative association, outlier, positive association, prism, pyramid, radius, rate of change, reflection, relative frequency, right angle, rigid transformation, rotation, scale, scale drawing, scale factor, scaled copy, segmented bar graph, sequence of transformations, similar, slope, solution to an equation, solution to an inequality, sphere, straight angle, supplementary, surface area, system of equations, term, tessellation, transformation, translation, transversal, two-way table, vertex, vertical angles, vertical intercept, volume	DESMOS Edulastic
Connections to Prior Units:	**Connections to Future Units:**
ACC 6, Unit 1	None
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Comprehension: Highlight patterns, critical features, big ideas, and relationships	• Highlight or emphasize key elements in text, graphics, diagrams, formulas • Use multiple examples and non-examples to emphasize critical features • Use cues and prompts to draw attention to critical features

	• Highlight previously learned skills that can be used to solve unfamiliar problems

Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An ML student can adapt language choices to purpose, task, and audience when speaking and writing.	See *Italicized* Learning Targets

Lesson Sequence	**Learning Target**	**Success Criteria**
1 (Lessons 1-2)	• *I can describe and identify how input-output diagrams represent rules. (Lesson 1)* • *I can describe and identify different situations in context, using function rules (Lesson 2)*	Lesson 1 ●I can write rules when I know input-output pairs. ●I know how an input-output diagram represents a rule. Lesson 2 ●I know that a function is a rule with exactly one output for each allowable input. ●I know that if a rule has exactly one output for each allowable input, then the output depends on the input.
2 (Lessons 3-7)	• I can interpret different representations of functions, to identify independent and dependent variables, to write equations. (Lesson 3 & 4) • I can interpret multiple representations of functions, including graph, tables & equations, and explain how to find information in each type of representation (Lessons 5-7)	Lesson 3 ●I can find the output of a function when I know the input. ●I can name the independent and dependent variables for a given function and represent the function with an equation. Lesson 4 ●I can identify graphs that do, and do not, represent functions. ●I can use a graph of a function to find the output for a given input and to find the input(s) for a given output. Lesson 5 ●I can explain the story told by the graph of a function. Lesson 6 ●I can draw the graph of a function that represents a real-world situation. Lesson 7 ●I can compare inputs and outputs of functions that are represented in different ways.

3 (Lessons 8-10)	• *I can analyze situations to create a model of a non linear data, to answer questions as it relates to rate of change and initial value (Lessons 8-10)*	Lesson 8 ●I can determine whether a function is increasing or decreasing based on whether its rate of change is positive or negative. ●I can explain in my own words how the graph of a linear function relates to its rate of change and initial value. Lesson 9 ●I can decide when a linear function is a good model for data and when it is not. ●I can use data points to model a linear function. Lesson 10 ●I can create graphs of nonlinear functions with pieces of linear functions.
4 (Lessons 11-20) **Skip Lessons 14-17**	• I can describe, compare and contrast different cross sections that could result from slicing a pyramid or prism (Lesson 11) • *I can interpret (orally and in writing) a graph of heights of certain cylinders as a function of volume, and compare the rates of change of the functions* (lesson 12) • I can estimate the volumes of various containers using different units of measure, and explain (orally) the reasoning. (Lesson 13) • *I can use the volume formula for cones and cylinders to solve real world situations (Lessons 18-20)*	Lesson 11 ●I can explain that when a three dimensional figure is sliced it creates a face that is two dimensional. ●I can picture different cross sections of prisms and pyramids. Lesson 12 ●I can collect data about a function and represent it as a graph. ●I can describe the graph of a function in words. Lesson 13 ●I know that volume is the amount of space contained inside a three-dimensional figure. ●I recognize the 3D shapes cylinder, cone, rectangular prism, and sphere. Skip Lessons 14-17 Lesson 18 ●I can find missing information about a cylinder if I know its volume and some other information. ●I know the formula for the volume of a cylinder. Lesson 19 ●I can find the volume of a cone in mathematical and real-world situations. ●I know the formula for the volume of a cone. Lesson 20 ●I can find missing information about a cone if I know its volume and some other information.
5 (Lessons	• I can determine what information is needed to	Lesson 21

21-25)	solve a problem involving volumes of cones, cylinders, and spheres. (Lesson 23-25) • *I can explain and model relationships between scale factor and volume of cylinders and cones. (Lessons 21-22)*	●I can create a graph the relationship between volume and height for all cylinders (or cones) with a fixed radius. ●I can explain in my own words why changing the height by a scale factor changes the volume by the same scale factor. Lesson 22 ●I can create a graph representing the relationship between volume and radius for all cylinders (or cones) with a fixed height. ●I can explain in my own words why changing the radius by a scale factor changes the volume by the scale factor squared. Lesson 23 ●I can estimate the volume of a hemisphere by calculating the volume of shape I know is larger and the volume of a shape I know is smaller. Lesson 24 ●I can find the volume of a sphere when I know the radius. Lesson 25 ●I can find the radius of a sphere if I know its volume. ●I can solve mathematical and real-world problems about the volume of cylinders, cones, and spheres.
6 (Lessons 27) **Skip Lesson 26**	• *Interpret (orally and in writing) functions that represent the volume of a sphere, cone, and cylinder, using different representations. (Lesson 27)*	Lesson 27 ●I can compare functions about volume represented in different ways.

Unit Title:

Unit 10-Pythagorean Theorem and Irrational Numbers (ACC 7, Unit 8)

Relevant Standards: Bold indicates priority

Lesson	Standards
Acc7.8.1	8.EE.A.2, 8.G.B, 8.G.B.6, 8.NS.A.2
Acc7.8.2	8.EE.A.2, 8.F.B, 8.NS.A
Acc7.8.3	8.EE.A.2, 8.NS.A, 8.NS.A.2
Acc7.8.4	8.EE.A.2, 8.NS.A.2
Acc7.8.5	8.G.B, 8.G.B.6, 8.G.B.7
Acc7.8.6	8.G.B.6, 8.G.B.7
Acc7.8.7	8.G.B, 8.G.B.6
Acc7.8.8	8.EE.A.2, 8.G.B.7, 8.NS.A
Acc7.8.9	8.G.B.8
Acc7.8.10	8.EE.A.2, 8.NS.A.2
Acc7.8.11	8.EE.A, 8.NS.A, 8.NS.A.1
Acc7.8.12	8.NS.A.1
Acc7.8.13	8.G.B.7

Demonstration of Learning:	**Pacing for Unit**
CFA 1 (Lesson 3) CFA 2 (Lesson 7) CFA 3 (Lesson 10) EoU Assessment (A)	
Family Overview (link below)	**Integration of Technology:**
Pythagorean Theorem and Irrational Numbers	*Intentionally aligned use of digital tools and resources to support acquisition of content, researching, organizing and communicating learning*
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Alternate interior angles, base (of prism), base (of an exponent), center of a dilation, clockwise, coefficient, complementary, cone, congruent, constant of proportionality, constant term, coordinate plane,	DESMOS Edulastic

corresponding, counterclockwise, cross section, cube root, cylinder, dependent variable, dilation, equivalent expressions, expand, exponent, factor, function, hypotenuse, image, independent variable, irrational number, legs, linear relationship, negative association, outlier, positive association, prism, pyramid, pythagorean theorem, radius, rate of change, rational number, reciprocal, reflection, relative frequency, repeating decimal, right angle, rigid transformation, rotation, scale, scale drawing, scale factor, scaled copy, scatter plot, scientific notation, segmented bar graph, sequence of transformations, similar, slope, solution to an equation, solution to an inequality, sphere, square root, straight angle, supplementary, surface area, system of equations, term, tessellation, transformation, translation, transversal, two-way table, vertex, vertical angles, vertical intercept, volume	
Connections to Prior Units:	**Connections to Future Units:**
ACC 6, Unit 1	None
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**
Representation: Clarifying vocabulary and symbols	• Pre-teach vocabulary and symbols, especially in ways that promote connection to the learners' experience and prior knowledge • Provide graphic symbols with alternative text descriptions • Highlight how complex terms, expressions, or equations are composed of simpler words or symbols • Embed support for vocabulary and symbols within the text (e.g., hyperlinks or footnotes to definitions, explanations, illustrations, previous coverage, translations)
Supporting Multilingual/English Learners	
Related *CELP standards:*	**Learning Targets:**
An EL can evaluate and communicate findings to answer questions or solve problems.	Applies to all Learning Targets.

Lesson Sequence	Learning Target	Success Criteria

1 (Lessons 1-4)	• *I can explain and model square roots using math notation (Lessons 1-2)* • *I can explain the relationship between square roots and rational/irrational numbers using a number line (Lesson 3-4)*	Lesson 1 ●I can find the area of a tilted square on a grid by using methods like “decompose and rearrange” and “surround and subtract.” ●I can find the area of a triangle. Lesson 2 ●I can explain what a square root is. ●If I know the area of a square, I can express its side length using square root notation. ●I understand the meaning of expressions like "SQUARE ROOT 25" and "SQUARE ROOT 3". Lesson 3 • I know what an irrational number is and can give an example • I know what a rational number is and can give an example. Lesson 4 ●I can find a decimal approximation for square roots. ●I can plot square roots on the number line. ●When I have a square root, I can reason about which two whole numbers it is between.
2 (Lessons 5-9)	• *I can use the Pythagorean Theorem to justify if a triangle is a right triangle (Lessons 5-7)* • *I can use the Pythagorean Theorem to solve problems (Lessons 8, 9 & 13)*	Lesson 5 ●*I can explain what the Pythagorean Theorem says.* Lesson 6 ●*I can explain why the Pythagorean Theorem is true.* ●If I know the lengths of two sides, I can find the length of the third side in a right triangle. ●When I have a right triangle, I can identify which side is the hypotenuse and which sides are the legs. Lesson 7 ●I can explain why it is true that if the side lengths of a triangle satisfy the equation $a^2 + b^2 = c^2$ then it must be a right triangle. ●If I know the side lengths of a triangle, I can determine if it is a right triangle or not. Lesson 8 ●I can use the Pythagorean Theorem to solve problems. Lesson 9

		●I can find the distance between two points in the coordinate plane. ●I can find the length of a diagonal line segment in the coordinate plane.
3 (Lessons 10-11) ***Skip Lesson 12***	• *I can explain and model cube roots using math notation (Lesson 10)* • *I can represent rational numbers as equivalent decimals and explain the solution method (Lesson 11)*	Lesson 10 ●I can approximate cube roots. ●I know what a cube root is. ●I understand the meaning of expressions like "cubed root 5". Lesson 11 ●I can write a fraction as a repeating decimal. ●I understand that every number has a decimal expansion.
4 (Lesson 13)	• *I can use the Pythagorean Theorem to solve problems (Lessons 8, 9 & 13)*	Lesson 13 ●I can apply what I have learned about the Pythagorean Theorem to solve a more complicated problem. ●I can decide what information I need to know to be able to solve a real-world problem using the Pythagorean Theorem.

Course Assessment Map

Edulastic Links to be Added at a later time

Unit	Assessment 1	Assessment 2	Assessment 3	Assessment 4	Assessment 5
Unit 1-Proportional Relationships	CFA 1 (L3)	CFA 2 (L7)	CFA 3 (L16)	EOU (B)	
Unit 2-Percentage Increase and Decrease	CFA 1 (L4)	CFA 2 (L8)	CFA 3 (L10)	EOU (A)	
Unit 3-Rational Numbers	CFA 1 (L9)	CFA 2 (L16)	CFA 3 (L20)	EOU (B)*	
Unit 4-Writing and Solving Equations	CFA 1 (L6)	CFA 2 (L9)	CFA 3 (L11)	EOU (A)	
Unit 5-Inequalities, Expressions, and Equations	CFA 1 (L4)	CFA 2 (L9)	CFA 3 (L13)	EOU (B)	
Unit 6-Rigid Transformations and Congruence	CFA 1 (L3)	CFA 2 (L6)	MOU (B)	CFA 3 (L12)	EOU (A)*
Unit 7-Scale Drawings, Similarity and Slope	CFA 1 (L5)	MOU (A)	CFA 2 (L13)	CFA 3 (L15)	EOU (A)
Unit 8-Linear relationships	CFA 1 (L5)	CFA 2 (L10)	MOU (A)	CFA 3 (L15)	EOU (B)*
Unit 9-Functions and Volume	CFA 1 (L5)	MOU (B)	CFA 2 (L120)	CFA (L24)	EOU (A)
Unit 10-Pythagorean Theorem and Irrational Numbers	CFA 1 (L 3)	CFA 2 (L7)	CFA 3 (L10)	EOU (A)	

*Requires assessment modification due to skipped lessons.