Board of Education Meeting

Wednesday, October 7, 2026 6:30 PM
BOE Auditorium and via Zoom Meeting Platform, 129 Church Street, Bristol, CT 06010

1. **CALL TO ORDER/PLEDGE OF ALLEGIANCE/MOMENT OF SILENCE**

1.1. Aidan Collins - Bristol Eastern H.S.- Class of 2024 February 11, 2006 - September 19, 2026

2. **STAFF AND STUDENT RECOGNITION**

2.1. School Staff Appreciation Days

3. **APPROVAL OF MINUTES**

3.1. September 9, 2026 -Regular Meeting Minutes

3.2. September 9, 2026 -Special Meeting Minutes

3.3. September 23, 2026 -Special Meeting Minutes

4. **COMMITTEE REPORTS**

5. **STUDENT REPRESENTATIVE REPORTS**

5.1. Bristol Central High School
- Senior: Ann-Marie Beauchemin

5.2. Bristol Eastern High School
- Senior: Erin Martin

6. **CHAIR REPORT**

7. **SUPERINTENDENT REPORT**

7.1. Bus Patrol (School Cameras) Implementation Update

7.2. Bus Passes for High Schoolers

7.3. 2026-27 Budget Planning Update

7.4. PSAT/SAT Data Presentations

7.5. Attendance and Discipline Data Presentations

8. **CONSENT AGENDA**

8.1. PERSONNEL

8.1.a. Teacher Hires
- Blumetti, Olivia – ID – Kindergarten Teacher effective September 10, 2026
- Davis, Anitra – CHMS – Special Education Teacher effective September 24, 2026
- Dubin, Timothy – CW – Instrumental Teacher effective September 3, 2026
- Gianni, Nicole – CW – School Psychologist

effective August 24, 2026

- Good, Mary – CW/BOE – Special Education Teacher effective September 29, 2026
- Jimenez, Rebeca – GH – Speech and Language Pathologist effective September 22, 2026
- Newton, Sarah – STAF/EPH – Speech and Language Pathologist effective September 22, 2026
- Rimkie, Olivia – EPH/ID – Special Education Teacher effective September 15, 2026

8.1.b. Teacher Leave of Absence Requests

- Knopf, Brittany – CHMS – Special Education Teacher effective September 23, 2026 through the end of the 26-27 School Year
- LaRocca, MacKensie – GH – Grade 3 Teacher effective November 20, 2026 through the end of the 26-27 school year

8.1.c. Teacher Retirements

- Archangelo, Stacia – CW – Physical Education Teacher effective October 9, 2026
- Monaco-Walsh, Kristine – CW – Art Teacher effective June 30, 2027

8.1.d. A1 Hires effective August 24, 2026

- Behrendt, Sarah – CHMS – Co-Orange Team Leader

8.1.e. A2 Hire effective September 1, 2026

- Abucewicz, Danielle – BE/BC – Special Performing Groups, Strawberry Fields
- Nelson, David – CHMS – Special Performing Groups, Choral
- Wodatch, Sara – NEMS – Climate Coordinator

8.1.f. A2 Resignations effective June 30, 2026

- Abucewicz, Danielle – CHMS – Special MS Performing Groups, Choral
- Coderre, Michael – BEHS – Special Performing Groups, Strawberry Fields

8.1.g. Administrative Resignation effective October 30, 2026

- Broderick, Ryan – BCHS – Assistant Principal

8.2. GRANTS

8.2.a. Federal Adult Education - PEP Comprehensive 2

8.2.b. Prudence Crandall Center - CT Coalition Against Domestic Violence (CCADV)

8.2.c. United Way of Central and Northeastern CT - Family Resource Center Operating Funds

8.2.d. Early Start (formerly School Readiness)

8.2.e. Mainstreet Community Foundation - Jim & Eleanor Frawley Community Fund

8.2.f. The Barnes Foundation - Storytelling Residency Program

8.2.g.	Connecticut High Dosage Tutoring Program	
8.2.h.	CT Learner Engagement and Attendance Program (LEAP)	
8.2.i.	McKinney-Vento Homeless Children & Youth Program	
9.	**PUBLIC COMMENT**	
10.	**DELIBERATED ITEMS/DISTRICT LEADERSHIP TEAM REPORTS**	
10.1.	Pupil Personnel Services Report	
10.1.a.	Pupil Personnel Services Report	
11.	**CURRICULUM REVISION**	
11.1.	Decision: Latin Historical Prose, New Course	**Presenter:** Leszek Ward
11.2.	Decision: Algebra 2 Revision	**Presenter:** Laura Lanza
11.3.	Decision: Grade 6-8 Science Revision	**Presenter:** Laura Lanza
12.	**POLICY REVISION**	
12.1.	Revision: Policy 3231 - Medical Reimbursement for Special Education Students	
12.2.	Revision: Policy 5114 - Suspension and Expulsion/Due Process	
12.3.	Revision: Policy 5131.913 - Cyberbullying	
12.4.	Revision: Policy 4111/4211 - Recruitment and Selection	
12.5.	Policy 5117 - School Attendance Areas	
12.6.	Policy 1120 Public Participation at Board of Education Meetings	
12.7.	Bylaw 9325 Meeting Conduct	
12.8.	Bylaw 9322 Public and Executive Sessions	
13.	**NEW BUSINESS**	
13.1.	Donation from the BCHS Athletics Activities account to the BCHS Press Box project	
13.2.	Graduation Date for Class of 2027	
13.3.	First Review of Proposed School Calendars for 2027/2028 SY & 2028/2029 SY	
13.4.	First Review of Proposed 2027 Board of Education Meeting Dates	
14.	**INFORMATION/LIAISON REPORTS**	
14.1.	City Council Liaison Report	
14.2.	BOE Liaison Reports	

15. **ADJOURNMENT**

The minutes presented within this document summarize the discussion of the Regular Board of Education meeting. To view the meeting in its entirety and hear full reports please click the following link:9/9/26-Regular Board of Education Meeting

Bristol Board of Education
Bristol, Connecticut
Wednesday, September 9, 2026 – 7:00 p.m.
Regular Meeting Minutes

The Bristol Board of Education regular meeting was held on Wednesday, September 9, 2026, at 7:00 p.m. in the Bristol Board of Education Auditorium located at 129 Church Street and via Zoom Meeting Platform.

Present: Chair Shelby Pons, Commissioners: Jennifer Tagariello, Jill Fitzsimons-Bula, Kara Ledger, Robert Parenti, Barbara Tedesco, Kristen Giantonio, Jennifer Van Gorder; Peter Kelley, Board Liaison (virtual)

Also Present: Superintendent Iris White, Mary Hawk, Deputy Superintendent, Dr. Amy Martino, Director of Pupil Services, and Carly Fortin, Director of Curriculum and Instruction

1. Call to Order/Pledge of Allegiance/Moment of Silence:

Vice Chair Tagariello called the meeting to order at 7:00 p.m. and asked the audience to stand for the Pledge of Allegiance. Vice Chair Tagariello called for a moment of silence for Dr. Ann Clark, former Bristol Superintendent of Schools from 1997–2002, and Robert DeSantis, former Physical Education & Athletic Coordinator at BCHS from 1972–2020.

2. Staff and Student Recognition

2.1 AP Capstone Scholars

Superintendent White recognized five Bristol Eastern High School students—Kaelyn G. (Grade 12), Gabriel H. (Grade 11), Giavana H. (Grade 12), Avery N. (Grade 11), and Maja P. (Grade 11)—for earning the AP Capstone Diploma. The AP Capstone Diploma is awarded to students who earn a score of 3 or higher in both AP Seminar and AP Research, as well as a score of 3 or higher on four additional Advanced Placement (AP) Exams of their choice.

3. Approval of Minutes

3.1 August 5, 2026 -Regular Meeting Minutes

The Board of Education voted to approve the August 5, 2026 Regular Meeting Minutes as written.

Motion made by Kara Ledger and seconded by Jill Fitzsimons-Bula. The motion carried 7-0-1 with (1) abstention from Commissioner Jennifer Van Gorder.

3.2 August 12, 2026 - Special Meeting Minutes

The Board of Education voted to approve the August 12, 2026 Special Meeting Minutes.

Motion made by Kara Ledger and seconded by Jill Fitzsimons-Bula. The motion carried 6-0-2 with (2) abstentions from Commissioners Jennifer Tagariello and Kristen Giantonio.

DRAFT

4. Committee Reports

Finance & Operations: Commissioner Robert Parenti reported that the Finance Committee met on August 12, 2026. He reported that the District's projected deficit was approximately $2.4 million, with the Special Education deficit being the primary driver. He noted that, with the assistance of SEED and DRIP funds, the District was able to close the gap while awaiting additional invoices to finalize the 2025–2026 budget closeout.

Policy: Commissioner Jill Fitzsimons-Bula reported that the committee met on August 12, 2026, and tabled Policy 1120 and 3 others pertaining to the same topic. Seven policies were being brought forward this evening for the full board to approve revisions and/or rescind.

School Safety: Commissioner Jill Fitzsimons-Bula reported that the committee met earlier this evening and discussed all the following agenda items: ALICE Roll-Out Update, Camera Update, Stop the Bleed Training, Fire Alarm System Updates and Swatting Update.

Student Achievement Committee: Commissioner Kara Ledger reported the committee met on August 19, 2026, and brought forward to the full board this evening recommendations to approve new curriculum, curriculum revisions, and held discussions on the next two years of school calendars and the new administrator orientation.

5. Chair Report

No report provided.

6. Superintendent Report

Superintendent Iris White began her report by providing an overview of the 2026–2027 Convocation and the theme, "Better Together." The Convocation featured remarks from Board Chair Shelby Pons, Mayor Ellen Zoppo-Sassu, Bristol Public Schools Teacher of the Year Bevin Parent, as well as several student speakers and performers.

Superintendent White provided an update on the first week of school and acknowledged transportation concerns experienced during the opening days. She also shared positive photographs highlighting students arriving at school on the first day by school bus and other forms of transportation, including two kindergarten students who were selected through a raffle to ride the Bristol Fire Department truck to school.

Superintendent White reported that Bristol Public Schools has begun working with ERA Group to evaluate expenditures with external suppliers and service providers and identify opportunities to reduce costs without reducing services or compromising service quality. She noted that initial discussions have taken place and that the District will provide the necessary spending data to allow ERA Group to conduct its opportunity assessment.

DRAFT

Superintendent White also reviewed the 2026–2027 Data Presentations Calendar, which will first be presented to the Student Achievement Committee and subsequently to the full Board of Education. Superintendent White then introduced Carly Fortin to present the LAS assessment outcomes.

Mrs. Fortin presented the LAS outcomes, highlighting the following:

- Overall achievement among Bristol students on the LAS assessment was higher than the previous year and exceeded the state average.
- Achievement on the literacy subtests increased from the previous year and exceeded the state average.
- Achievement on the oral subtest was higher than the state average.
- Greater improvements were demonstrated in literacy.
- Growth on both the literacy and oral subtests improved, and the average percentage of the target achieved on both assessments was higher than the state average.

Questions and discussion followed regarding the impact of part-time teaching staff supporting multilingual learners at Ivy Drive School and Ellen P. Hubbell School.

Mrs. Fortin then presented the 2025–2026 Assessment Outcomes for Students in Advanced Placement Courses. She reported that students were enrolled in 19 AP courses district-wide. AP enrollment increased from Spring 2024 to Spring 2025, with Bristol Central High School increasing from 274 to 283 students (+9) and Bristol Eastern High School increasing from 249 to 297 students (+48).

The percentage of AP exams on which students earned a score of 3 or higher also increased from the prior year. At Bristol Central High School, the percentage increased from 72% to 81%, an increase of 9 percentage points. Mrs. Fortin reported that 71% of Advanced Placement courses had a success rate of 70% or higher, based on students earning a score of 3 or higher. Additionally, 58% of courses demonstrated an increase in the percentage of potential college credit earned compared to the previous year.

Mrs. Fortin noted that enrollment in Early College Experience (ECE) courses continues to increase compared with enrollment in AP courses and that students enrolled in AP courses are provided the opportunity to take the corresponding AP examination.

Questions and discussion followed regarding ECE credentials, teacher availability, and the acceptance of ECE course credits by colleges and universities.

This concluded the Superintendent's Report.

7. <u>Consent Agenda</u>

Vice Chair Tagariello called for a motion to approve the consent agenda, which included items from 7.1.a to 7.2.h.

DRAFT

Motion made by Jill Fitzsimons-Bula and seconded by Kara Ledger. Motion passed unanimously.

7.1 PERSONNEL

7.1.a Teacher Hires

Baucum, Matthew – BEHS - .5 TESOL Teacher effective August 24, 2026
Boucher, Jennifer – GH – Grade 5 Teacher effective August 24, 2026
Champagne, Kristin – BCHS – CW Special Education Teacher (Learning Center) effective August 24, 2026
Collopy, Kelly – BEHS – Mathematics Teacher effective August 24, 2026
Dauti, Marina – BCHS – Guidance On-Track Coordinator effective August 24, 2026
DeFusco, Anna – EPH – Special Education Teacher effective August 24, 2026
Dube, Emilie – GH – School Psychologist effective August 24, 2026
Effend, Caitlin – SS – Grade 5 Teacher effective August 24, 2026
Francesco, Nicholas – STAF – Kindergarten Teacher effective August 26, 2026
MacLean, Jessica – STAF – Special Education Teacher effective August 24, 2026
Mancini, Kimberly – CHMS – Special Education Teacher effective August 24, 2026
McDonald, Colin – CHMS – Mathematics Teacher effective August 24, 2026
McKenzie, Makeda – CHMS – ELA Teacher effective August 24, 2026
Morrell, Erin – STAF – Grade 3 Teacher effective August 24, 2026
Oakes, Jessica – BCHS – Special Education Teacher – EXCEL Program effective August 24, 2026
Salazar, Ashley – GH – Grade 5 Teacher effective August 25, 2026
Salvatore, Trey – SS – PE/Health Teacher effective August 24, 2026
Scarola, Thomas – BAIMS – Grade 7 Mathematics Teacher effective September 2, 2026
Signor, Michelle – WB – Special Education Teacher – LEAD Program effective August 24, 2026
Urbanowicz, Annamarie – WB – Special Education Teacher effective August 24, 2026
Webb, Sophia – STAF – Special Education Teacher effective August 27, 2026

7.1.b Teacher Leave of Absence Requests

Kohan, Rebecca – WB – Grade 3 Teacher effective December 3, 2026 returning January 4, 2027
Olsen, Kate – BEHS – World Language Teacher effective August 24, 2026 through the end of the 2026-2027 SY
Shortt, Miranda – CHMS – February 11, 2027 through the end of the 2026-2027 SY

7.1.c Teacher Resignation effective June 30, 2026

Bazarewsky, Olivia – CW – TESOL Teacher

7.1.d A1 Hires effective August 24, 2026

Bell, Margaret – CHMS – Co-Green Team Leader
Miller, Joseph – CHMS – Co-Green Team Leader

7.1.e A2 Hires effective August 27, 2026

DRAFT

Archibald, Kathleen – BCHS – Freshman Co-Advisor
Nocera, Shelly – BEHS – Freshman Co-Advisor
Rochester, Anya – BCHS – Freshman Co-Advisor
Stavens, John – BEHS – Freshman Co-Advisor

7.1.f Sixth Year Salary Credit effective September 1, 2026

7.1.g Administration Hire
Kulak, Michael – Greene Hills Assistant Principal

7.1.h A3 Hire effective August 24, 2026
Boudreau, Kenneth – WB – Gifted Coach
Grenier, Bridget – BCHS – Team Leader – History
McCabe, Kelly – BCHS – Team Leader – Mathematics
Reichler, Elizabeth – BCHS – Team Leader – HS Student Support Coordination
Silva, Alyson – BCHS – HS Student and Family Engagement
Steszewski, Craig – BAIMS – MS Curriculum Coordinator – Mathematics

7.2 GRANTS
7.2.a 2026-27 Alliance District Application
7.2.b Nita M. Lowey 21st Century Community Learning Centers (21st CCLC) - Summer Supplemental Funding
7.2.c ReadyCT Robotics Grant for Bristol Eastern and Bristol Central High Schools
7.2.d ReadyCT Robotics Grant for Chippens Hill Middle School
7.2.e CSDE Family Resource Center Grant Awarded to Bristol Family Resource Center (FRC)
7.2.f Primary Mental Health Grant Awarded to Family Resource Center
7.2.g State Adult Education
7.2.h Peter R. Marsh Grant - BAIMS Music - Theresa MacDonald

Prior to moving on to item #8, Vice Chair Tagariello invited Mr. Michael Kulak to address the Board on his appointment as Greene Hills Assistant Principal. Mr. Kulak introduced himself and addressed the Board about his future goals as Assistant Principal at Greene Hills.

8. Public Comments

No public comment this evening.

9. Deliberated Items/District Leadership Team Reports

9.1 Pupil Personnel Services Report

Dr. Amy Martino provided the Pupil Personnel Services Report, including an overview of enrollment and services within the District.

As of July 31, 2026, 1,722 of the 7,646 enrolled Bristol Public Schools students were identified as requiring special education programming, representing 22.52% of the total student population.

DRAFT

As of August 1, 2026, 121 students with disabilities required out-of-district placements at private special education school programs. An additional 89 students required special education programming and services at other public out-of-district schools, including magnet schools.

During July 2026, 46% (31 of 68) of newly registered students were identified as requiring special education programming at the time of registration. None of the newly registered students required programming or services at an out-of-district special education school. There were no 211 or 911 calls during the month of July.

Dr. Martino noted that yearly trends by month from 2019 through 2026 were included to provide a comparison of enrollment changes over time. She noted that enrollment fluctuates significantly during July and August, which impacts enrollment figures.

Dr. Martino also provided an update on the Pupil Personnel Services budget. As of July 31, 2026, all budget lines remained fully available, with the exception of Private Placement Tuition, where expenditures had begun as anticipated. Encumbrances for the 2026–2027 school year had not yet been fully processed across all budget lines. The Department will continue to monitor each account as expenditures and encumbrances are recorded and will provide regular updates regarding budget status, including any areas of concern or emerging fiscal trends.

No questions or discussion followed the report.

10. Curriculum Revisions

10.1 Decision: AP Cybersecurity New Curriculum

Laura Lanza, Secondary STEM Supervisor, presented the new AP Cybersecurity curriculum to the Board. She highlighted that the curriculum meets the requirements of new Connecticut State Department of Education (CSDE) legislation requiring computer science courses to include instruction in Artificial Intelligence (AI) and emerging technologies.

Ms. Lanza also noted that AP Cybersecurity is part of the AP Career Kickstart program, through which students can earn a Cybersecurity Credential designed to prepare them for internships and apprenticeships.

No questions or discussion followed the presentation.

Vice Chair Tagariello asked for a motion to approve the AP Cybersecurity New Curriculum as presented.

Motion made by Kara Ledger and seconded by Kristen Giantonio. Motion passed unanimously.

10.2 Decision: AP Statistics Revision

DRAFT

Laura Lanza, Secondary STEM Supervisor, presented the AP Statistics curriculum revision to the Board. She highlighted that the revised AP Statistics course introduces students to the major concepts and tools used to formulate questions, collect and analyze data, and interpret results.

No questions or discussion followed the presentation.

Vice Chair Tagariello asked for a motion to approve the AP Statistics Revision as presented.

Motion made by Kara Ledger and seconded by Jennifer Van Gorder. Motion passed unanimously.

10.3 Decision: AP Chemistry Revision

Laura Lanza, Secondary STEM Supervisor, presented the AP Chemistry curriculum revision to the Board. She highlighted that the course is equivalent to a college-level general chemistry course. Students will develop and apply reasoning skills by using chemical models to analyze, explain, and predict phenomena and by supporting claims with scientific evidence derived from data, models, and theories.

No questions or discussion followed the presentation.

Vice Chair Tagariello asked for a motion to approve the AP Chemistry Revision as presented.

Motion made by Jennifer Van Gorder and seconded by Kristen Giantonio. Motion passed unanimously.

11. Textbook Adoption

11.1 Decision/Textbooks: AP Statistics Textbooks (waive second reading)

Laura Lanza, Secondary STEM Supervisor, presented the AP Statistics textbook, The Practice of Statistics for the AP Course, 8th Edition, by Daren Starnes and Josh Tabor, and requested that the Board waive the second reading. The textbook supports the revision of the AP Statistics curriculum necessitated by revisions to the College Board Course and Exam Description (CED), effective Fall 2026.

Questions and discussion followed the presentation, specifically regarding the online component of the textbook.

Vice Chair Tagariello asked for a motion to approve the AP Statistics textbook and waive the second reading as presented.

Motion made by Barbara Tedesco and seconded by Jennifer Van Gorder. Motion passed unanimously.

DRAFT

11.2 Decision/Textbooks: Media Freedom and Power Textbook (waive second reading)
Lesek Ward, Secondary Humanities Supervisor, presented the Media, Freedom, and Power textbook, The Power of Free Expression in America, 3rd Edition, by Frank Harris III, Jerry Dunklee, and Jodie Gil, and requested that the Board waive the second reading.

The textbook is the required textbook for the Media, Freedom, and Power SCSU ECE course. The new 3rd Edition (2027) includes legal updates, expanded content, and reorganized material. Questions and discussion followed the presentation regarding course availability.

Vice Chair Tagariello asked for a motion to approve the Media Freedom and Power Textbook and waive the second reading as presented.

Motion made by Barbara Tedesco and seconded by Jennifer Van Gorder. Motion passed unanimously.

12. Policy Revisions

12.1 Revision: Policy 5142 -School Safety: Preparation, Response, and After Action
Commissioner Fitzsimons-Bula presented an update to Policy 5142, School Safety: Preparation, Response, and After Action, to incorporate requirements from Public Act 26-1. This act introduces new mandates regarding public access to security plans, drill notification protocols, and the restriction of high-sensory drill elements, such as simulated gunfire, to mitigate emotional distress. The revised policy aligns with the July 2026 CABE Policy Highlights. Red text indicates language to be removed and blue text indicates updated language. This policy was last revised on July 8, 2026.

Questions and discussion followed about the 7-day notice requirement for drills.

Vice Chair Tagariello called for a motion to approve the revisions to Policy 5142 School Safety: Preparation, Response, and After Action as presented.

Motion made by Jennifer Van Gorder and seconded by Kara Ledger. The motion passed.

12.2 Rescind: Policy 5141.6 - Crisis Management
Commissioner Fitzsimons-Bula presented Policy 5141.6, Crisis Management. She noted that per the updated CABE Policy 5142, School Safety: Preparation, Response, and After Action, this policy consolidates three previous CABE model policies: Safe and Secure School Facilities (3516), Emergencies and Disaster Preparedness (6114), and Crisis Management Plan (5141.6). She further explained that these three policies may be rescinded upon the adoption of the updated Policy 5142, which incorporates requirements from Public Act 26-1.

DRAFT

No questions or discussion followed.

Vice Chair Tagariello called for a motion to rescind Policy 5141.6 Crisis Management.

A motion was made by Jennifer Van Gorder and seconded by Kara Ledger. The motion passed.

12.3 Rescind: Policy 6114 - Emergencies and Disaster Preparedness
Commissioner Fitzsimons-Bula presented Policy 6114 Emergencies and Disaster Preparedness. She noted that per the updated CABE Policy 5142, School Safety: Preparation, Response, and After Action, this policy consolidates three previous CABE model policies: Safe and Secure School Facilities (3516), Emergencies and Disaster Preparedness (6114), and Crisis Management Plan (5141.6). She further explained that these three policies may be rescinded upon the adoption of the updated Policy 5142, which incorporates requirements from Public Act 26-1.

No questions or discussion followed.

Vice Chair Tagariello called for a motion to rescind Policy 6114 Emergencies and Disaster Preparedness.

A motion was made by Jennifer Van Gorder and seconded by Kara Ledger. The motion passed.

12.4 Rescind: Regulation 5131.914
Commissioner Fitzsimons-Bula provided background regarding Regulation 5131.914- School Climate. It was noted that a CABE audit indicated the absence of a corresponding policy, with only a regulation in place, necessitating a review. She explained that following the adoption of Policy 5131.911 (Connecticut School Climate) on June 4, 2025, which aligns with current CABE standards, Regulation 5131.914 is now duplicative.

No questions or discussion followed.

Vice Chair Tagariello called for a motion to rescind Regulation 5131.914 - School Climate.

A motion was made by Jennifer Van Gorder and seconded by Kristen Giantonio. The motion passed.

12.5 Revision: Policy 5131.8 - Out of School Misconduct
Commissioner Fitzsimons-Bula provided background on Policy 5131.8 (Out of School Misconduct), noting that the current policy required updates following a recent CABE audit. Revisions were developed using the latest CABE model as a framework, with blue text indicating new additions and red text signifying proposed deletions. The policy was last updated on February 7, 2007.

DRAFT

No questions or discussion followed.

Vice Chair Tagariello called for a motion to approve the revisions to Policy 5131.8 Out of School Misconduct as presented.

A motion was made by Jennifer Van Gorder and seconded by Kara Ledger. The motion passed.

12.6 Revision: Policy 5141.5- Suicide Prevention and Intervention
Commissioner Fitzsimons-Bula presented an update to Policy 5141.5, Suicide Prevention and Intervention, as part of a CABE audit requirement. The revision integrates language to make the 988 crisis line widely available and incorporates updated risk factors for youth suicide developed by the Connecticut Suicide Advisory Board. Ms. Fitzsimons-Bula noted that while CABE identifies this as a mandated policy, the revisions specifically align the policy with the requirements of Public Act No. 23-167, which necessitates written procedures for youth suicide prevention. The policy was last updated on January 15, 2021, and the proposed changes are presented with new additions in blue and deletions in red.

Questions and discussion followed regarding assessment protocol and procedures.

Vice Chair Tagariello called for a motion to approve the revisions to Policy 5141.5 Suicide Prevention and Intervention as presented.

A motion was made by Jennifer Van Gorder and seconded by Robert Parenti. The motion passed.

12.7 Revision: Policy 5141.24 - Students/Staff with HIV or AIDS
Commissioner Fitzsimons-Bula presented Policy 5141.24 (Students/Staff with HIV or AIDS), noting that a recent CABE audit determined the policy remains appropriate as written, subject to minor updates to remove ARC language and add or update relevant legal references. Proposed deletions are indicated in red strikethrough text and additions in blue text. The policy was last updated on April 4, 2007.

No questions or discussion followed.

Vice Chair Tagariello called for a motion to approve the revisions to Policy 5141.24 Students/Staff with HIV or AIDS as presented.

A motion was made by Jennifer Van Gorder and seconded by Robert Parenti. The motion passed.

13. NEW BUSINESS
13.1 Appointment of BEHS Roof Committee Liaison

Vice Chair Tagariello asked for a motion to approve Robert Parenti as the BOE Committee Liaison for the BEHS Roof Committee.

Motion made by Barbara Tedesco and seconded by Kara Ledger. Motion passed unanimously.

13.2 Appointment of Policy Committee Member
13.3 Appointment of School Safety Committee Member
Vice Chair Tagariello asked for a motion to table items 13.2 and 13.3, as the Board cannot appoint members to these roles until a new Board Member is appointed to fill the vacancy left by Commissioner Osenkowski.

Motion made by Jill Fitzsimons-Bula and seconded by Jennifer Van Gorder. Motion passed unanimously.

14. Information/Liaison Reports

14.1 City Council Liaison Report

No report provided.

14.2 BOE Liaison Reports

Commissioner Van Gorder reported that BCHS is allowing Seniors to paint their parking spots as a fundraiser if approved by appropriate channels.

Commissioner Parenti provided a thank you and congratulations to the new Greene Hills Assistant Principal Mr. Michael Kulak.

Commissioner Giantonio provided information about the state bus pass initiative for students and inquired about public transportation availability for BCHS students.

15. Adjournment

There being no further business to come before the Board, the Regular Board of Education Meeting adjourned at 8:18 p.m.

Respectfully Submitted,

Sydney Molina
Recording Secretary
Bristol Board of Education

DRAFT

The minutes presented within this document summarize the discussion of the Special Board of Education meeting. To view the meeting in its entirety and hear full reports please click the following link:9/9/26-Special Board of Education Meeting

Bristol Board of Education
Bristol, Connecticut
Wednesday, September 9, 2026 – 6:30 p.m.
Special Meeting Minutes

The Bristol Board of Education Special meeting was held on Wednesday, September 9, 2026 at 6:30 p.m. in the Bristol Board of Education Auditorium located at 129 Church Street and via Zoom Meeting Platform.

Present: Chair Shelby Pons (virtual), Commissioners: Jennifer Tagariello, Jill Fitzsimons-Bula, Kristen Giantonio,,Kara Ledger , Robert Parenti, Barbara Tedesco,Jennifer Van Gorder and Peter Kelley, Board Liaison

Also, Present: Superintendent Iris White, Mary Hawk, Deputy Superintendent, Dr. Amy Martino, Director of Pupil Services

1. Call to Order/Pledge of Allegiance/Moment of Silence:
Vice Chair Tagariello called the meeting to order at 6:34 p.m. and asked the audience to stand for the Pledge of Allegiance.

2. Introduction of Candidate
2.1 Assistant Principal of Greene-Hills School
Superintendent White shared some background about the hiring for the position of the Assistant Principal of Greene Hills School. Ms. White will be recommending Michaek Kulak for the position of Assistant Principal of Greene Hills School and provided an introduction of Mr. Kulak.

Questions and discussion followed the introduction

3. Adjournment
There being no further business to come before the Board, the Special Board of Education Meeting adjourned at 6:41 p.m.

Respectfully Submitted,

Sydney Molina
Recording Secretary
Bristol Board of Education

DRAFT

The minutes presented within this document summarize the discussion of the Special Board of Education meeting. To view the meeting in its entirety and hear full reports please click the following link:9/23/26-Special Board of Education Meeting

Bristol Board of Education
Bristol, Connecticut
Wednesday, September 23, 2026 – 5:45 p.m.
Special Meeting Minutes

The Bristol Board of Education regular meeting was held on Wednesday, September 23, 2026 at 5:45 p.m. in the Bristol Board of Education Auditorium located at 129 Church Street and via Zoom Meeting Platform.

Present: Chair Shelby Pons,Commissioners: Jennifer Tagariello, Jill Fitzsimons-Bula (virtual),Kara Ledger ,Thomas Hick, Robert Parenti, and Peter Kelley, Board Liaison

Absent: Commissioners: Kristen Giantonio and Jennifer Van Gorder; and Barbara Tedesco

Also, Present: Superintendent Iris White, Mary Hawk, Deputy Superintendent, Jodi Bond, Director of Finance, Dr. Amy Martino, Director of Pupil Services, Joseph Grabowski, Chief Talent Officer,and Jeff Telke, Supervisor of IT

1. Call to Order/Pledge of Allegiance

Chair Pons called the meeting to order at 5:45 p.m. and asked the audience to stand for the Pledge of Allegiance.

2. Discussion and Possible Action of:

2.1 Appointment/Reassignment of Board of Education Commissioners to the Policy Committee

Chair Pons called for a motion to approve the reassignment of Commissioner Ledger from Alternate to Committee Member and appointment of Commissioner Hick as alternate to the Policy Committee.

No questions or discussion followed.

Motion was made by Commissioner Jennifer Tagariello and seconded by Commissioner Jill Ftizsimons Bula. Motion Carried.

2.2 Appointment/Reassignment of Board of Education Commissioners to the Finance Committee

Chair Pons called for a motion to approve the removal of Commissioner Ledger from Finance & Operations and the appointment of Commissioner Hick as Finance & Operations committee member.

Questions and discussion followed about Commissioner Ledger being alternate.

Motion was made by Commissioner Jennifer Tagariello and seconded by Commissioner Robert Parenti. Motion Carried.

2.3 Appointment of Board of Education Commissioner to the School Safety Committee
Chair Pons called for a motion to approve the appointment of Commissioner Hick as School Safety committee member

No questions or discussion followed.

Motion was made by Commissioner Jennifer Tagariello and seconded by Commissioner Kara Ledger. Motion Carried.

2.4 Appointment of Board of Education Commissioner to be a School Liaison
Chair Pons called for a motion to approve the appointment of Commissioner Hick as Ivy Drive School Liaison.

No questions or discussion followed.

Motion was made by Commissioner Jennifer Tagariello and seconded by Commissioner Jill Ftizsimons Bula. Motion Carried.

3. <u>Adjournment</u>
There being no further business to come before the Board, the Special Board of Education Meeting adjourned at 5:48 p.m.

Respectfully Submitted,

Sydney Molina

Sydney Molina
Recording Secretary
Bristol Board of Education

DRAFT

7. SUPERINTENDENT REPORT

7.4 PSAT/SAT Data Presentations

Bristol Public Schools

Bristol Public Schools

High School Achievement
SAT

2026 SAT Performance Headlines

Math Growth & Rankings: All juniors met expected Math growth from PSAT to SAT, moving Bristol to 2nd among Alliance districts.

EBRW Improvements: Bristol Eastern High School led district gains in Evidence-Based Reading & Writing, raising Bristol's Alliance ranking to 3rd.

Special Population Wins: Students qualifying for Free/Reduced lunch outperformed the state average in Math and EBRW

Outperforming Previous Cohorts: The Class of 2027 outscored the Class of 2026 in SAT Math district-wide and in EBRW at Bristol Eastern High.

Bristol Public Schools

CT School SAT Day – EBRW

BEHS and the Bristol District had a higher mean score on EBRW in 2025 than in 2024. Highest for BEHS since 2018.

Year	State of CT	Bristol	BCHS	BEHS
15-16	520	495	495	501
16-17	524	504	501	505
17-18	516	497	499	495
18-19	514	482	485	481
21-22	501	483	480	490
22-23	493	474	470	479
23-24	492	458	453	468
24-25	499	479	478	484
25-26	**501**	**480**	470	**495**

Bristol Public Schools

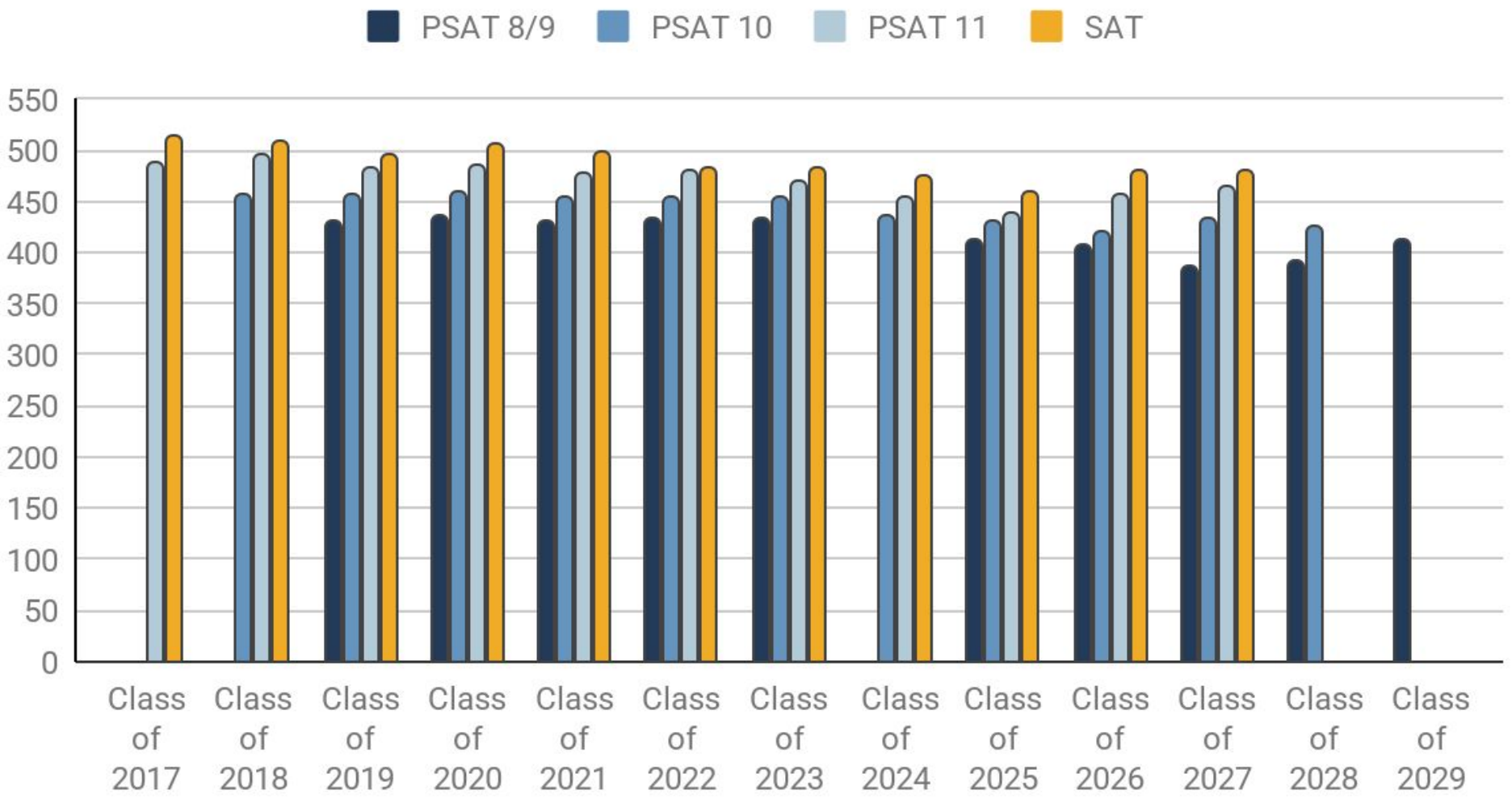
CT School SAT Day – Math

BEHS, BCHS and the Bristol District had a higher mean score on Math this year than last. Highest for BEHS and the district since 2018, highest for BCHS since 2019.

Year	State of CT	Bristol	BCHS	BEHS
15-16	502	482	488	477
16-17	499	488	489	486
17-18	505	475	483	467
18-19	494	461	464	458
21-22	485		460	468
22-23	484	455	453	459
23-24	472	444	443	453
24-25	474	456	457	458
25-26	473	463	462	470

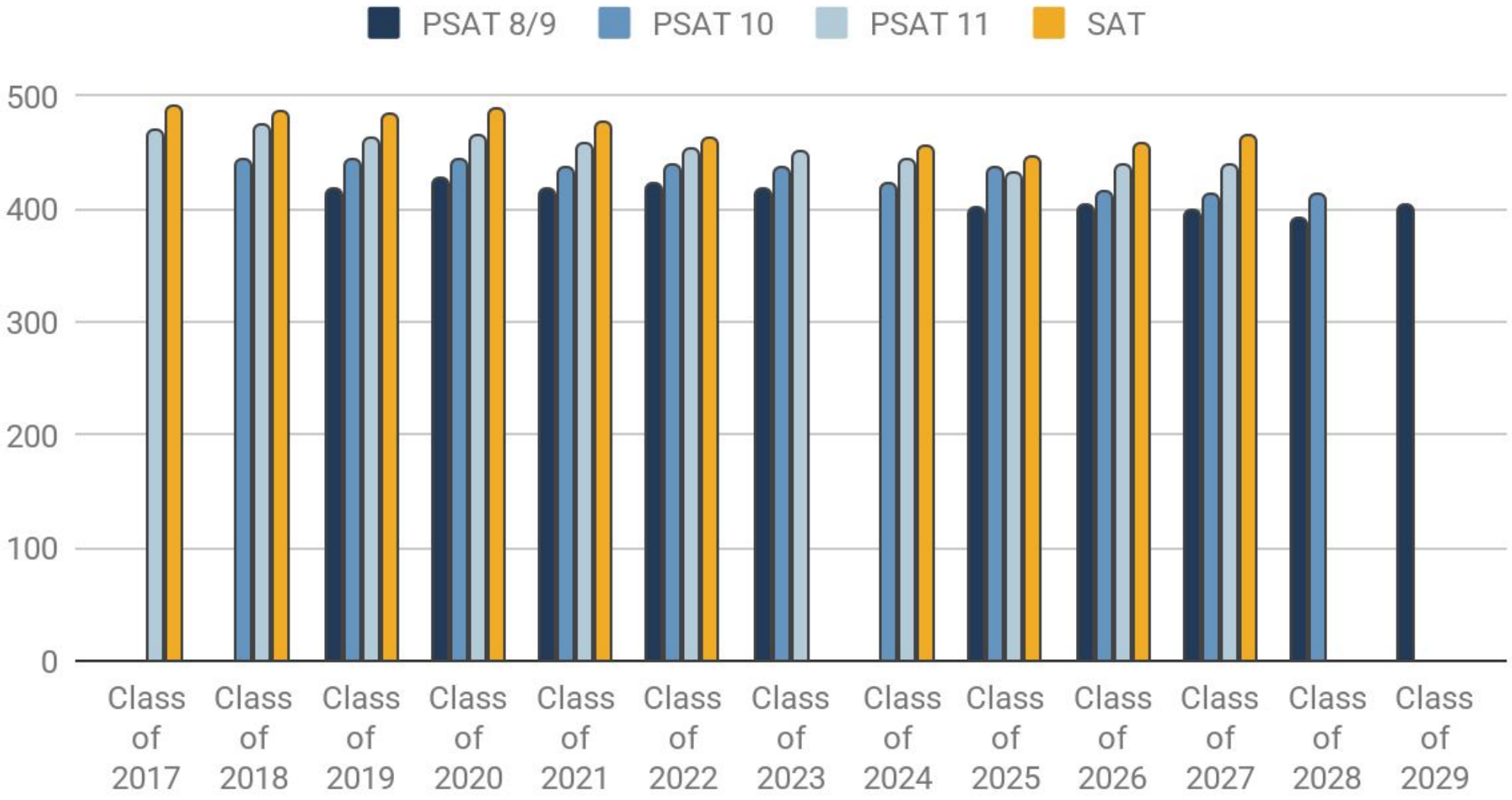
Bristol Public Schools

District PSAT/SAT Data by Class-EBRW



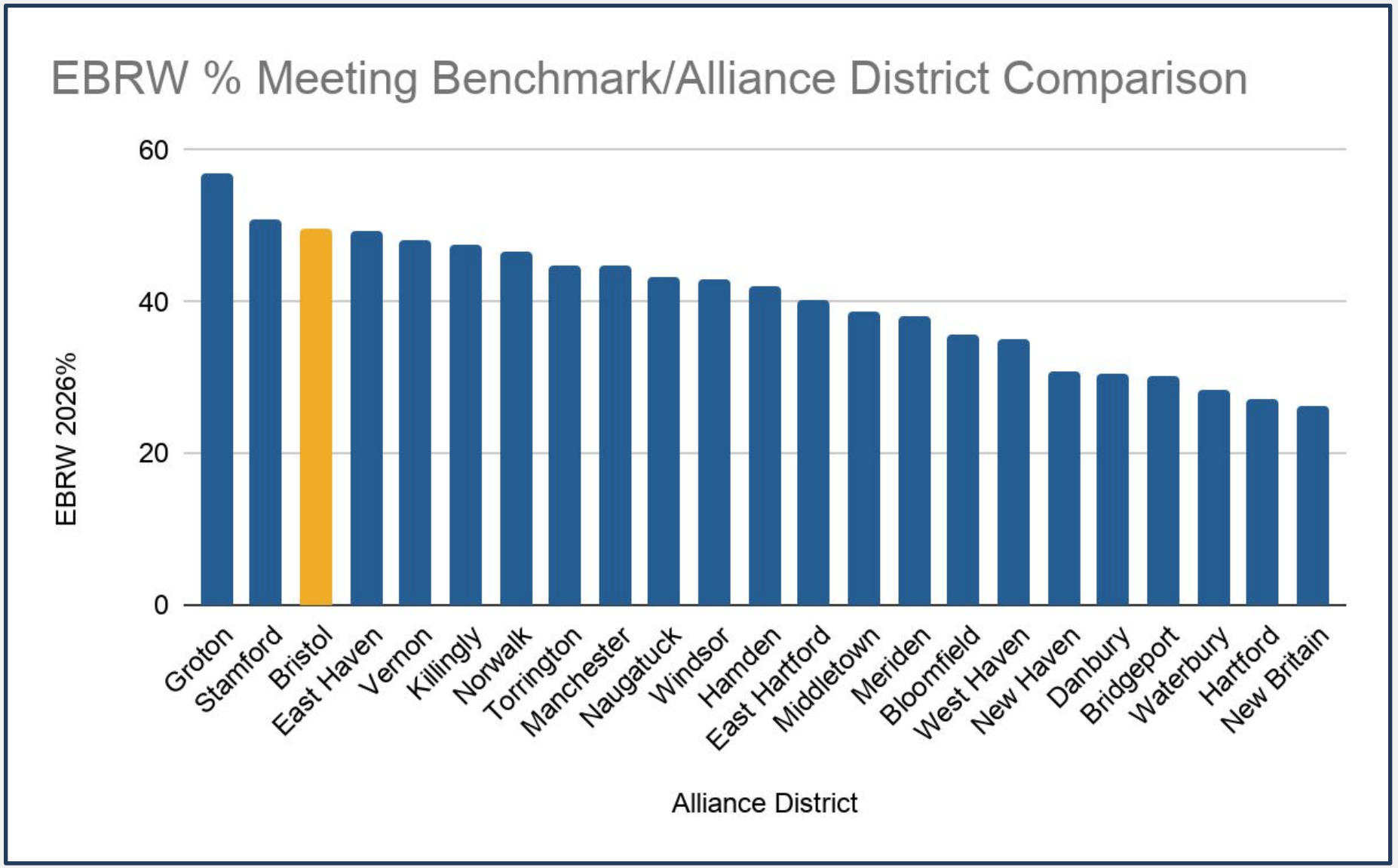
Bristol Public Schools

District PSAT/SAT Data by Class-Math



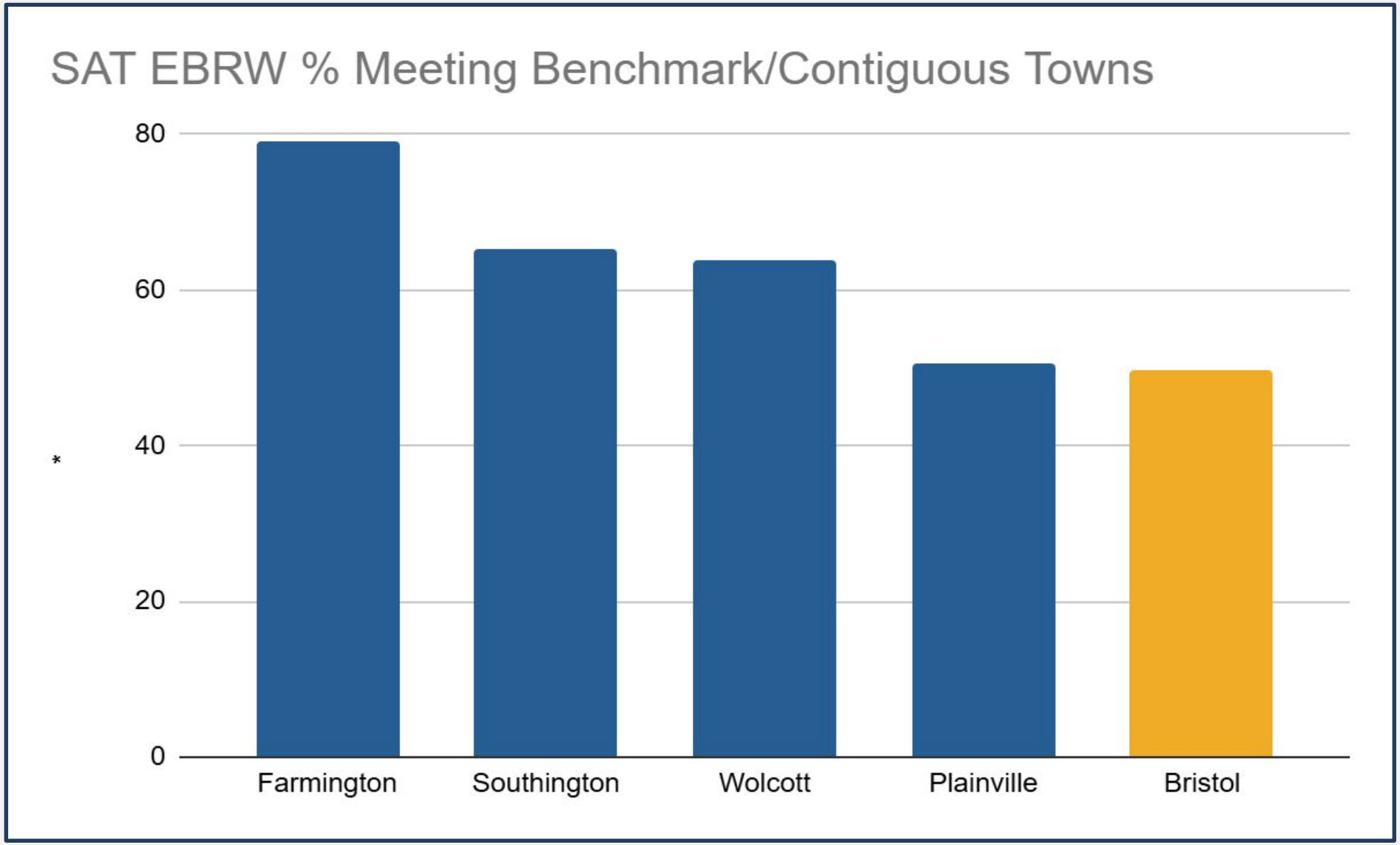
Bristol Public Schools

Bristol schools have improved EBRW performance from fifth highest performing to **third highest** performing among Alliance districts.



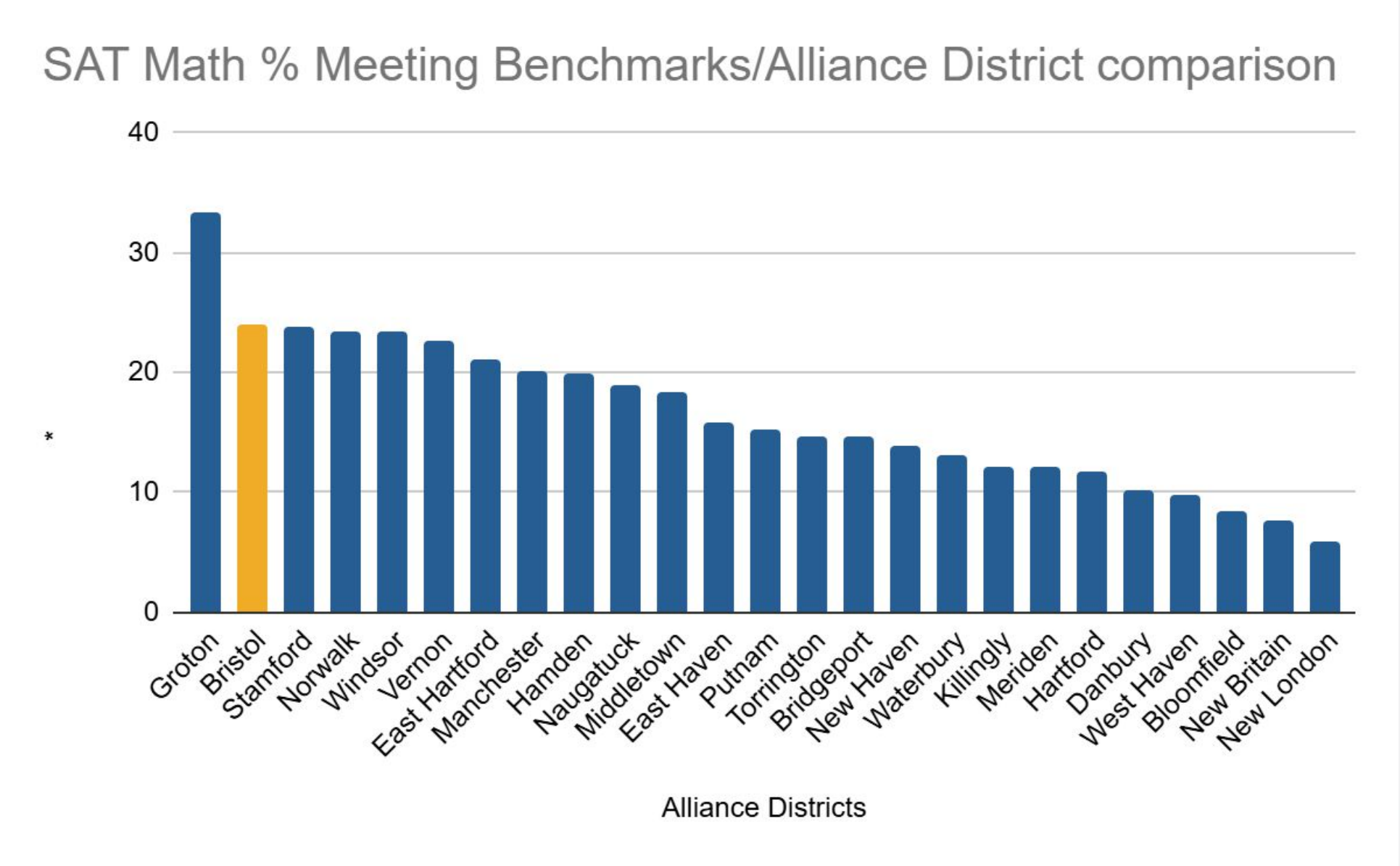
Bristol Public Schools

Bristol schools have improved EBRW performance when compared to ranking among contiguous towns in 2024.



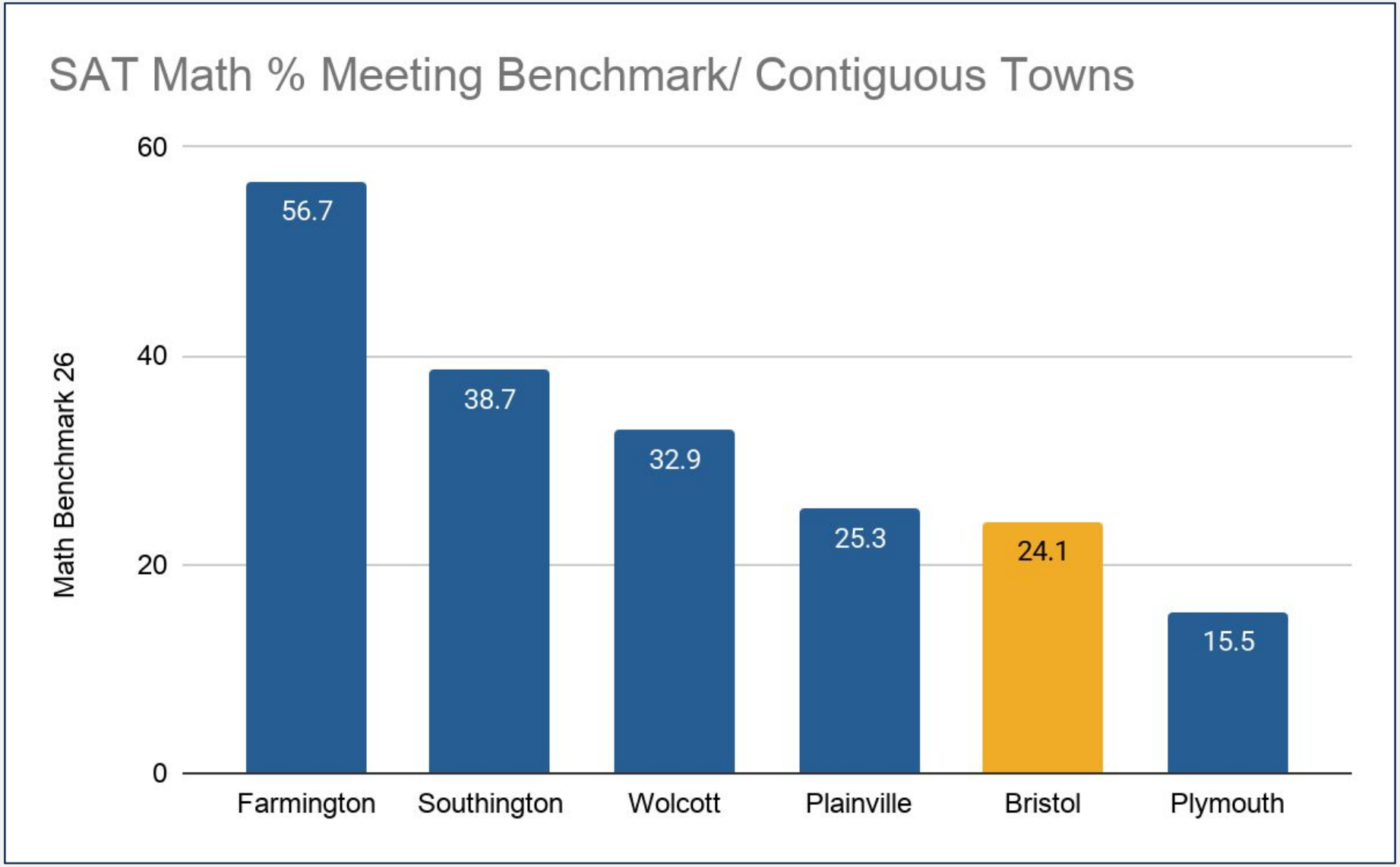
Bristol Public Schools

Bristol schools have improved Math performance from fifth highest performing to **second highest** performing among Alliance districts.



Bristol Public Schools

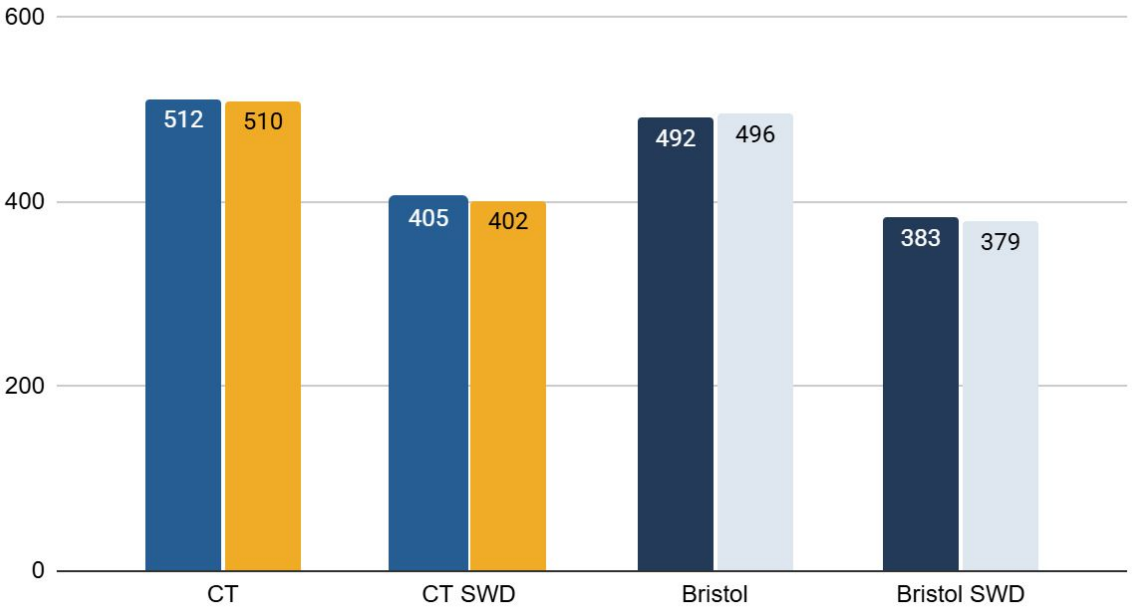
Bristol schools have improved Math performance when compared to ranking among contiguous towns in 2024.

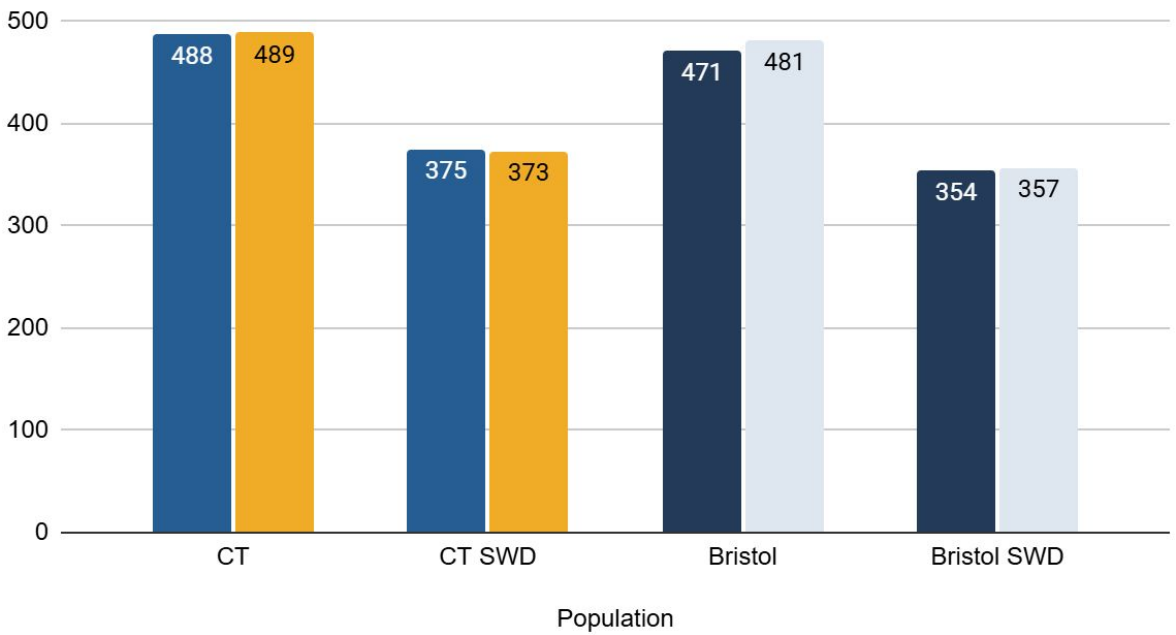


Bristol Public Schools

2026 SAT Performance by Special Populations

Bristol Students with Disabilities had a higher SAT mean score in Math when compared to last year.

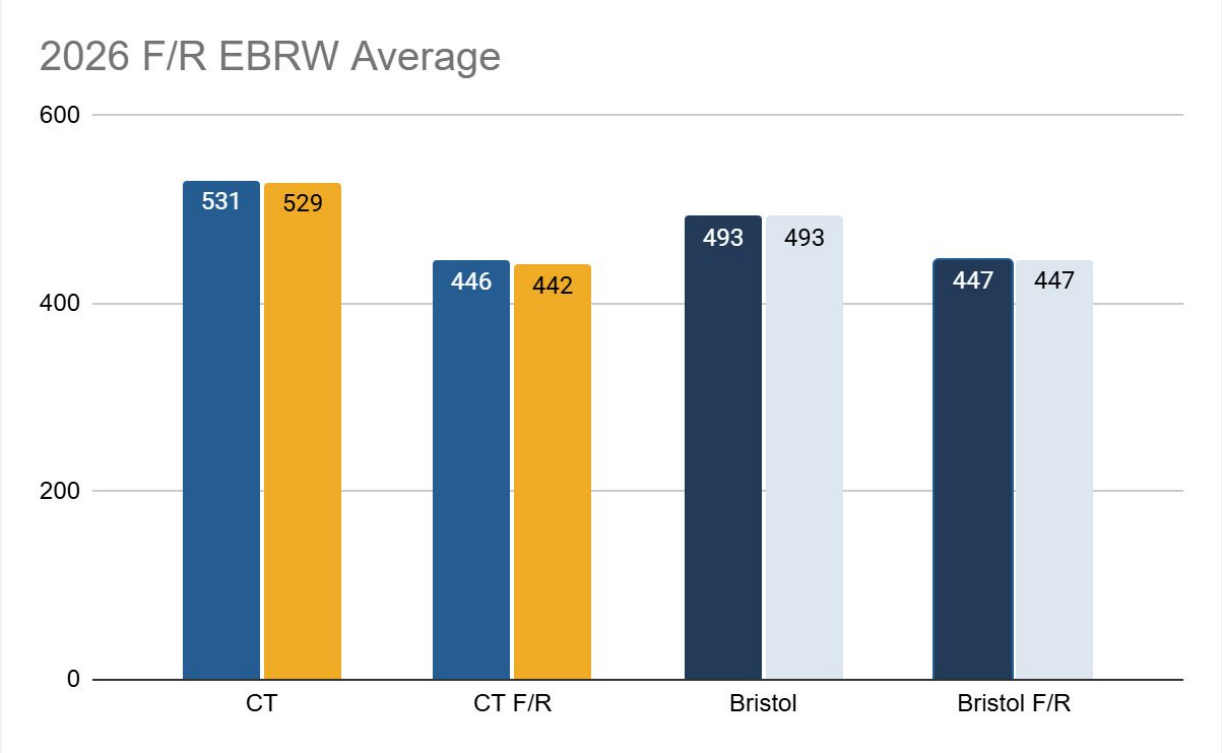


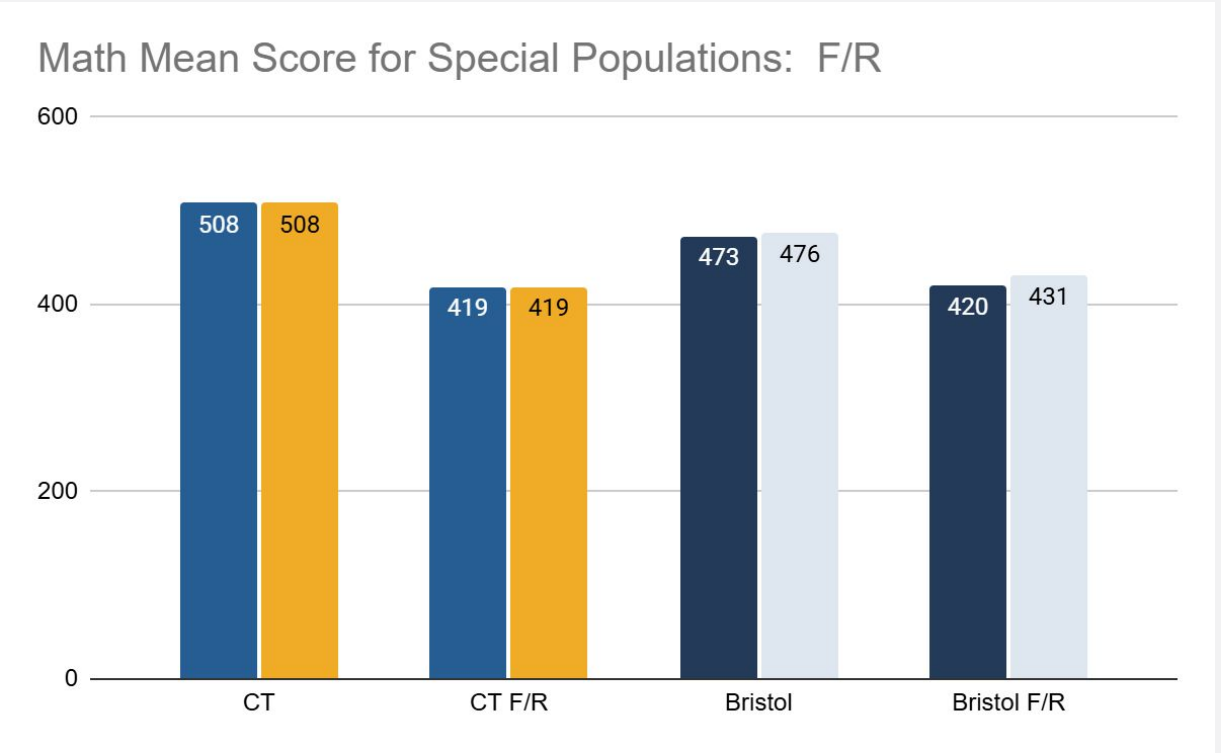


Bristol Public Schools

2026 SAT Performance by Special Populations

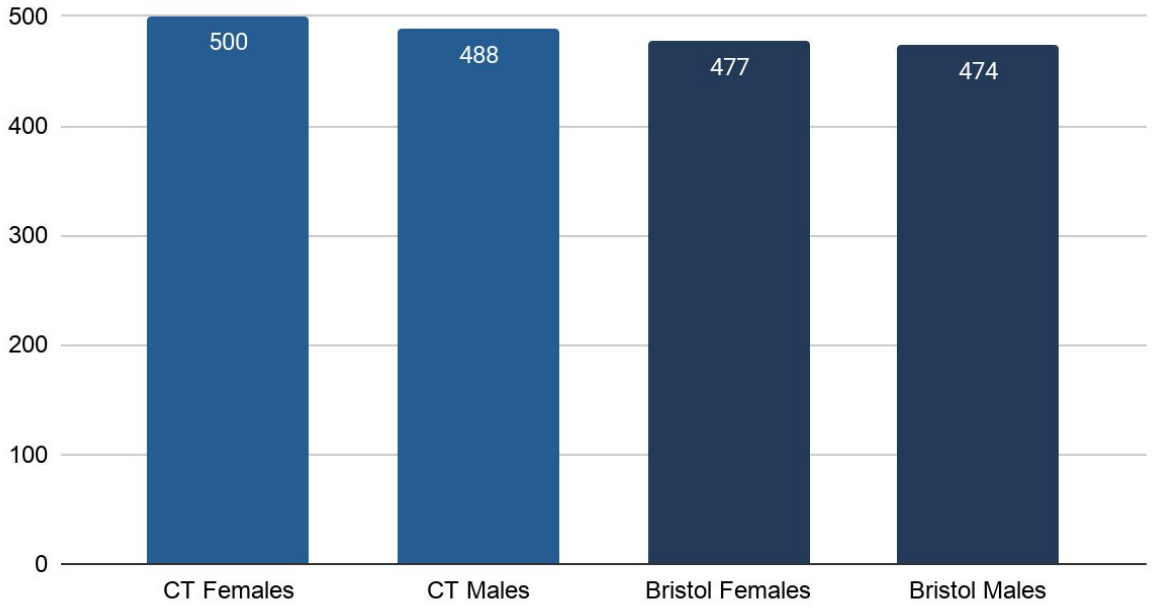
Bristol students who qualify for Free or Reduced lunch score better than the state average in EBRW and Math, improving in Math when compared to the prior year.

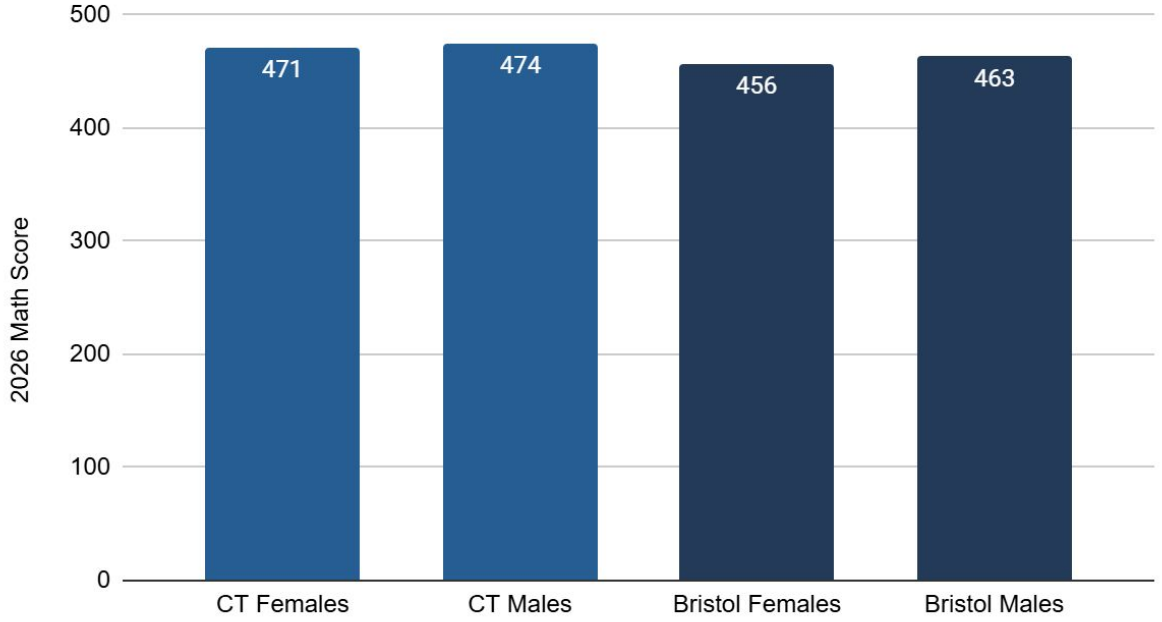




Bristol Public Schools

2024 SAT Performance
Gender





Bristol Public Schools

District Recap: High School PSAT / SAT Performance

Key achievement highlights and progress metrics across district schools

MATH PERFORMANCE

- All Bristol juniors met expected growth in Math from PSAT to SAT Administration.
- The Class of 2027 outperformed the Class of 2026 on SAT math.
- Bristol ranked **2nd** in % of students meeting Math Benchmark among Alliance districts (up from 5th last year, 8th in 2024).
- Students qualifying for F/R lunch outperformed the State average on SAT Math.
- F/R lunch eligible students improved mean SAT scores vs. last year.

EBRW PERFORMANCE

- At BEHS, the Class of 2027 outperformed Class of 2026, driving district-level growth year-over-year.
- Juniors at BEHS met expected growth targets for both PSAT and SAT.
- Bristol moved up from 5th to **3rd** among Alliance districts for EBRW (10th in 2024).

Alliance District Rankings Progress

2nd
Math Overall

3rd
EBRW Overall

Opportunities and Next Steps

- Revise midterms, finals, and unit assessments to incorporate more SAT aligned questions where possible.
- Increase student, family, and teacher knowledge of the SAT and its value.
- Continue to administer Progress Learning assessments and work with department chairs on using results to target content and skills for instruction and to assist students' goal-setting.

Bristol Public Schools

Bristol Public Schools

25-26 Chronic Absenteeism

Student Achievement Committee

What is Chronic Absenteeism?

Chronic absenteeism is when a student misses 10% or more of the school year, regardless of whether those absences are excused or unexcused. In a 180-day school year, that is 18 days.

Chronic absenteeism is a districtwide concern because every missed day represents a missed opportunity for learning and connection. Our responsibility is to use the data to identify students who need support, partner with families, and ensure our systems are helping students get to school consistently. We want to move beyond simply reporting attendance numbers and focus on improving student outcomes.

	G	H	I	O	P	Q	W	X	Y	AE	AF	AG	AM	AN	AO	AU	AV	AW	BC	BD	BE	BK	BL	BM	BS	BT	BU	CA	CB	CC
	September			October			November			December			January			February			March			April			May			June		
	Sept % Missing 10%			Oct % Missing 10%			Nov % Missing 10%			Dec % Missing 10%			Jan % Missing 10%			Feb % Missing 10%			March % Missing 10%			April % Missing 10%			May % Missing 10%			June % Missing 10%		
	23-24	24-25	25-26	23-24	24-25	25-26	23-24	24-25	25-26	23-24	24-25	25-26	23-24	24-25	25-26	23-24	24-25	25-26	23-24	24-25	25-26	23-24	24-25	25-26	23-24	24-25	25-26	23-24	24-25	25-26
S	19.90%	10.11%	8.33%	10.70%	11.99%	10.61%	16.48%	14.98%	12.88%	13.60%	15.36%	11.74%	14.65%	17.51%	12.12%	16.79%	20.90%	13.64%	17.15%	18.28%	14.02%	15.69%	16.79%	10.61%	15.33%	16.42%	10.61%	16.79%	15.85%	14.39%
	25.50%	17.98%	17.28%	16.20%	21.49%	19.49%	21.52%	24.44%	24.32%	20.76%	23.72%	23.32%	21.29%	23.51%	24.18%	23.62%	26.18%	26.99%	23.19%	25.89%	27.42%	22.13%	24.96%	25.75%	23.61%	24.43%	26.21%	22.90%	25.00%	26.94%
	25.60%	15.89%	16.39%	17.60%	21.79%	18.48%	24.43%	26.83%	22.49%	21.98%	26.80%	23.08%	22.32%	26.79%	21.83%	25.72%	29.47%	24.19%	25.63%	28.54%	24.79%	24.91%	27.84%	23.03%	25.40%	27.98%	24.05%	25.04%	25.69%	25.76%
	65.20%	48.00%	40.48%	54.10%	58.82%	44.19%	72.34%	64.71%	51.16%	69.57%	72.55%	52.17%	70.69%	70.69%	58.49%	71.67%	75.86%	66.67%	70.00%	70.69%	61.11%	69.49%	68.97%	64.81%	71.19%	68.97%	61.11%	71.19%	67.24%	63.64%
	22.90%	14.04%	13.85%	16.60%	15.32%	14.31%	22.37%	18.20%	18.14%	22.03%	17.74%	19.97%	22.33%	18.98%	21.46%	24.88%	23.39%	22.20%	23.44%	20.85%	22.27%	21.89%	19.74%	20.21%	21.83%	20.39%	19.24%	22.45%	19.83%	22.60%
-8	20.80%	11.15%	12.93%	16.10%	12.27%	12.23%	22.53%	14.69%	16.06%	19.45%	15.20%	14.93%	21.44%	17.10%	15.93%	20.68%	19.22%	17.10%	20.45%	17.65%	18.39%	20.65%	16.87%	16.51%	19.08%	16.67%	17.18%	18.88%	16.17%	20.17%
X-8	23.90%	13.73%	11.94%	17.10%	16.76%	14.58%	23.01%	21.65%	18.69%	23.19%	21.40%	19.02%	26.28%	23.99%	21.71%	24.80%	29.32%	22.25%	25.53%	27.81%	21.37%	26.00%	25.19%	20.45%	24.94%	25.03%	21.08%	23.39%	24.29%	23.68%
	20.80%	14.20%	11.18%	9.20%	14.45%	12.57%	14.13%	18.53%	16.62%	14.09%	17.30%	16.57%	16.08%	19.01%	16.23%	17.62%	22.03%	18.50%	17.12%	21.39%	18.86%	15.68%	19.60%	19.09%	14.48%	17.82%	21.31%	13.93%	17.92%	22.51%
	28.50%	12.94%	14.99%	15.30%	15.86%	14.40%	21.98%	19.15%	18.16%	20.38%	19.21%	20.92%	22.67%	20.68%	21.14%	22.55%	25.92%	23.14%	22.45%	27.75%	22.83%	21.93%	24.74%	21.88%	20.88%	21.88%	19.27%	19.49%	22.36%	23.18%
	12.90%	9.51%	9.90%	5.80%	8.98%	6.88%	8.09%	12.29%	10.29%	9.38%	10.61%	10.24%	8.83%	13.70%	10.02%	10.36%	17.70%	10.27%	8.55%	14.25%	9.29%	6.96%	14.45%	8.25%	6.70%	13.00%	8.50%	6.70%	11.37%	9.95%
	22.10%	11.53%	10.54%	11.20%	12.77%	10.92%	18.62%	15.51%	15.41%	16.57%	15.16%	14.25%	18.03%	15.61%	13.37%	17.50%	16.67%	14.44%	15.89%	16.89%	15.51%	15.93%	15.79%	13.89%	15.89%	14.21%	14.64%	13.97%	12.77%	16.02%
	18.70%	8.53%	10.47%	12.20%	9.37%	11.02%	21.12%	12.10%	14.40%	18.76%	16.70%	16.40%	17.18%	19.67%	16.10%	17.18%	23.49%	17.03%	14.74%	19.27%	16.33%	15.54%	17.30%	14.51%	14.95%	15.97%	14.43%	13.27%	14.55%	17.59%
	20.70%	11.57%	8.97%	13.40%	11.93%	8.65%	17.37%	14.47%	11.81%	16.10%	13.49%	15.04%	18.04%	19.24%	14.96%	15.46%	20.35%	15.17%	15.13%	18.91%	16.38%	15.27%	15.38%	15.89%	15.05%	13.86%	14.18%	13.74%	14.15%	15.65%
ations	71.05%	44.12%	38.71%	67.50%	66.67%	44.12%	62.79%	62.86%	54.05%	62.79%	58.33%	56.76%	64.44%	57.89%	63.00%	62.79%	53.84%	59.52%	63.64%	58.97%	62.79%	63.64%	61.54%	64.58%	63.64%	61.53%	59.18%	63.64%	66.67%	61.54%
ct	22.80%	13.84%	13.52%	15.25%	16.25%	14.47%	21.51%	19.73%	18.47%	20.23%	19.81%	19.02%	21.26%	21.39%	19.68%	22.14%	24.55%	21.18%	21.62%	23.17%	21.42%	21.12%	21.80%	20.01%	20.96%	21.17%	20.16%	20.20%	21.16%	22.36%

Bristol Public Schools

Growth & Highlights

Year-Over-Year Trend

Multiple schools reduced chronic absenteeism year over year.

Low Absenteeism Rates

Several schools achieved rates in the single digits or low teens.

Elementary Gains

Strong elementary-level gains are evident in several schools. Review what is working there and share strategies.

High School Success

Our high schools were an area for celebration.

Emerging Practices

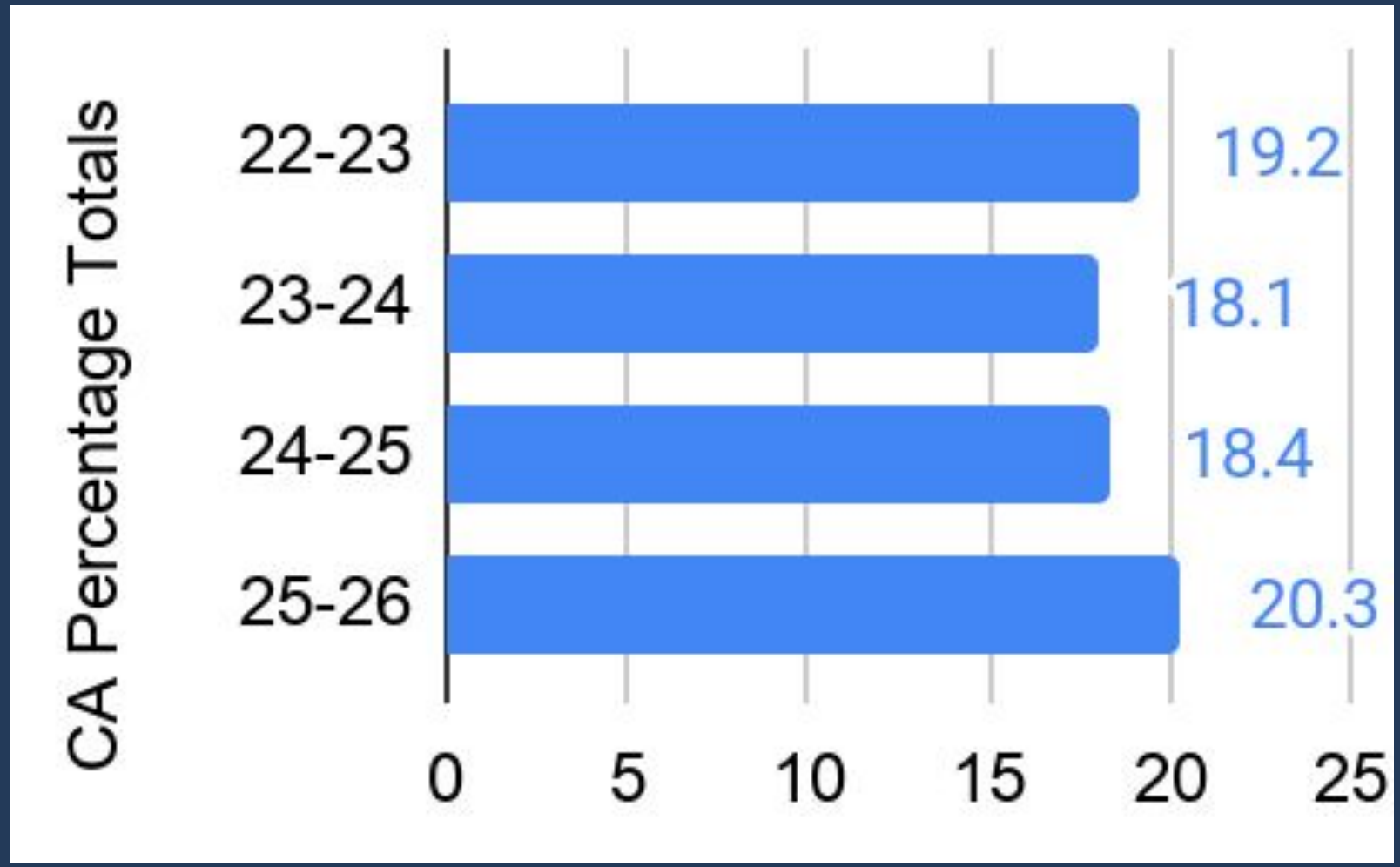
Successful attendance practices are emerging across the district.

Statewide Recognition

BPS has been invited to share our attendance work and successful systems at multiple state conferences.

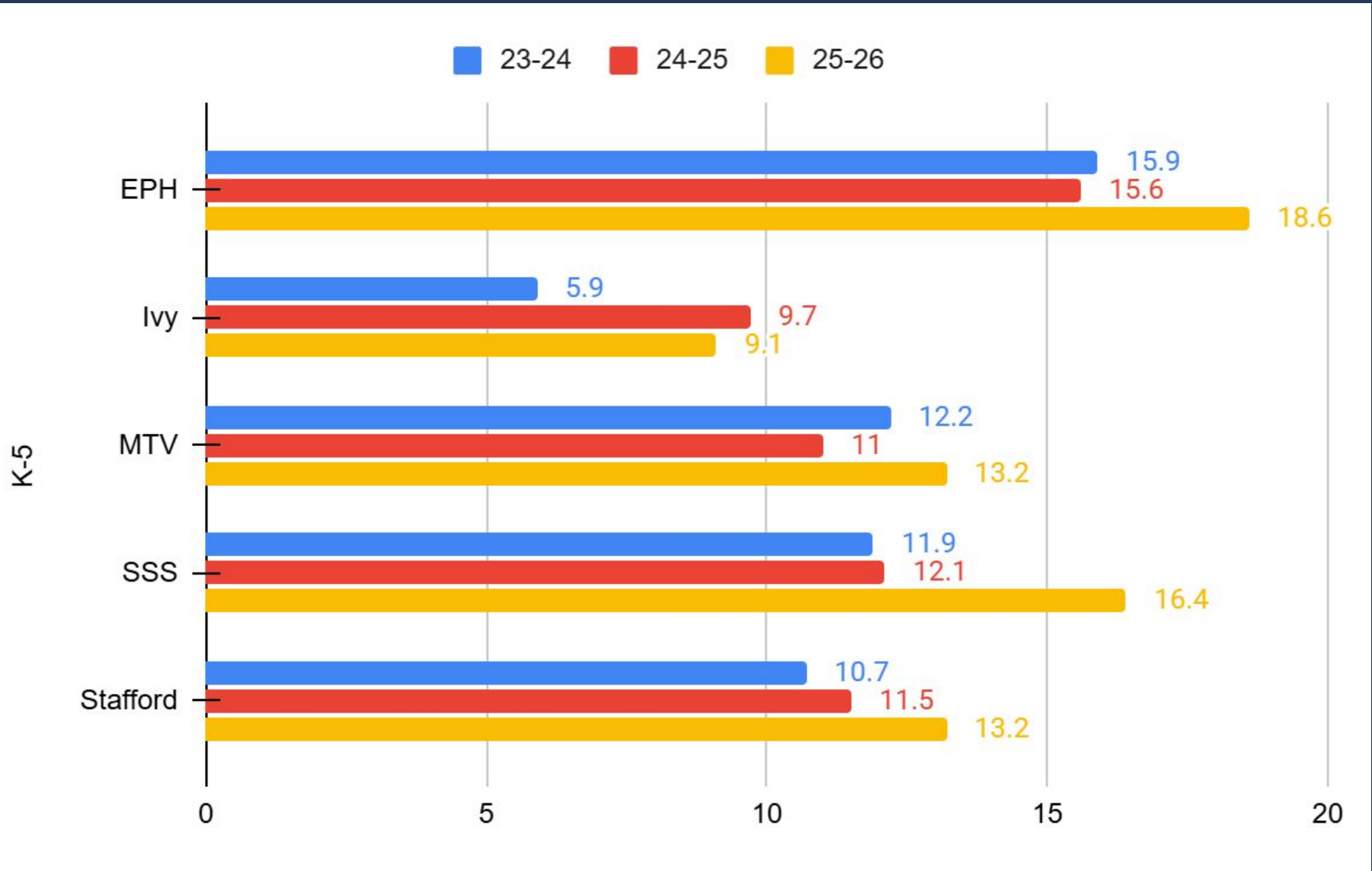
Bristol Public Schools

District Totals:



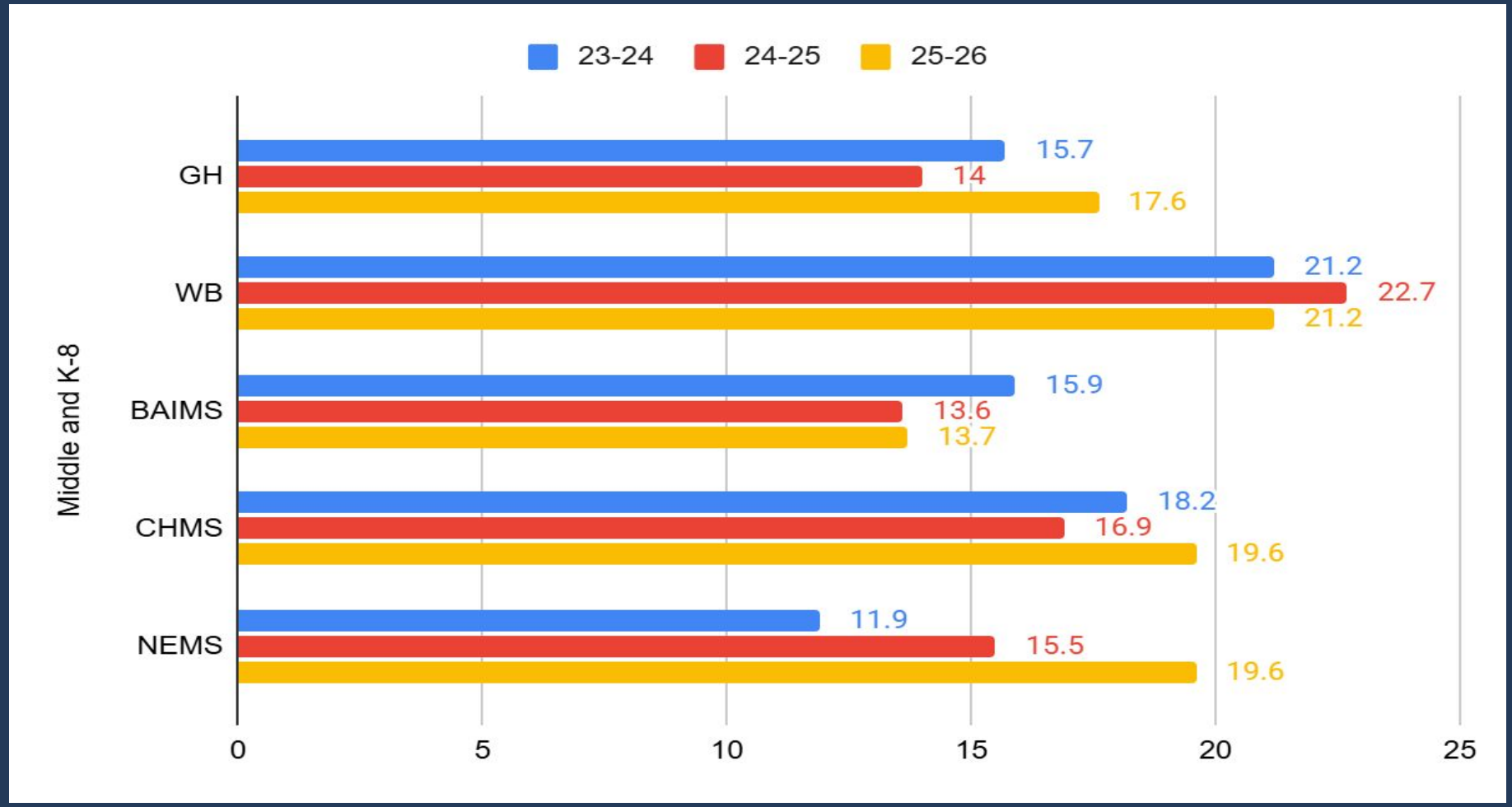
Bristol Public Schools

K-5



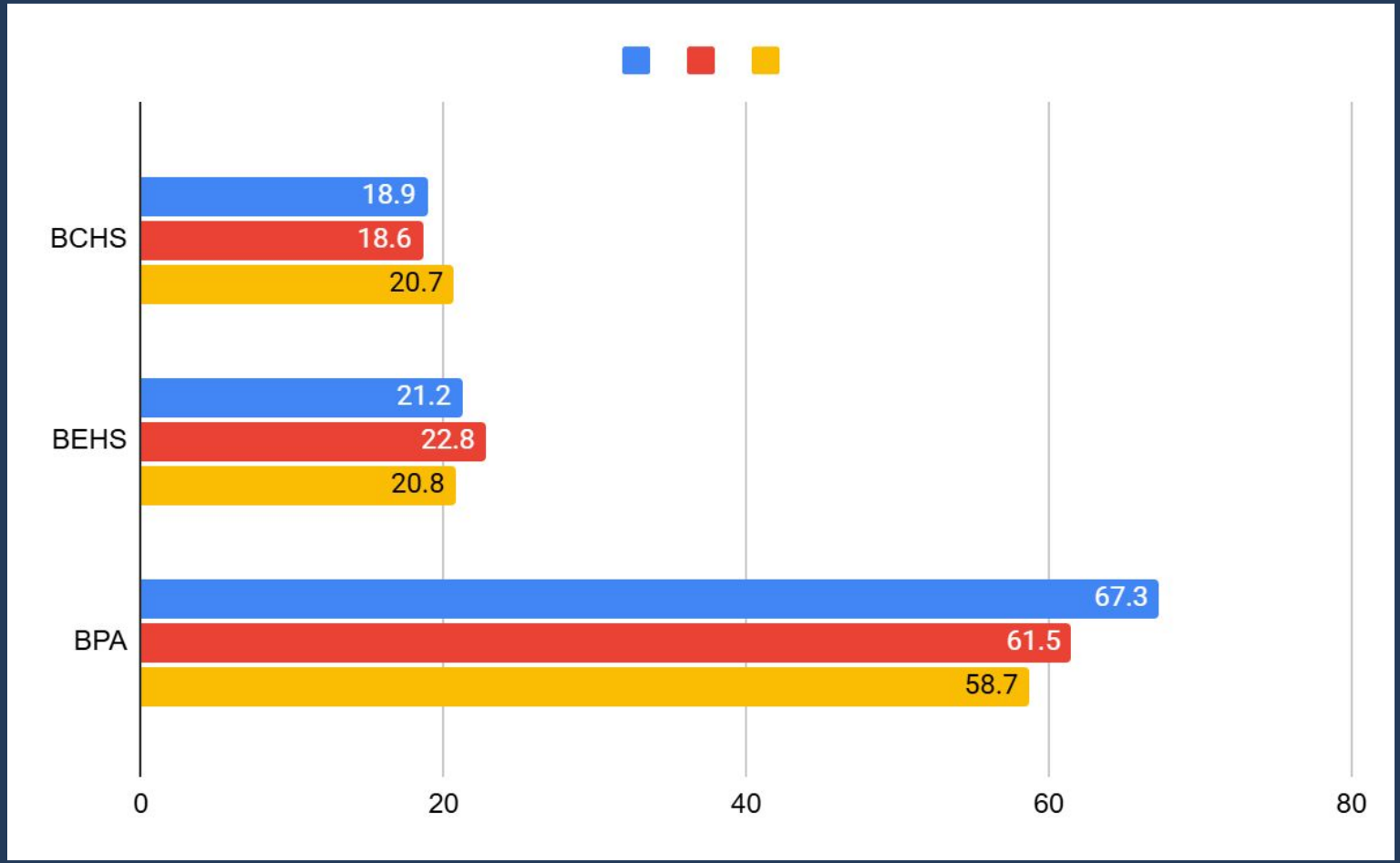
Bristol Public Schools

K8 and MS



Bristol Public Schools

High Schools



Bristol Public Schools

Areas for Growth and Improvement

01 Targeted Attendance Intervention

Increase targeted support for students with persistent attendance concerns

Move beyond general attendance messaging and ensure students with repeated absences are receiving individualized outreach and intervention.

02 Disparity Analysis

Continue examining disparities among student groups and schools to ensure supports are reaching students who need them most.

03 Climate & Culture

Climate and Culture: Monitor discipline trends and how it impacts attendance rates.

Bristol Public Schools

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

October 7, 2026

X	**Decision Item**
	Information Item

AGENDA REPORTING FORM

TOPIC: Teacher Hires

BACKGROUND:

Blumetti, Olivia – ID – Kindergarten Teacher effective September 10, 2026
Davis, Anitra – CHMS – Special Education Teacher effective September 24, 2026
Dubin, Timothy – CW – Instrumental Teacher effective September 3, 2026
Gianni, Nicole – CW – School Psychologist effective August 24, 2026
Good, Mary – CW/BOE – Special Education Teacher effective September 29, 2026
Jimenez, Rebeca – GH – Speech and Language Pathologist effective September 22, 2026
Newton, Sarah – STAF/EPH – Speech and Language Pathologist effective September 22, 2026
Rimkie, Olivia – EPH/ID – Special Education Teacher effective September 15, 2026

COST: _____ **FUNDING SOURCE:** _____

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS: resumes

TOPIC PRESENTER: Joseph Grabowski

CONTACT NUMBER: 860-584-7022

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol CT	
Presented at Board Meeting:	
Approved:	
Order Filed:	
Referred to:	

OLIVIA M. BLUMETTI

Passionate and student-centered elementary educator focused on creating inclusive, supportive learning environments. Driven to promote academic growth while pursuing a master's degree in educational leadership.

EDUCATION

The Pennsylvania State University, University Park, PA
Bachelor of Science in Education — December 2024
GPA: 3.7 | Dean's List

EXPERIENCE

Long Term Substitute (1st Grade)- Southington Public Schools (February 2026-Current)

•Delivered daily instruction across core subjects including reading, math, science, and social studies in alignment with grade-level curriculum
- Maintained continuity of classroom routines and lesson plans during extended teacher absence
- Collaborated with grade level team members, special education staff, and administration to ensure student success
- Created a supportive and inclusive classroom environment that encouraged respect, curiosity, and confidence

Classroom Teacher (2nd Grade)- Waterbury Public Schools (Aug 2025-January 2026)

- Design and deliver engaging, standards aligned lesson plans to meet diverse learning needs
- Differentiate instruction using data driven strategies to support varying academic levels
- Establish a positive and inclusive classroom environment that values respect and student accountability
- Engage in ongoing professional development to strengthen instructional practice

Building Substitute (Full-Time) – Berlin Public Schools (March 2025 – June 2025)

- Provided classroom coverage across multiple grade levels
- Served as classroom teacher and special education paraprofessional
- Maintained instructional continuity and engagement

Substitute Teacher - Southington Public Schools (January 2025 – March 2025)

- Delivered instruction across all elementary grade levels

Student Teacher (Kindergarten)- State College School District, Pennsylvania (Spring & Fall 2024)

- Designed and delivered curriculum-aligned lesson plans
- Supported classroom management, assessments, and parent communication
- Mentored a junior student teacher

Paraprofessional – Special Education ESY, Farmington Public Schools (Summers 2023–2025)

- Supported students with IEPs in inclusive settings
- Assisted with instruction, behavior support, and social-emotional development

LEADERSHIP & ACTIVITIES

THON Captain – The Pennsylvania State University

- Led committee for the largest student-run philanthropy

Homecoming Captain – The Pennsylvania State University

Drama Club Treasurer & Musical Director – Southington Public Schools

- Managed budgets and directed elementary-level musical performances

SKILLS

Classroom management • Differentiated instruction • Lesson planning • Strong communication • Adaptability

ANITRA DAVIS

Experienced Special Education Teacher with 3 years of experience developing and implementing individualized education plans (IEPs) for students with special needs, adapting teaching strategies and materials to meet their unique learning styles and abilities. Collaborates with parents, teachers, and professionals to create a cohesive and inclusive learning environment, utilizing specialized teaching techniques and assistive technologies to enhance student engagement and promote independent learning and problem-solving skills. Conducts ongoing assessments and progress monitoring to track student growth and make data-driven instructional decisions, ensuring continuous improvement and achievement of educational goals.

Contact Info

Bristol, CT 06010

518-414-7521

asdavis1113@gmail.com

Skills

- Classroom Management
- Family Services
- Crisis Intervention
- CPR
- Data Collection
- ASD Experience
- De-escalation Skills

Employment History

Special Education Teacher
Bristol Board of Education Bristol, CT

- Developed and implemented individualized education plans (IEPs) for students with special needs, ensuring their specific learning goals and accommodations were met.
- Provided direct instruction and support to students with disabilities, adapting teaching strategies and materials to meet their unique learning styles and abilities.
- Collaborated with parents, teachers, and other professionals to create a cohesive and inclusive learning environment, fostering positive relationships and open communication.
- Utilized specialized teaching techniques and assistive technologies to enhance student engagement and promote independent learning and problem-solving skills
.
- Conducted ongoing assessments and progress monitoring to track student growth and make data-driven instructional decisions, ensuring continuous improvement and achievement of educational goals.

Paraprofessional Aide Teacher
Bristol Board of Education Bristol, CT
Jan 2016-May 2023

- Assisted classroom teacher in delivering instructional materials and implementing lesson plans.
- Provided one-on-one support to students with special needs, including assisting with academic tasks and promoting social and emotional development.
- Monitored student behavior and implemented behavior management strategies to maintain a positive and inclusive learning environment.
- Collaborated with teachers and other support staff to develop and implement individualized education plans (IEPs) for students with disabilities.
- Supported students in completing assignments and projects, providing guidance and feedback to facilitate their learning and growth.

Licensed Realtor
Coldwell Banker Chesire, Ct
Aug 2016-Oct 2023

- Successfully closed multiple real estate transactions by negotiating and analyzing contracts.
- Generated leads and built relationships with clients through effective networking and marketing strategies.
- Conducted thorough market research to accurately determine property values and advise clients on pricing strategies.
- Provided exceptional customer service by guiding clients through the home buying/selling process and addressing their concerns and questions.
- Delivered exceptional customer service to clients to ensure their satisfaction with services and secure positive word-of-mouth recommendations.
- Maintained detailed records of transactions and ensured compliance with all legal and regulatory requirements.

Family Service Worker
Catholic Charities Community Maternity Service Albany, NY Aug 2015-Nov 2015

- Assessed and evaluated the needs of families, identifying areas for intervention and providing appropriate resources.
- Collaborated with community organizations and agencies to coordinate services and referrals for families in need.
- Provided crisis intervention and emotional support to families experiencing difficult situations.
- Documented and maintained accurate records of client interactions and progress towards goals.

Assistant Unit Supervisor
St Anne's Institute Albany, NY Apr 2011-Aug 2015

- Worked extensively with adolescents with behavior, psychological and substance abuse diagnoses and other diverse backgrounds, mainly court involved.
- Managed an intensive needs unit with 12 teenage females and 6 child care workers
- Developed and implemented training programs to enhance the skills and knowledge of workers
- Monitored and evaluated employee performance, providing feedback and coaching to support professional growth and development
- Guided residents to make good life long choices and help managing their emotions
- Facilitates various socio-emotional groups on unit
- Entry-level case management, daily rounds meetings and maintained daily logs

Dorm Supervisor
Glenmont JobCorps Glenmont, NY Mar 2005-Feb 2011

- Supervised and maintained a safe and secure living environment for dorm residents
- Facilitated and resolved conflicts or concerns among dorm residents
- Implemented and enforced dormitory policies and regulations
- Organized and coordinated dormitory events and activities such as social skills groups and cooking groups
- Provided support and guidance to residents in their academic and personal development
- Supervised 80 female residents and 5 staff

- Manage the center in the absence of an administrator as needed.

Education

- Student Teaching
  Stafford Elementary School Bristol, CT Aug 2023-Dec-2023
  - Learned the basics of FUNdations reading program
  - Created lesson plan preparation for the entire 4th grade team in Math and Literacy
  - Managed students behavior in a 4th grade classroom
- Proposed Graduation Feb 2024
- Bachelor's of Arts, Elementary Education and Special Education (Dual Licensure)
  Western Governors University Salt Lake City, UT Apr 2021-Present
- Real Estate License
  Manfred Real Estate School Albany, NY Apr 2014-Jan 2015

Certifications & Licensing

- Real Estate License Jan 2015
- Special Education K-12 Feb 2024
- Elementary Education K-6 Feb 2024

Timothy Dubin

Profile

- Saxophonist, multi-instrumentalist, composer, and arranger
- Knowledgeable and experienced sound engineer, capable of interfacing with various music and sound technologies
- Avid collector of musical instruments, media, and sound electronics
- Eager to learn and collaborate with others

Education

2021 - 2025

Central Connecticut State University, New Britain, CT - *Music Education*

GPA: 3.7

Certification

CT Teaching Certification with a focus in music, B.S. in Music Education (K-12) 049

Achievement and Awards

CCSU President's List- *Fall 2023, Spring 2024, Spring 2025*
CCSU Dean's List- *Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023, Spring 2024, Fall 2024, Spring 2025*
Frederick & Lois Holland Scholarship Award- *Spring 2022, Spring 2023, Spring 2024, Fall 2024*

Teaching Experience

January - June 2026

West Bristol School/ Greene-Hills School, Bristol, CT - *Long-Term Substitute Band Teacher*

- Delivered instruction to ensemble classrooms and small group lessons
- Prepared for and conducted several successful concerts, working collaboratively with music staff for joint performances
- Responsible for minor maintenance and upkeep of instrument inventory

Fall 2025

Lincoln Middle School, Meriden, CT - *Student Teacher*

- Assisted Orchestra Director / Applied Music Teacher Mark Renner in the classroom by teaching and co-teaching
- Delivered instruction to all sections of the orchestra and applied music classes
- Assisted in preparing for and conducted winter Orchestra concert

Hanover Elementary, Meriden, CT- *Student Teacher*

- Assisted General Music Teacher / Band & Orchestra Director Chad Busath in the classroom and small-group lessons settings by teaching and co-teaching
- Sequenced and provided general music classes to all grade levels
- Assisted in preparing several grade levels for their winter concert

Fall 2024

Academy of Science and Innovation, New Britain, CT- *Field Experience*

- Assisted Band Director/ Music Technology Teacher John Giacchi by providing small group lessons to students for specific instruments including: flute, clarinet, and saxophone
- Assisted Choral/ General Music Teacher, Linda Helmke, by providing individual instruction and feedback in piano class

Spring 2024

Rocky Hill High School, Rocky Hill, CT- *Field Experience*

- Spent time observing James Shuman's Wind Ensemble and Jazz Band classes
- Provided several saxophone lessons to small groups and individual students

References

Sara Hoyt, *Band Teacher for Greene-Hills and West Bristol Schools , Bristol Public Schools*

sarahoyt@bristolk12.org

(203) 512-8120

Colleen Casey-Nelson, *Adjunct Professor, Music Education, CCSU*

caseynelson_com@ccsu.edu

(860)832-2912

Charles Busath, *Director of Music Hanover Elementary, Meriden Public Schools*

Charles.busath@meridenk12.org

(860)301-2223

Mark Renner, *Director of Orchestra and World Drumming, Lincoln Middle School, Meriden Public Schools*

CT ASTA - President

mark.renner@meridenk12.org

(860)593-3205

Employment Experience

2008 - PRESENT

Applebee's, Plainville, CT - *Server*

- Anticipate customer and store needs by constantly evaluating the environment and customers for cues.
- Excellent interpersonal skills, with the ability to build rapport and develop a large regular clientele
- Deliver clear, concise and positive communication with guests and co-workers to contribute to a larger sense of community

Nicole Gianni, M.S.

OBJECTIVE

Graduate student in a sixth-year certificate School Psychology program at Southern Connecticut State University seeking a Certificate of Deficiency, similar to a Durational Shortage Area Permit (DSAP) in place of my 1,200 hour internship for the upcoming academic year, 2026-2027.

PROFESSIONAL TRAINING

Practicum Student, Willard Elementary School, Destination Academy at Bristol Eastern High School & Destinations Attendance Recovery
2025 - Present
Berlin, CT & Bristol, CT
Ashley J. Zagorski, M.S., NCSP, Supervising School Psychologist
Completing a year long, split anticipated 700+ hours practicum starting the first have of the year at WIllard Elementary School (suburban), finishing the second half at Destinations Academy and Destinations Attendance Recovery (urban) where I provided a range of psychological services to students grades prek-12.

- Consulted and collaborated with teachers, administration, and parents
- Implemented, and evaluated behavior intervention plans
- Conducted a school wide PBIS program review
- Conducted comprehensive evaluations, including curriculum based measurement, dynamic assessment, and standardized testing
- Contributed to IEP development for children with learning, language, and emotional disabilities
- Provided group and individual counseling
- Conducted whole-class social-emotional lessons
- Engaged in crisis prevention and intervention services
- Participated in interdisciplinary team meetings related to student evaluations and services
- Attended pre-referral meetings to discuss student concerns and intervention planning
- Collaborated with families during the evaluation and IEP process.

Field Experience, Synergy Alternative High School
January 2023 - April 2023
East Hartford, CT
Completed a semester long field work experience as part of coursework at Western New England University, for PSY298 Issues in Adolescence. I attended Synergy High School (urban) part time, working alongside various staff including teachers, school social workers, behavior managers, office staff, to support students grades 9-12.

- Interacted with at-risk and non-traditional students in a classroom setting to better understand student needs and engagement
- Observed classroom academic support strategies and reinforcement systems used to promote student participation and learning

- Conducted informal observations of student academic performance and classroom behavior to gain insight into instructional practices and student supports
- Shadowed the attendance coordinator, learning about attendance tracking, outreach, and intervention processes for students with chronic absenteeism.
- Participated in group counseling sessions and 1:1 student meetings alongside the school social worker, gaining exposure to social-emotional supports and student interventions
- Observed student risk assessments conducted by the social worker to understand school-based safety and mental health response procedures.
- Attended 504 annual review meetings with the school social worker to observe the accommodation planning process and collaborative team decision-making.

EDUCATION

Sixth-Year Certificate, School Psychology
Southern Connecticut State University, New Haven, CT
NASP-Approved Program
Expected Gradation: May 2027

Masters of Science Degree, School Psychology
Southern Connecticut State University, New Haven, CT
NASP-Approved Program
June 2025

Bachelor of Arts Degree, Psychology
Western New England University, Springfield MA
May 2024

WORK EXPERIENCE

Report Analyst March 2019 - Present
Vibranalysis Inc.
Southingon, CT
Geotechnical construction monitoring firm.

- Prepared and finalized geotechnical construction monitoring reports for construction clients.
- Reviewed reports for accuracy, quality, and completeness prior to submission.
- Coordinated and delivered reports to clients promptly to support project timelines.
- Communicated with team members to clarify report details and ensure project information was accurate.
- Maintained organized records of reports and project documentation for efficient tracking and retrieval
- Developed technician training materials to support staff learning
- Lead training sessions to employees on inspection procedures and reporting practices.

Behavior Manager` June 2023 – June 2024
Synergy Alternative High School
East Hartford, CT

- Supported teachers with classroom behavior management and implementation of behavioral supports
- Monitored student progress, answered questions, and assisted students with classwork, projects, and assignments
- Facilitated student mediation and conflict resolution to help de-escalate behavioral situations
- Provided supervised breaks for students outside the classroom while discussing grades, attendance, and behavior expectations
- Built positive relationships with students to encourage engagement and appropriate behavior
- Collaborated with staff to support consistent behavior expectations across classrooms
- Observed student behavior and shared relevant updates with teachers and support staff
- Encouraged use of problem-solving and self-regulation strategies during conflicts
- Provided front office coverage during secretary breaks, answering phones and assisting visitors and staff

REFERENCES

Ashley Zagorski, Destinations Academy & Destinations Attendance Recovery, School Psychologist
(203) 213-0230
ashleyzagorski@bristolk12.org

Eric Elias, Southern Connecticut State University, Professor of School Psychology
(860) 712-2743
eliase1@southernct.edu

Libby Rhoades, Southern Connecticut State University, Associate Professor of School Psychology, Mental Health Sciences Coordinator
(203) 392-5910
rhoadese1@southernct.edu

Mary Good

Experience

Standards based instruction of core academic courses

Behavioral specialist -Crisis Prevention Intervention Certified

Case Manager, and Supervisor of classroom support personnel

Portfolio assessment evaluator

Curriculum and Program development team

Inclusion model for multi-handicapped and medically fragile students

RID Certified Interpreter for the Deaf

Employment History

New Haven Public Schools, New Haven, CT
2013-2015 Teacher, Deaf/Hard of Hearing, Itinerant K-8 . Public Schools

Onslow County Schools, Jacksonville, North Carolina
2013-2015 Teacher, Deaf/Hard of Hearing, Itinerant, K-8 . Sunbelt Staffing Agency.

Willie Ross School for the Deaf, Longmeadow, Mass. 2007-2010
Teacher of the Deaf. Middle/High school CORE Academic Teacher.

Manchester Regional Academy, Manchester,CT 2003-2007
Special Education Teacher. Therapeutic/behavioral program .

American School for the Deaf, West Hartford, CT 1985-2000

Upper School Teacher. Applied Vocational Arts .

Professional Educator Certification

State of CT Comprehensive Special Education, Grades pre-K-12 (065)

State of CT Hearing Impaired, pre-kindergarten through grade 12 (057)

Education

University of Hartford, Hartford , CT — Special Topics:
Deaf Education

Gallaudet University, Washington, D.C. — Reading diagnosis/remediation

Southern CT State University, New Haven, CT
Master of Science Degree in Education
1990 Sp.ed./interdisciplinary ed.

Bachelor of Science Degree in Education
1985 Sp.ed./behavioral studies

Self Employment

CURVES, (Fit for You Canton, LLC) Canton, CT — 2011-present
Owner. Weight loss and fitness center for women.

ITI, Interpreters and Translators, Inc. Manchester, CT — 2009-2013
Freelance interpreter for the Deaf.

Rebeca Elizabeth Jimenez, M.S., CCC-SLP

EDUCATION

May 2025 — **Katz School of Science and Health, Yeshiva University, New York, NY**
Master of Science, Speech-Language Pathology

2021-22 — **Southern Connecticut State University, New Haven, CT**
Bachelor of Science, Communication Disorders & Minor in Psychology, *magna cum laude*
Tau Sigma Honor Society

CLINICAL EXPERIENCE

July 2025 - Current — Winchester Public Schools (Mary P. Hinsdale School, The Gilbert School, Explorations Charter School, Head Start), Winchester, CT; *Clinical Fellow, Speech-Language Pathologist (CF-SLP)*
Population Profile: pediatric and adolescent students enrolled in public school; preschool and high school-aged children enrolled in alternate programs receiving itinerant speech services

- Conduct evaluations for students presenting with speech sound disorders, receptive-expressive language, and/or literacy deficits
- Write collaborative psychoeducational reports alongside the multidisciplinary school-based team to record evaluation results
- Collaboratively work with general and special education teachers, occupational therapists, physical therapists, psychologists, and families
- Write Individualized Education Plan (IEP) goals and objectives, progress reports, and evaluation reports
- Provide individual and group therapy for preschool and elementary students with articulation, language, and social communication disorders
- Support students with autism spectrum disorder, ADHD, developmental delays, and complex communication needs
- Implement AAC strategies for students with expressive language impairments

Jan 2025 - May 2025 — Avon Public Schools (Avon Middle School & Pine Grove Elementary School), Avon, CT; *Graduate Speech-Language Pathology (SLP) Student Intern*
Population Profile: pediatric and adolescent students enrolled in public school

- Completed evaluations for children aged five to fourteen years old
- Interpreted dynamic assessment results to develop goals and objectives for IEPs
- Worked directly with students with various eligibility criteria on articulation and language disorders to improve their communication skills and ability to access curricula
- Collaborated as part of multidisciplinary teams and with parents to determine the best approaches to globally improve skills for each student
- Assisted students in utilizing augmentative and alternative communication (AAC) devices using Proloquo2Go (PLQ), LAMP Words for Life, and Unity

Sept 2024 - Dec 2024 — Beacon Services of Connecticut, Cromwell, CT; *Graduate SLP Student Intern*
Population Profile: early intervention, children 12-36 months old

- Evaluated children using a variety of developmental assessment tools
- Interpreted results of evaluations and composed reports discussing findings, qualifications, and recommendations to assist in increasing the child's skills
- Worked with families to write Individualized Family Service Plans (IFSPs), to determine goals and specify services needed to improve the child's communication abilities
- Utilized treatment strategies to assist in reaching the child's IFSP goals
- Provided speech, language, and developmental therapy services to pediatric clients in their homes, the community, and childcare settings

June 2024 - Aug 2024 — Yeshiva University Virtual Clinic, New York, NY; *Graduate SLP Student Intern*
Population Profile: adult: accent modification & gender-affirming voice modification

- Planned and completed initial evaluations for adult clients in the areas of accent modification (Arizona Articulation Phonology Scale) and gender-affirming voice services
- Interpreted the results of each evaluation and wrote long-term and short-term goals based on assessment results
- Developed and executed accent modification and gender-affirming voice therapy services
- Composed and updated daily SOAP notes for each client in WebPT

RESEARCH EXPERIENCE

Feb 2021- May 2022 — SCSU APPLE (Auditory Processing, Phonology, and Literacy Evaluation) Journal Club & Research Team; *Undergraduate Researcher*

- Observed evaluations and analyzed clinical research evaluating the correlation between Central Auditory Processing Disorder and dyslexia
- Participated in interactive rehearsals with Graduate Research Assistants to prepare for their sessions with the clinical study participants
- Reviewed and discussed journal articles related to advancements in the field of SLP

LEADERSHIP, SERVICE & INVOLVEMENT

Aug 2022 - Dec 2022 — Building Bridges LLC, Wethersfield, CT; SCSU
Speech Language Pathology Assistant (SLPA) Intern

Aug 2021 - Aug 2022 — New Haven Reads: Bristol Street & Science Park locations, New Haven, CT
Volunteer Tutor

April 2021 - May 2022 — Northeast Alliance of the National Black Association for Speech-Language and Hearing (NEASLH); *Member*

ADDITIONAL EXPERIENCE

Feb 2018 - Present — Homewood Suites by Hilton Wallingford-Meriden, Wallingford, CT
Guest Service Representative & Operations Supervisor

CREDENTIALS

Active — License in Speech-Language Pathology, CT state
Active — Initial Educator Certificate, CT State
Active — American Speech-Language Hearing Association, Certificate of Clinical Competence

SARAH NEWTON

SPEECH LANGUAGE PATHOLOGIST

CONTACT

PROFILE SUMMARY

Compassionate and dedicated Speech Language Pathologist with experience supporting children with autism spectrum disorder in a specialized education setting.

EDUCATION

EMERSON COLLEGE

JAN 2020-AUG 2021

Master of Science, Speech Language Pathology

SOUTHERN CONNECTICUT STATE UNIVERSITY

AUG 2014- MAY 2018

Bachelor of Health and Human Services, Communication Disorders

LICENSES & CERTIFICATIONS

- ASHA Certificate of Clinical Competence (CCC)
  - Lic # 14365902
- Department of Public Health
  - Lic # 007628
- Department of Education
  - 061 Speech Language Pathologist
    - Educator ID # 5791759337
- Dynamic Temporal and Tactile Cueing (DTTC)
- AEIOU Feeding Course

WORK EXPERIENCE

MELIORA ACADEMY JAN 2022-PRESENT

SPEECH LANGUAGE PATHOLOGIST

- Conduct comprehensive speech and language intakes and evaluations for students, utilizing standardized assessments and clinical observations.
- Develop and implement individualized goals and objectives, ensuring they are evidence-based, functional, and tailored to each student.
- Implement therapy interventions targeting expressive/receptive language, social communication, articulation, and AAC use.
- Monitor progress and adjust treatment plans based on data collection, ongoing assessment, and team feedback.
- Collaborate with interdisciplinary teams, including special educators, BCBAs, occupational therapists, physical therapists, and families to support student success across settings.

BRISTOL PRESCHOOL CHILD CARE CENTER MAY 2017-JAN 2022

PRESCHOOL TEACHER

- Plan and implement developmentally appropriate lesson plans that support cognitive, linguistic, social-emotional, and motor development for children with and without special needs in an inclusive classroom environment
- Collaborate with special education staff, therapists, and families to ensure student success across environments
- Use play-based learning and hands-on activities to encourage creativity, curiosity, and problem-solving.

OLIVIA RIMKIE

PROFESSIONAL SUMMARY

Health Science graduate with hands-on experience as a special education paraprofessional, providing individualized and group support to students with diverse learning needs. Skilled in collaborating with multidisciplinary teams, adapting curriculum, and building strong relationships with students, families, and staff. Seeking to pursue a DSAP position in special education and a master's degree in special education to grow into more advanced roles supporting student learning and development.

EXPERIENCE

Site Supervisor / *Bristol Public Schools – Project Accelerated Learning (Ivy Drive), Bristol, CT* 2025 – 2026 School Year

- Supervised and managed a team of after-school program staff supporting elementary students.
- Oversaw programming for 35 students in kindergarten through fifth grade, ensuring consistent delivery of tutoring, academic support, and enrichment activities across the site.
- Served as the primary point of contact on-site for staff, families, and school administration.
- Coordinated weekly programming with community partners, including Ascension Athletics and Indian Rock Nature Center, and accompanied students on field trips.
- Ran the program without student use of technology, giving students greater access to hands-on and STEM activities.

Special Education Paraprofessional / *Bristol Public Schools (Ivy Drive), Bristol, CT* Apr 2022 – Present

- Provide educational and emotional support to students in both one-on-one and group settings.
- Help students successfully transition to spending the majority of the school day in the general classroom.
- Collaborate with occupational therapists, classroom teachers, and special education staff to meet the needs of a diverse student population.
- Communicate daily with students, staff, and parents to support consistent care and progress.
- Modify curriculum content and utilize assistive technology, including JAWS screen reader and magnification tools, for a student with visual impairments.
- Implement the SPIRE reading program, tracking student data and maintaining behavior charts to monitor progress.

Site Assistant / *Bristol Public Schools – Project Accelerated Learning (Ivy Drive), Bristol, CT* Oct 2022 – Jun 2023

- Directly delivered tutoring, academic support, social-emotional learning, and enrichment activities to a group of 30 elementary school students.
- Adapted activities to fit skill levels ranging from kindergarten through third grade.
- Resolved day-to-day issues involving technology, student interactions, and program planning.

Substitute Paraprofessional & Audiological Aide / *ESS, Bristol, CT* Jan 2022 – Apr 2022

- Provided classroom support to teachers and worked with students individually and in small groups on core curriculum material.
- Monitored and documented student behaviors to support classroom teams in tracking progress.
- Administered hearing screenings to students from Pre-K3 through fifth grade using an audiometer.
- Scheduled testing dates, communicated with parents, and documented individual student results.

EDUCATION

Coursework Toward Special Education Certification / *Central Connecticut State University (CCSU), New Britain, CT* In Progress

Currently taking coursework toward initial certification in special education. Applying to this position under a Durational Shortage Area Permit (DSAP).

Bachelor of Science in Health Science / *Misericordia University, Dallas, PA* May 2023

Relevant coursework: Development Across the Lifespan, Phonetics, American Sign Language, Fluency Disorders, Medical Speech-Language Pathology, Motor Speech Disorders, Research Methods, Adult Communication Disorders, Communication Disorders in Autism, Articulation and Phonology Disorders, Anatomy and Physiology.

SKILLS

Empathy & Interpersonal Skills • Collaboration & Teamwork • MS Office & Google Workspace • Fluency with Heggerty, Fundations & SPIRE Curriculum • LAMP Words for Life (AAC) • Data Tracking & Behavior Charts • Assistive Technology (JAWS, Magnification Tools)

CERTIFICATIONS

Durational Shortage Area Permit (DSAP) – Special Education, Connecticut (in process) • CPR Certified (valid through October 2027) • PMT Trained (renewed annually)

LANGUAGES

Fluent in English • Proficient in American Sign Language

AWARDS

Dean's List (Spring 2018) • Merit Scholarship Recipient

EXTRACURRICULARS

Operation Smile — Fundraising Chair, 2017–2018 • NHSSLA — Member, 2017–2021

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

October 7, 2026

X	**Decision Item**
	Information Item

AGENDA REPORTING FORM

TOPIC: Teacher Leave of Absence Requests

BACKGROUND:

Knopf, Brittany – CHMS – Special Education Teacher effective September 23, 2026 through the end of the 26-27 School Year
LaRocca, MacKensie – GH – Grade 3 Teacher effective November 20, 2026 through the end of the 26-27 school year

COST: _____ **FUNDING SOURCE:** _____

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER: Joseph Grabowski

CONTACT NUMBER: 860-584-7022

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol CT	
Presented at Board Meeting:	
Approved:	
Order Filed:	
Referred to:	

Hi there,

I'm writing to let you know that I've made the decision to step down from my teaching position. My last day in the classroom will be Friday, October 9th.

It's definitely a bittersweet moment for me. Leaving the school community isn't easy, and I want to truly thank you for all the support, guidance, and encouragement you've given me over the years. It has meant so much to teach our students, work alongside such a fantastic team, and grow professionally.

Between now and my last day, I'll do everything I can to make the transition as smooth as possible. I'll make sure my unit plans, grade books, and materials are completely organized so whoever steps in can hit the ground running without missing a beat for the kids.

Thanks again for everything over the years. I really hope we can stay in touch, and I wish you and the school all the best!

Sincerely,

Stacia Archangelo

Sept. 1, 2026

Kristine Monaco-Walsh

RE: Notification of Intent to Retire

Dear Mr. Broderick

As of June 30, 2027, I will be retiring from teaching. Thank you for being a positive role model and friend. I have so many wonderful memories at Bristol Central, and they're thanks to you and the wonderful staff. I will miss working with students and interacting with everyone. Keep up the great work.

While it's difficult to leave a place that felt like home, I'm looking forward to the next chapter of my life.

Sincerely,
Kristine Monaco-Walsh

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

October 7, 2026

X	**Decision Item**
	Information Item

AGENDA REPORTING FORM

TOPIC: Teacher Retirements

BACKGROUND:

Archangelo, Stacia – CW – Physical Education Teacher effective October 9, 2026
Monaco-Walsh, Kristine – CW – Art Teacher effective June 30, 2027

COST: _____ **FUNDING SOURCE:** _____

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS: letters

TOPIC PRESENTER: Joseph Grabowski

CONTACT NUMBER: 860-584-7022

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol CT	
Presented at Board Meeting:	
Approved:	
Order Filed:	
Referred to:	

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

October 7, 2026

X	**Decision Item**
	Information Item

AGENDA REPORTING FORM

TOPIC: A1 Hires effective August 24, 2026

BACKGROUND:

Behrendt, Sarah – CHMS – Co-Orange Team Leader

COST: _____ **FUNDING SOURCE:** _____

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER: Joseph Grabowski

CONTACT NUMBER: 860-584-7022

ACTING SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol CT	
Presented at Board Meeting:	
Approved:	
Order Filed:	
Referred to:	

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

October 7, 2026

X	**Decision Item**
	Information Item

AGENDA REPORTING FORM

TOPIC: A2 Hires effective September 1, 2026

BACKGROUND:

Abucewicz, Danielle – BE/BC – Special Performing Groups, Strawberry Fields
Nelson, David – CHMS – Special Performing Groups, Choral
Wodatch, Sara – NEMS – Climate Coordinator

COST: _____ **FUNDING SOURCE:** _____

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER: Joseph Grabowski

CONTACT NUMBER: 860-584-7022

ACTING SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol CT	
Presented at Board Meeting:	
Approved:	
Order Filed:	
Referred to:	

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

October 7, 2026

X	**Decision Item**
	Information Item

AGENDA REPORTING FORM

TOPIC: A2 Resignations effective June 30, 2026

BACKGROUND:

Abucewicz, Danielle – CHMS – Special MS Performing Groups, Choral
Coderre, Michael – BEHS – Special Performing Groups, Strawberry Fields

COST: _____ **FUNDING SOURCE:** _____

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER: Joseph Grabowski

CONTACT NUMBER: 860-584-7022

ACTING SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol CT	
Presented at Board Meeting:	
Approved:	
Order Filed:	
Referred to:	

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

October 7, 2026

X	**Decision Item**
	Information Item

AGENDA REPORTING FORM

TOPIC: Administrative Resignation effective October 30, 2026

BACKGROUND:

Broderick, Ryan – BCHS – Assistant Principal

COST: _____ **FUNDING SOURCE:** _____

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS: letter

TOPIC PRESENTER: Joseph Grabowski

CONTACT NUMBER: 860-584-7022

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol CT	
Presented at Board Meeting:	
Approved:	
Order Filed:	
Referred to:	

Joseph Grabowski <josephgrabowski@bristolk12.org>

Notice of Resignation

Ryan Broderick <ryanbroderick@bristolk12.org> Mon, Sep 28, 2026 at 7:30 PM
To: Iris White <iriswhite@bristolk12.org>, Joseph Grabowski <josephgrabowski@bristolk12.org>

Good evening Iris and Joe,
Tonight, I was appointed as the next principal of Farmington High School. While I am extremely excited for this new role, Bristol will always hold a special place in my heart. My official start date in Farmington is Monday, November 2, 2026. Therefore, I am resigning from my position at Bristol Central High School effective at the end of the school day on Friday, October 30th. I am committed to ensuring a seamless transition process. Please let me know the next steps forward. Thanks, and have a great night.
-Ryan

Ryan M. Broderick, Ed.D.
Assistant Principal

480 Wolcott St.
Bristol, CT 06010
Phone: (860) 584-7735
Fax: (860) 584-7713

Privileged and confidential. If received in error, please notify me by e-mail and delete the message.

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

10/7/2026
(Meeting Date)

X	**Information Item**
	Decision Item

AGENDA REPORTING FORM

TOPIC: Mainstreet Community Foundation - Jim & Eleanor Frawley Community Fund

BACKGROUND: The Board of Education received a grant in the amount of $2,100 from the Jim & Eleanor Frawley Community Fund at Mainstreet Community Foundation. The monies will be used to support the healthy snack pantry for food-insecure adult education students.

COST: $2,100 **FUNDING SOURCE:** 1065000-470000-SNACK

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER:

CONTACT NUMBER:

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol, CT	
Presented at Board Meeting:	
Agenda Item #:	
Approved:	
Order Filed:	
Referred to:	

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

10/7/2026
(Meeting Date)

X	**Information Item**
	Decision Item

AGENDA REPORTING FORM

TOPIC: Prudence Crandall Center - CT Coalition Against Domestic Violence (CCADV)

BACKGROUND: The Board of Education received a grant in the amount of $9,000 (across 3-years - $3,000 per year) from Prudence Crandall. The funds will be used to cover some of the costs associated with domestic violence provention services.

COST: $9,000 **FUNDING SOURCE:** 1065000-470000-CCADV

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER:

CONTACT NUMBER:

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol, CT	
Presented at Board Meeting:	
Agenda Item #:	
Approved:	
Order Filed:	
Referred to:	

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

10/7/2026
(Meeting Date)

X	**Information Item**
	Decision Item

AGENDA REPORTING FORM

TOPIC: United Way of Central and Northeastern CT - Family Resource Center Operating Funds

BACKGROUND: The Board of Education received a grant in the amount of $7,500 from United Way of Central and Northeastern CT to support the Family Resource Centers. The monies will be used to offset general operating expenses and may be allocated toward organizational activities that support the achievement of outcomes related to reducing disparities in early childhood.

COST: $7,500 **FUNDING SOURCE:** 1065000-470000-FRCOP

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER:

CONTACT NUMBER:

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol, CT	
Presented at Board Meeting:	
Agenda Item #:	
Approved:	
Order Filed:	
Referred to:	

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

10/7/2026
(Meeting Date)

X	**Information Item**
	Decision Item

AGENDA REPORTING FORM

TOPIC: Early Start (formerly School Readiness)

BACKGROUND: The Board of Education will receive $819,720 in Early Start (formerly School Readiness) funds from the City of Bristol for fiscal year 2026-2027.

These monies will assist the school district in providing funding for the PreK Early Start Programs. The funds will increase the number of approved spaces for the preschool program through staff and educational programs.

COST: $819,720 **FUNDING SOURCE:** 1065000-432079-SRD18

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER:

CONTACT NUMBER:

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol, CT	
Presented at Board Meeting:	
Agenda Item #:	
Approved:	
Order Filed:	
Referred to:	

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

10/7/2026
(Meeting Date)

X	**Information Item**
	Decision Item

AGENDA REPORTING FORM

TOPIC: Mainstreet Community Foundation - Jim & Eleanor Frawley Community Fund

BACKGROUND: The Board of Education received a grant in the amount of $2,100 from the Jim & Eleanor Frawley Community Fund at Mainstreet Community Foundation. The monies will be used to support the healthy snack pantry for food-insecure adult education students.

COST: $2,100 **FUNDING SOURCE:** 1065000-470000-SNACK

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER:

CONTACT NUMBER:

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol, CT	
Presented at Board Meeting:	
Agenda Item #:	
Approved:	
Order Filed:	
Referred to:	

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

10/7/2026
(Meeting Date)

X	**Information Item**
	Decision Item

AGENDA REPORTING FORM

TOPIC: The Barnes Foundation - Storytelling Residency Program

BACKGROUND: The Board of Education received a grant in the amount of $22,000 from The Barnes Foundation. The funds will be used to support a storytelling residency program in partnership with the Connecticut Storytelling Center, bringing arts-integrated literacy experiences to Kindergarten classrooms.

COST: $22,000 **FUNDING SOURCE:** 1065000-470000-BARN7

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER:

CONTACT NUMBER:

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol, CT	
Presented at Board Meeting:	
Agenda Item #:	
Approved:	
Order Filed:	
Referred to:	

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

10/7/2026
(Meeting Date)

☐ **Information Item**

☐ **Decision Item**

AGENDA REPORTING FORM

TOPIC: Connecticut High Dosage Tutoring Program

BACKGROUND:
Bristol Public Schools is seeking approval to accept the CSDE High-Dosage Tutoring (HDT) Grant to launch a targeted mathematics intervention program for incoming ninth-grade students at Bristol Central and Bristol Eastern High Schools. Partnering with Unlimited Instruction, the district will deliver small-group, in-person tutoring at a 1:4 tutor-to-student ratio using Illustrative Mathematics support materials aligned with Connecticut state standards to address critical achievement gaps in Algebra I. The initiative utilizes a phased acceleration model embedded directly within the school day and includes dedicated collaborative planning time for classroom teachers and tutors to ensure aligned, data-driven support.

COST: $49,995.31 **FUNDING SOURCE:** _____

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER: _____

CONTACT NUMBER: _____

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol, CT	
Presented at Board Meeting:	
Agenda Item #:	
Approved:	
Order Filed:	
Referred to:	

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

10/7/2026
(Meeting Date)

☐ **Information Item**

☐ **Decision Item**

AGENDA REPORTING FORM

TOPIC: McKinney-Vento Homeless Children & Youth Program

BACKGROUND: We have received notification from the Connecticut State Department of Education indicating that Bristol has been awarded $67,000 in McKinney-Vento Homeless Children & Youth Program funds for the grant period 10/1/26 – 9/30/27.

The funds will provide educational and basic needs services to students in Bristol, who are or become homeless. These funds are used to meet needs for tutoring, clothing, school supplies, transportation, and other basic needs. This grant requires a match of $5,000; the source of matching funds is the Title I, Part A Grant required allocation for homeless students.

COST: _____ **FUNDING SOURCE:** B400F094-G1227

RECOMMENDATIONS/COMMENTS:

ATTACHMENTS:

TOPIC PRESENTER: _____

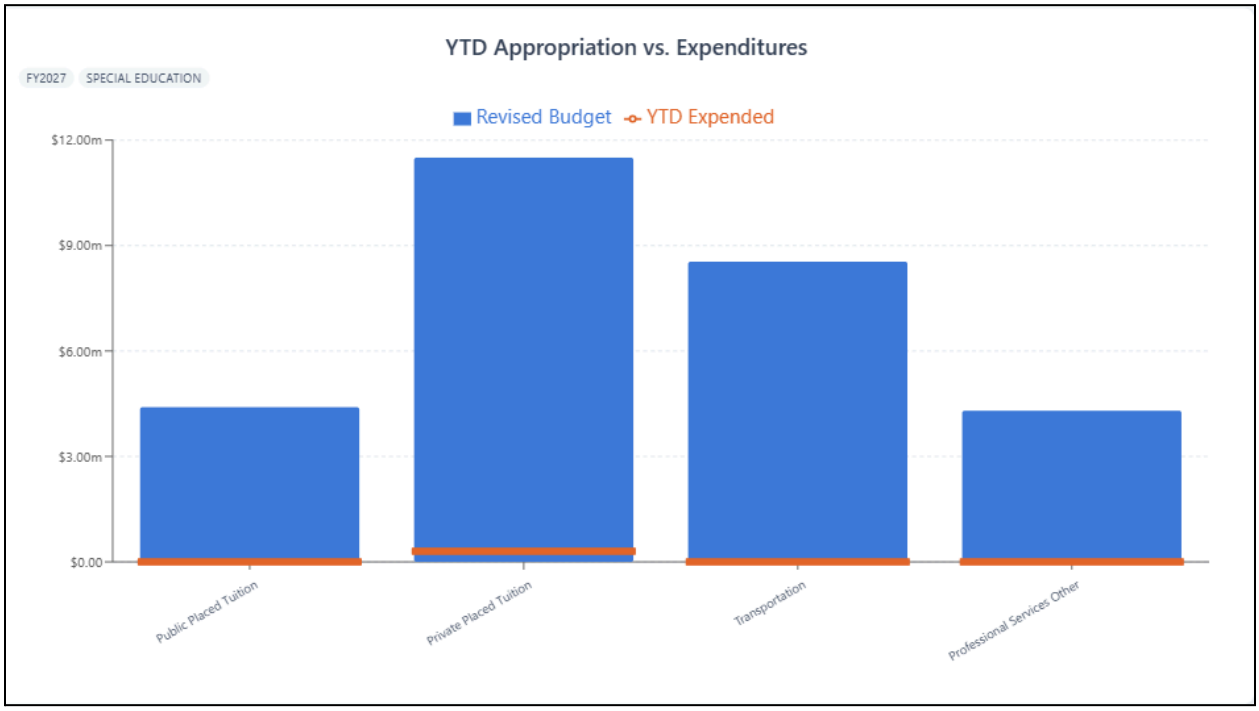
CONTACT NUMBER: _____

SUPERINTENDENT: Iris White
Iris White

Bristol Board of Education, Bristol, CT	
Presented at Board Meeting:	
Agenda Item #:	
Approved:	
Order Filed:	
Referred to:	

Pupil Personnel Services Monthly Budget Trends

As of September 1, 2026



This graphic highlights the four primary budget drivers within the Office of Pupil Personnel Services, excluding personnel costs. As we begin the new fiscal year, all budget lines remain fully available, with the exception of Private Placement Tuition, where expenditures have begun as anticipated. Encumbrances for the 2026-2027 school year have not yet been fully processed across all budget lines. As expenditures and encumbrances are entered throughout the year, we will continue to closely monitor each account and provide regular updates on budget status, including any areas of concern or emerging fiscal trends.

Bristol Enrollment Trend Data
Special Education September 1, 2026 Reporting

As of September 1, 2026

Monthly Special Education Enrollment Trends

Special Education – New enrollment trends August 2025 to present:		
	% of new enrollment eligible for services	**Outplaced students**
August	24%	1
September	22%	0
October	37%	2
November	68%	0
December	39%	0
January	27%	1
February	54%	1
March	21%	0
April	50%	1
May	59%	0
June	50%	1
July	46%	0
August	21%	2
Avg./total	40%	1

During the month of August 2026, 40% (45 of 214) of newly enrolled students to BPS were receiving special education services; 2 of our newly registered students attended an ODP placement at the time of enrollment.

Special Services Update- Reported by Amy Martino

As of September 1, 2026, 1,754 of the 7,815 enrolled Bristol students are identified as requiring Special Education programming. This enrollment reflects **22.4%** of the total BPS student population.

As of **September 1st, 123** students with disabilities required out-of-district placements at private special education school programs. There were **88** students requiring special education programming services at other public out-of-district schools, including magnet schools.

During the month of **August 2026, 40% (45 of 214)** of the newly registered students were identified as students with special education programming needs at the time of registration with. **2** of the newly registered students required programming and services at an out-of-district special education school program.

During the month of August, there were 1 211 or 0 911 calls.

Student Category	Student Count SEPTEMBER 1st 2025		Student Count JUNE 1st 2025		Student Count AUGUST 1st 2025		Student Count SEPTEMBER 1st 2025		Student Count OCTOBER 1st	TOTAL NET CHANGE SINCE PRIOR MONTH	TOTAL NET CHANGE SINCE 6/1/2026		Student Count NOVEMBER 1st	TOTAL NET CHANGE SINCE PRIOR MONTH	TOTAL NET CHANGE SINCE 6/1/2026
SPED Enrollment	1760		1823		1722		1754								
Out of District - Private	119		135		121		123								
Out of District - Public	99		95		89		88								
Risk Assessment	5		28		0		1			n/a	cumulative:			n/a	cumulative:
Psychiatric Evaluation	0		0		0		0			n/a	cumulative:			n/a	cumulative:
Independent Ed. Evaluation	0		0		0		0			n/a	cumulative:			n/a	cumulative:

Student Category	Student Count DECEMBER 1st	TOTAL NET CHANGE SINCE PRIOR MONTH	TOTAL NET CHANGE SINCE 6/1/2026		Student Count JANUARY 1st	TOTAL NET CHANGE SINCE PRIOR MONTH	TOTAL NET CHANGE SINCE 6/1/2026		Student Count FEBRUARY 1st	TOTAL NET CHANGE SINCE PRIOR MONTH	TOTAL NET CHANGE SINCE 6/1/2026		Student Count MARCH 1st	TOTAL NET CHANGE SINCE PRIOR MONTH	TOTAL NET CHANGE SINCE 6/1/2026
SPED Enrollment															
Out of District - Private															
Out of District - Public															
Risk Assessment		n/a	cumulative:			n/a	cumulative:			n/a	cumulative:			n/a	cumulative:
Psychiatric Evaluation		n/a	cumulative:			n/a	cumulative:			n/a	cumulative:			n/a	cumulative:
Independent Ed. Evaluation		n/a	cumulative:			n/a	cumulative:			n/a	cumulative:			n/a	cumulative:

Student Category	Student Count APRIL 1st	TOTAL NET CHANGE SINCE PRIOR MONTH	TOTAL NET CHANGE SINCE 6/1/2026		Student Count MAY 1st	TOTAL NET CHANGE SINCE PRIOR MONTH	TOTAL NET CHANGE SINCE 6/1/2026		Student Count JUNE 1st	TOTAL NET CHANGE SINCE PRIOR MONTH	TOTAL NET CHANGE SINCE 6/1/2026		Student Count JULY 1st	TOTAL NET CHANGE SINCE PRIOR MONTH	TOTAL NET CHANGE SINCE 6/1/2026
SPED Enrollment															
Out of District - Private															
Out of District - Public															
Risk Assessment		n/a	cumulative:			n/a	cumulative:			n/a	cumulative:			n/a	cumulative:
Psychiatric Evaluation		n/a	cumulative:			n/a	cumulative:			n/a	cumulative:			n/a	cumulative:
Independent Ed. Evaluation		n/a	cumulative:			n/a	cumulative:			n/a	cumulative:			n/a	cumulative:

	1-Sep	1-Oct	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	1-Jul
	% of enrollment	% of enrollment	% of enrollment	% of enrollment	% of enrollemnt	% of enrollment	% of enrollment	% of enrollment	% of enrollment	% of enrollment	% of enrollment
	1754 of 7815										
	22.40%										

STUDENT CATEGORY	*Student Count* SEPT 1st	*TOTAL NET CHANGE SINCE PRIOR MONTH*	*TOTAL NET CHANGE SINCE 6/1/2026*
SPED Enrollment	1754	n/a	-69
Out of District - Private	123	n/a	-12
Out of District - Public	88	n/a	-7
Risk Assessment/211	1	n/a	cumulative:1
Psychiatric Evaluation	0	n/a	cumulative:0
Independent Ed. Evaluation	0	n/a	cumulative:0
Calls to 911	0	n/a	n/a

1-Sep
% of enrollment
1754 of 7815
22.40%

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
Latin Historical Prose	**World Language**	**11th-12th**	**.5**

Course Description:

This semester-long course will explore topics in Roman history, especially the founding stories of the Monarchy and the early Republic, through actual texts written by ancient Roman authors, including Livy, Cornelius Nepos, and Eutropius. Students demonstrate familiarity with Rome's politics, history, and topography, as well as the passive voice and subjunctive mood in a variety of clausal constructions.

Aligned Core Resources:	Connection to the ***BPS Vision of the Graduate***
• *Dickinson Classics Commentaries:* Latin Texts • The Pericles Group: Tiered Readings Collection • The Latin Library	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. • Understand other nations and cultures, including the use of non-English language
Knowledge/Skill Dependent courses/Prerequisites:	**Link to *Completed Equity Audit***
• Latin 2	• Latin Historical Prose 2026 - Curriculum Equity Audit

Unit Links

Standard Matrix
Unit 1: Origins: the Monarchy (Livy)
Unit 2: Honorable Enemy: the Republic (Cornelius Nepos)
Unit 3: Conspiracy: the Republic (Sallust

Standard Matrix	Unit 1	Unit 2	Unit 3
1.1 Interpersonal Communication: Learners interact and negotiate meaning in spoken, signed, or written conversations to share information, reactions, feelings, and opinions.			
1.2 Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.	x	x	x
1.3 Presentational Communication: Learners present spoken, written, or signed information, concepts, and ideas to inform, explain, persuade, and narrate on a variety of topics using appropriate media and adapting to various audiences of listeners, readers, or viewers.	x	x	x
2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.	x	x	x
2.2 Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures studied.	x	x	x
3.1 Making Connections: Learners build, reinforce, and expand their knowledge of other disciplines while using the language to develop critical thinking and to solve problems creatively.	x	x	x
3.2 Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures.	x	x	x
4.1 Language Comparisons: Learners use the language to investigate, reflect on, and explain the nature of language through comparisons of the language studied and their own.	x	x	x
4.2 Cultural Comparisons: Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.	x	x	x
5.1 School and Global Communities: Learners use the language both within and beyond the classroom to interact and collaborate in their community and the globalized world.			

Unit 1: Origins: the Monarchy (Livy)

Overview:

Relevant Standards: Bold indicates priority

- 1.2 Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.
- 2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.
- 2.2 Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures studied.
- 3.2 Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures.
- 4.1 Language Comparisons: Learners use the language to investigate, reflect on, and explain the nature of language through comparisons of the language studied and their own.
- 4.2 Cultural Comparisons: Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.

Overview

In this unit, students explore the line between myth and history by reading the foundational stories of early Rome. Students follow key narratives, from the origin story of Aeneas to the founding legend of Romulus and Remus to see how Rome defined itself. By reading Livy, students examine how storytellers used these legends to bring stability to a society recovering from civil war. Students analyze Livy's complex role as a writer who doubted stories of divine intervention, yet still retold them because they showcased core Roman values: military courage, fate, and devotion to the gods. Ultimately, students investigate how ancient writers used the past not just to report facts, but to shape public identity and justify power.

Essential Question(s):

1. What does history mean to different audiences and authors?
2. What does Livy's treatment of Roman early history reveal about the ancient world?

Enduring Understanding(s):	
1. At a time of political instability and transition, ancient authors like Livy turn to foundational myths to define what is meant to be Roman. While the line between mythology, history and propaganda in the ancient world is often blurred, preserving narratives of martial valor (virtus), religious duty (pietas), and fate (fatum) was essential to forging collective identity and making sense of contemporary events, even when historians felt ambivalent about their factual accuracy.	
Demonstration of Learning:	**Unit Specific Vocabulary**
• Exam ○ Students will translate equivalent sight passages with the assistance of vocabulary and notes. ○ Students will use Latin passages to reflect on themes discussed. ○ Students will identify prepositional phrases and noun cases in familiar Latin passages. • Project on Artifact, Image, or Map ○ Part 1: Research/Presentation explaining basic contextual information, source, material, current location, etc ○ Part 2: Museum Label using evidence from the text to support visual analysis, roman virtues, contextual significance, historical accuracy.	**Vocab Lists** • Vocabulary from passages, prioritized by Latin Core Vocabulary **Key Verbs / Phrases** • *Fatum* • *Virtus* • *Pietas* **Grammatical Concepts** • prepositional phrases • variety of uses of different noun cases • ablative absolutes
Connections to Prior Units:	**Connections to Future Units:**
• None	• Students will be prepared to analyze how ancient authors define Roman identity externally through foreign adversaries like Hannibal, expanding on the internal foundation myths studied in this unit. • Students will return to the core Roman values (virtus, pietas, fatum) established in foundational myths when they evaluate how these virtues are applied to, subverted by, or recognized in Hannibal in Unit 2. • Studying Livy's ideal depiction of early Roman civic unity will prepare them to see a contrast to Sallust's portrait of systemic greed, debt, and factionalism during the late Republic.
Family Overview (link below)	**Pacing for Unit**
•	• 15 lessons, 6 weeks

Integration of Technology:	**Aligned Unit Materials, Resources, and Technology:**
• Use of google docs is recommended throughout the writing process to facilitate drafting, feedback, collaboration, and revision. • Digital resources will be used to review and explore vocabulary.	•
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
• ELA: Push students to compare Livy's direct editorializing in historical prose to Jon Krakauer's authorial interventions in Into the Wild (11th grade) in order to help them recognize how even non-fiction authors insert their own perspectives/biases into factual accounts.	• Students may assume that ancient historical writing operated like modern non-fiction or objective news reporting, failing to recognize that ancient history was primarily a narrative art designed to deliver moral lessons and shape civic identity. • Students may assume there is a single, objective, and authoritative account of history, failing to recognize how ancient historians like Livy selectively synthesized conflicting oral traditions, regional variants, and political myths into a narrative shaped by their own political contexts and social aims. • Students may dismiss ancient mythology as simple, purely fictional fairy tales, failing to see how Romans used mythic origin stories as powerful cultural symbols carrying profound political authority and shared identity. • Students may view religion and history as completely separate domains, failing to recognize that divine will, omens, and religious devotion (pietas) were considered integral forces driving Roman historical outcomes.
Differentiation through *Universal Design for Learning*	
UDL Indicator • Consideration 3.1: Connect prior knowledge to new learning	**Teacher Actions:** • Introduce students to tiered translations of Livy's text, allowing students to isolate the primary historical action simpler translations before re-assembling more complex structures and original text. • Bridge the transition from adapted Latin 2 narrative prose to Livy's complex periodic style by using sentence organizers that map familiar main clause structures (Subject–Object–Verb) before unpacking subordinate ablative absolutes and indirect discourse. • Reactivate core Roman values (virtus, pietas, fides) established in earlier Latin stages, prompting students to trace how early Romans defined civic duty before seeing those virtues subverted in later units.

Unit 1: Rome's Origins according to Livy

Lesson Map

Lesson	Learning Target	Success Criteria	Resources
1 -	• I can summarize Livy's self proclaimed writing goals. • I can describe the historical context in which Livy was writing	• By comparing a personal definition for historical writing with a definition based on Livy's prologue • By identifying members of the imperial family on the Ara Pacis	Livy's Preface: English translation Online museum | Museo dell'Ara Pacis
2-3	• I can explain why Aeneas came to Italy • I can distinguish competing traditions about his arrival	• By analyzing prepositional phrases to distinguish directionality • By identifying genitive nouns to determine relationships • By tracking the names of peoples, places and their connections to each other	Selections from Book 1, Section 1 (Aeneas's arrival at Latium) Maps
4-6	• I can explain why Romulus and Remus's birth was mysterious • I can identify how Livy undermines the traditional story	• By analyzing prepositional phrases to track the twins' origins and movement • By comparing expectations regarding the Vestals and Rhea Silvia's experience • By identifying phrases that suggest doubt	Selections from Book 1, Section 4 (Birth of Romulus and Remus) Who were the Vestal Virgins, and what was their job? - Peta Greenfield Capitoline She-wolf | Musei Capitolini
7-8	• I can explain how the concept of fate was used to lend legitimacy to the new state • I can summarize and compare the conflicting accounts of Remus's death.	• By comparing the locations, timing, and observations of the twins • By identifying phrases that suggest doubt	Selections from Book 1, Section 7, (Founding of Rome, Death of Remus)) Mapping the Sky: Roman Augury in the Classroom
9-10	• I can explain how Hercules is connected to the site of Rome • I can analyze how Livy presents violence as a necessary foundation to national stability.	• By analyzing prepositional phrases the connect Hercules to Rome in conjunction with a map • Buy comparing Hercules and Romulus's use of omens	Selections from Book 1, Section 7, (Death of Remus) The Mystery of the Building of the Temple of Hercules Victor - IMR Blog

			Importing
11-12	• I can compare Livy's two explanations for the disappearance of Romulus. • I can contextualize this story in contemporary events	• By identifying prepositional phrases to track events. • By identifying genitive nouns to track preferences and alliances • By identifying key events in both accounts	Selections from Book 1, Section, 15 -16 (Death of Romulus)
13 Review	• I can compare Eutropius and Livy's accounts of the founding of Rome • I can compare how the contexts for the two historians differ	• By identifying genitive nouns and prepositional phrases • By analyzing a short biography of Eutropius	Eutropius: 1.1 | Dickinson College Commentaries Eutropius Wikipedia entry (Latin for 4s, English for 3s)
14	FLEX	•	
15	ASSESSMENT	•	

Unit 2: Hannibal of Carthage (Nepos)

Overview:

Relevant Standards: Bold indicates priority

- 1.2 Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.
- 2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.
- 2.2 Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures studied.
- 3.2 Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures.
- 4.1 Language Comparisons: Learners use the language to investigate, reflect on, and explain the nature of language through comparisons of the language studied and their own.
- 4.2 Cultural Comparisons: Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.

Overview

In this unit, students read Cornelius Nepos' Life of Hannibal to explore how ancient biography served as a tool for moral evaluation and political critique during the collapse of the Roman Republic. Students follow Hannibal's life from his childhood oath to his Italian campaign, his political leadership in Carthage, his Mediterranean exile, and ultimate death. Through close reading, students analyze how Nepos presents Rome's arch-nemesis as a model of leadership possessing key virtues like strategy (prudentia), cleverness (calliditas), and duty (pietas). By contrasting Hannibal's brilliance with the envy (invidia) of the Carthaginian senate and relentless Roman interference, students evaluate how Roman writers used portraits of foreign rivals to hold up a mirror to the political decay of their own society.

Essential Question(s):

1. Is Hannibal a dangerous threat, a tragic figure, or an embodiment of Roman virtue?
2. Why would a Roman historian write a biography about his national greatest enemy?

Enduring Understanding(s):

1. Rather than reducing an adversary to a simple villainous threat, Nepos uses carefully chosen anecdotes to present Hannibal as a complex, tragic figure who paradoxically embodies core Roman virtues prudentia (strategy), calliditas (cleverness), and pietas (piety), demonstrating how Romans used "the other" to conceptualize their own cultural ideals.
2. Writing the biography of a foreign enemy allowed ancient authors to hold up a moral mirror to their own society; by celebrating an adversary's individual virtues and attributing his defeat to internal political corruption (invidia) rather than Roman military superiority, authors like Nepos could subtly critique the factionalism and moral decay threatening the late Roman Republic.

Demonstration of Learning:

- Exam
  - Students will translate equivalent sight passages with the assistance of vocabulary and notes.
  - Students will use Latin passages to reflect on themes discussed during the unit.
  - Students will identify prepositional phrases and noun cases in familiar Latin passages.
- Project on Artifact, Image, or Map
  - Part 1: Research/Presentation explaining basic contextual information, source, material, current location, etc
  - Part 2: Museum Label using evidence from the text to support visual analysis, roman virtues, contextual significance, historical accuracy.

Unit Specific Vocabulary

Vocab Lists

- Vocabulary from passages, prioritized by Latin Core Vocabulary

Key Verbs / Phrases

- *mors voluntaria?*
- *Dignitas*
- Prudentia
- Calliditas
- Pietas

Grammatical Concepts

- connective relative and demonstrative clauses
- ablative absolutes
- featured prepositions and conjunctions
- syncopated perfect tense verbs

Connections to Prior Units:

- Students will be able to draw on their understanding of internal origin myths from Unit 1 as they analyze how Roman identity is framed in contrast to—and through the reflection of—a formidable foreign rival.
- Students will have established a foundational understanding of core cultural values (virtus, pietas, fatum) in Unit 1, allowing them to evaluate how Nepos attributes these traditional "Roman" virtues to a Carthaginian enemy.
- Students will have examined how Livy wrote about the past to address his own contemporary context, enabling them to recognize how Nepos similarly uses Hannibal's story as a moral mirror to warn late Republican Romans of internal decay

Connections to Future Units:

- Students will compare these same qualities in analyzing Catiline and his internal challenge to the state.
- Students will examine traditional Roman values (for men and women) as demonstrated by near contemporary Romans in Bellum Catilinae.
- Students will explore how historiography practices may change when addressing more contemporary events.
- Students once again examine how authors build complex moral portraits in Unit 3, moving from Nepos's biographical presentation of a foreign enemy to Cicero and Sallust's rhetorical construction of a domestic traitor.

Family Overview (link below)	Pacing for Unit
•	• 16 lessons, 6 weeks
Integration of Technology:	**Aligned Unit Materials, Resources, and Technology:**
• Use of google docs is recommended throughout the writing process to facilitate drafting, feedback, collaboration, and revision. • Text and notes from Dickinson Classics Commentaries will be used extensively.	•
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
• Grade 11 ELA - As with Unit 1, students can compare Nepo's treatment of Hannibal to Krakauer's portrayal of Chris McCandles, both to evaluate his objectivity, but also to determine whether this real life protagonist is characterized positively or negatively. • Grade 9 ELA - Students might compare Hannibal's decision to commit suicide to Juliet's suicide in Romeo and Juliet, using the Roman concept of a noble dealth to compare characters actions in the face of hostile, corrupt, or inescapable external forces.	• Students may assume that ancient national literature always vilifies wartime enemies, failing to recognize how Roman writers like Nepos used respect for a foreign rival's character as both an ideal to emulate and a moral mirror to critique his own society. • Students are likely to view suicide through a modern cultural lens as an act of defeat or weakness, failing to understand that in the ancient Greco-Roman world, choosing death to escape humiliation and preserve personal honor was often regarded as an act of political agency and noble bravery. • Students may assume that ancient military leadership were defined by immediate battlefield aggression and brute force, failing to see how strategic delay, cleverness and calculated restraint were celebrated as vital components of effective command.
Differentiation through *Universal Design for Learning*	
UDL Indicator • Consideration 7.4: Address biases, threats, and distractions	**Teacher Actions:** • Provide pre-reading ethical frameworks when encountering Hannibal's death, explicitly distinguishing modern psychological perspectives on suicide from ancient Greco-Roman concepts of political agency, dignity, and escaping public humiliation. • Proactively notify school support staff and families prior to reading about Hannibal's death, providing historical context and establishing clear check-in protocols for students.

UDL Indicator	**Teacher Actions:**
• Consideration 3.2: Highlight patterns, critical features, big ideas, and relationships	• Provide a "Virtue Matrix" graphic organizer that lists key Roman virtues introduced in Unit 1 (virtus, pietas, fides) and guides students to collect Latin evidence where Nepos attributes these exact traits to Hannibal, helping them trace how an ancient author projects traditional Roman ideals onto a foreign adversary.

Unit 2:			
Lesson Map			
Lesson	**Learning Target**	**Success Criteria**	**Resources**
1	• I can summarize Nepos's self proclaimed writing goals. • I can describe the historical context in which Nepos was writing	• By situating Nepos and Hannibal chronologically with Romulus, Livy, and Julius Caesar • By contrasting the purposes of biography with that of history	Prologus (in translation) Prologus: Essay | Dickinson College Commentaries
2	• I can identify some of Nepos' biases as an author. • I can describe Hannibal's judgement of the Romans.	• By recognizing ablatives of specification and degree of difference • By comparing descriptions of the Roman People and Hannibal	Chapter 1: Introduction to Hannibal
3	• I can explain why Hannibal tells the story of his oath. • I can describe what made the oath powerful	• By recognizing an ablative absolute • By identifying Hannibal's audience and the timing of the story • By detailing the steps of making the oath	Chapter 2: Hannibal recounts his oath against Rome.
4	• I can explain how Hannibal rose to leadership. • I can describe why crossing the Alps was a remarkable strategy.	• By utilizing connective relative and demonstrative clauses • By completing graphic organizers (a family tree, a chronology of action, a map of the region) • By explaining the relevance of Hercules	Chapter 3: Hannibal crosses the Alps & invades Italy
5	• I can identify and enumerate Hannibal's victories. • I can explain what battles reveal about Hannibal's character.	• By identifying Ablative Absolutes • By naming the Romans Hannibal defeated in each battle • By describing Hannibal's own injuries	Chapter 4: Battles at Trebia, Lake Trasimene, & Cannae
6	• I can explain why Nepos describes Hannibal as 'callidus' (clever).	• By identifying Ablative Absolutes • By mapping Hannibal's victories • By identifying Hannibal's specific strategies	Chapter 5: Escaping Fabius Maximus
7	• I can explain the significance of Zama.	• By utilizing connective relative and	Chapter 6: Recalled to Carthage

	• I can describe how Hannibal's position was undermined by the Carthaginians. • I can explain how Roman interference in Carthaginian politics impacted Hannibal	demonstrative clauses • By identifying the participants and activities at Zama • By contrasting Hannibal's accomplishments as king with his punishment by the Carthaginians	
8	• I can explain how Hannibal became king. • I can explain why and how the Carthaginians turned on Hannibal.	• By recognizing a demonstrative pronoun used in an Ablative Absolute • By identifying Hannibal's accomplishments as king • By identifying how the Carthaginians punished Hannibal in absentia	Chapter 7: King or Outlaw?
9	• I can contrast Hannibal's leadership with that of Antiochus. • I can describe how Mago presages what might happen to Hannibal	• By identifying syncopated perfect tense verbs • By comparing two possible causes of death for Mago • By identifying Hannibal's use of prudentia	Chapter 8: Working with Antiochus, Mago's Fate
10	• I can explain how Hannibal protects his assets while traveling.	• By identifying Ablative Absolutes • By identifying vocabulary describing wealth and where it is placed	Chapter 9: Asylum in Crete
11	• I can explain how and why Hannibal formed alliances. • I can describe how Hannibal prepared for biological warfare.	• By utilizing connective relative and demonstrative clauses • By tracking the names of rulers, their allies, and their enemies • By identifying Hannibal's weapons and how they were utilized	Chapter 10: Fighting Eumenes
12	• I can explain how Hannibal used strategy to overcome superior numbers. • I can describe the outcome of the battle	• By utilizing connective relative and demonstrative clauses • By focusing on objects that crossed the battle lines and their reception	Chapter 11: Fighting Eumenes
13	• I can describe how the rules of xenia (hospitality) protected Hannibal. • I can explain how Hannibal protected his legacy.	• By utilizing connective relative and demonstrative clauses • By describing Prusias's dilemna • By identifying how Hannibal died	Chapter 12: Arrival of the Romans

14	• I can respond to Nepos's assessment of Hannibal.	• By identifying adjectives Nepos uses to describe Hannibal	Chapter 13: Sources (translation)
15	FLEX	•	
16	ASSESSMENT	•	

Unit 3: Catiline the Rebel (Sallust)

Overview:

Relevant Standards: Bold indicates priority

- 1.2 Interpretive Communication: Learners understand, interpret, and analyze what is heard, read, or viewed on a variety of topics.2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.
- 2.1 Relating Cultural Practices to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the practices and perspectives of the cultures studied.
- 2.2 Relating Cultural Products to Perspectives: Learners use the language to investigate, explain, and reflect on the relationship between the products and perspectives of the cultures studied.
- 3.2 Acquiring Information and Diverse Perspectives: Learners access and evaluate information and diverse perspectives that are available through the language and its cultures.
- 4.1 Language Comparisons: Learners use the language to investigate, reflect on, and explain the nature of language through comparisons of the language studied and their own.
- 4.2 Cultural Comparisons: Learners use the language to investigate, explain, and reflect on the concept of culture through comparisons of the cultures studied and their own.

Overview

In this unit, students learn about Catiline, a charismatic yet bankrupt aristocrat who inspired disaffected youth and indebted citizens to participate in a plot to assassinate the consul, cancel debts, and seize power. Through close reading, students analyze speeches against Catiline alongside Sallust's dramatized debate between Julius Caesar and Cato the Younger regarding the execution of the conspirators. By evaluating Catiline's complex characterization as both a villain and an undeniably charming leader, students continue their semester-long study of Roman virtues, while also uncovering the underlying socioeconomic tensions of late Republican Rome . In doing so, students investigate how ancient writers used domestic crises to diagnose and speak to failures of their own political system.

Essential Question(s):

1. Was Cateline a dangerous villain, a tragic reformer, or a symptom of a corrupt society?
2. Why study "invented" historical speeches when we know they aren't entirely accurate?

Enduring Understanding(s):

1. Hannibal and Catalinae share a number of qualities, but Hannibal was fighting for country and honor, while cataline was fighting more for personal gain. Sallust presents Catiline as the antithesis of Roman values and a man whose own faults are representative of systemic Roman corruption and potential precursors to political revolution.
2. Whether edited after delivery in Cicero's case, or imagined reconstructions in the case of Sallust, such speeches were rarely verbatim transcripts. Politicians like Cicero and historians like Sallust crafted speeches not to record literal facts, but to reveal deep political motives, expose economic tensions, and diagnose why a state was failing. By studying these speeches today, we gain insight into how Romans understood authority, ethics, and power of the late Republic

Demonstration of Learning:

- Exam
  - Students will translate equivalent sight passages with the assistance of vocabulary and notes.
  - Students will use Latin passages to reflect on themes discussed.
  - Students will identify prepositional phrases and noun cases in familiar Latin passages.
- Project on Artifact, Image, or Map
  - Part 1: Research/Presentation explaining basic contextual information, source, material, current location, etc
  - Part 2: Museum Label using evidence from the text to support visual analysis, roman virtues, contextual significance, historical accuracy.

Unit Specific Vocabulary

Vocab Lists

- Vocabulary from passages, prioritized by Latin Core Vocabulary

Key Verbs / Phrases

- *Amicitia (friendship)*
- *Vis (force/strength)*
- *Populares (people/confederates)*

Grammatical Concepts

- asyndeton
- historical infinitives
- descriptions expressed as nouns

Connections to Prior Units:

- Students will be able to draw on the civic virtues (virtus, pietas) established in Unit 1 to evaluate how Catiline and his co-conspirators represent the total subversion of Rome's founding values.
- Students will have analyzed Hannibal's external war against Rome in Unit 2, enabling them to contrast a foreign rival driven by duty to his homeland with a domestic agitator driven by debt, status loss, and self-interest.
- Students will be able to draw on their earlier work with historical narrative (Livy) and biography (Nepos) to critically analyze how authors use edited and invented speeches to diagnose social crises rather than record literal history.

Connections to Future Units:

- None

Family Overview (link below)	Pacing for Unit
•	• 10 lessons, 4 weeks
Integration of Technology:	**Aligned Unit Materials, Resources, and Technology:**
• Use of google docs is recommended throughout the writing process to facilitate drafting, feedback, collaboration, and revision.	•
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
•	• Students are likely to assume that speeches in ancient historical texts or Cicero's published orations are verbatim, literal transcripts, forgetting (or failing to recognize) that speeches were heavily edited, embellished, or completely reconstructed by authors to advance political commentary and shape narrative bias. • Students may assume Cicero's speeches represent a neutral, objective record of the conspiracy, failing to see how senatorial rhetoric often served both political and personal aims. • Students may overemphasize Catiline's personal qualities, viewing his wickedness, charisma, or individual flaws as the sole cause of the uprising, and fail to recognize the widespread socioeconomic crises that fueled the conspiracy he led.
Differentiation through *Universal Design for Learning*	
UDL Indicator • Consideration 9.3: Promote individual and collective reflection	**Teacher Actions:** • Have students maintain individual reflection logs tracking how their personal perception of Catiline evolves—from an irredeemable villain in Cicero's rhetoric to a symptom of systemic economic inequality in Sallust's critique. • Host structured Socratic reflections where the class evaluates the ethical and historiographical utility of "invented" or edited speeches, reflecting collectively on how notions of truth and objectivity have developed over all three units. • Guide students in using tiered readings as a metacognitive self-checking tool to pinpoint exactly where their syntactic decoding breaks down and track their growing independence in handling unadapted prose over time.

Unit 3:			
Lesson Map			
Lesson	**Learning Target**	**Success Criteria**	**Resources**
1	• I can explain Sallust's purpose and limitations when writing history. • I can compare Sallust's approach and reasoning with Livy's.	• By situating Catiline and Sallust chronologically with Livy, Nepos, and Julius Caesar. • By contrasting the challenges and advantages of writing about recent events	Introduction: Why History? 1-4 translation
2	• I can compare Catiline's positive and negative traits.	• By recognizing descriptions using genitives of quality and partitive genitives. • By comparing the connotation and denotation of words	Portrait of Catiline 4-5 Latin (selections)
3	• I can compare the story of Aeneas to Romulus to Sallust's Rome. • I can enumerate Catiline's motivations for participating in a conspiracy.	• By identifying verbs that express that motivation • By comparing adjectives that express decline	History of Rome 6-9 translation The Conspiracy 14-15 in translation 16 in Latin
4	• I can compare the use of speeches in Roman history to modern sound bits. • I can analyze how Catiline describes his supporters.	• By examining Catiline's definition of amicitia (friendship) • By comparing the use of positive and negative adjectives (litotes)	Catiline's Speech 20 excerpts
6	• I can compare the depictions of the key women referenced in the text. • I can analyze how women are presented as following or disrupting Roman mores.	• By comparing the connotation and denotation of words • By analyzing descriptions to distinguish factual information and Sallust's personal opinions	Fulvia 23 in Latin 25 in translation
7	• I can compare Caesar & Cato's plans for responding to the crisis. • I can explain how their speeches reflect their different political and personal philosophies.	• By analyzing descriptions of the crime • By choosing a position and summarizing its arguments	Caesar & Cato 51-52 mixture of Latin and translation

8	• I can analyze Catiline's truth and debate its sincerity. • I can explain how Catiline's death corresponds to or challenges Sallust's description in Chapter 5.	• By focusing on the second person verbs and associated descriptions • By comparing not only adjectives and descriptions but actions	Catiline's Battle Speech 58 in Latin 59 in translation Catline's Death 60-61 excerpts in Latin
9	REVIEW		
10	FLEX		

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
Algebra 2 ACA/ACC	Math	Gr. 10/11	1.0

Course Description:

Algebra 2 extends students' understanding of functions, equations, and mathematical modeling through an in-depth exploration of polynomial, rational, exponential, and trigonometric functions while developing sophisticated problem-solving skills for real-world applications. Students progress through eight units covering sequences and functions, polynomial analysis with factors and zeros, rational functions and optimization, complex numbers and rational exponents, exponential and logarithmic relationships, function transformations, trigonometric modeling, and statistical inference. The course emphasizes multiple representations of mathematical relationships, logical reasoning, and mathematical communication while integrating technology for exploration and problem-solving. Students develop both procedural fluency and conceptual understanding through formative assessments, performance tasks, and mathematical discourse, with real-world connections spanning STEM applications, financial literacy, and data-driven decision making. By course completion, students demonstrate mastery of advanced algebraic concepts, confidence in tackling unfamiliar mathematical problems, and understanding of mathematics as an essential tool for understanding and improving the world around them.

Aligned Core Resources:

Teacher Materials
https://accessim.org

- Key Structures in this Course
  - Developing a Math Community
  - Student Journal Prompts
  - Mathematical Modeling Prompts
  - Are You Ready For More?
  - Principles of IM Curriculum Design
- Algebra 2 Scope and Sequence
  - Narrative
  - Unit 1: Sequences and Functions
  - Unit 2: Polynomial Functions
  - Unit 3: Rational Functions and Equations
  - Unit 4: Complex Numbers and Rational Exponents
  - Unit 5: Exponential Functions and Equations
  - Unit 6: Transformations of Functions
  - Unit 7: Trigonometric Functions
  - Unit 8: Statistical Inferences
  - Pacing Guide
  - Dependency Diagram

CT Core Standards

Imagine Learning iM Resources (BPS teacher login through ClassLink)

Connection to the *BPS Vision of the Graduate*

Common Core State Standards: Math Practice (MP) Standards
MP 1: Make sense of problems and persevere in solving them.
MP 2: Reason abstractly and quantitatively.
MP 3: Construct viable arguments and critique the reasoning of others.
MP 4: Model with mathematics.
MP 5: Use appropriate tools strategically.
MP 6: Attend to precision.
MP 7: Look for and make use of structure.
MP 8: Look for and express regularity in repeated reasoning.

Lessons that Showcase Math Practice Standards

	Unit 1 iM Alg 2 Unit 1	Unit 2 iM Alg 1 Unit 7	Unit 3 iM Alg 1 Unit 8	Unit 4 iM Alg 2 Unit 2	Unit 5 iM Alg 2 Unit 3	Unit 6 iM Alg 2 Unit 4
MP 1	5, 7, 10, 11	4, 14, 17	1-3, 9, 10, 21, 22, 24	14, 15	1, 6, 9–11	7, 8, 10, 15
MP 2	9, 10	1, 3, 6, 7, 12, 14	1, 2, 17, 21	1	3–6	8
MP 3	6	2, 3, 12, 15-17	5, 6, 13, 18, 19, 21	4, 5, 7, 9, 13	2	1, 6
MP 4	8, 9	7, 17	1			3, 8, 10, 15
MP 5	4–6, 8, 10	1, 4, 6, 12	3, 5, 17, 21	3, 9	2, 4–6, 11	6, 15
MP 6	1–3, 7, 8	7, 9, 11, 14, 15	9, 10, 13, 15, 22	1, 3, 6, 8, 9, 14	7	1, 2, 5, 7, 9, 11, 14
MP 7	1, 9, 11	1-5, 8-13, 15-17	3-13, 16, 19, 21, 23	2, 3, 5, 7, 9–11, 13	2, 3, 5, 7, 8, 10	4-7, 12-14
MP 8	1, 2, 5, 8	2, 5-7, 9-13, 15	4, 7, 8, 11, 14, 20, 21	8, 12, 15	1, 4, 8	2, 4, 10-12

Bristol Public Schools Vision of the Graduate

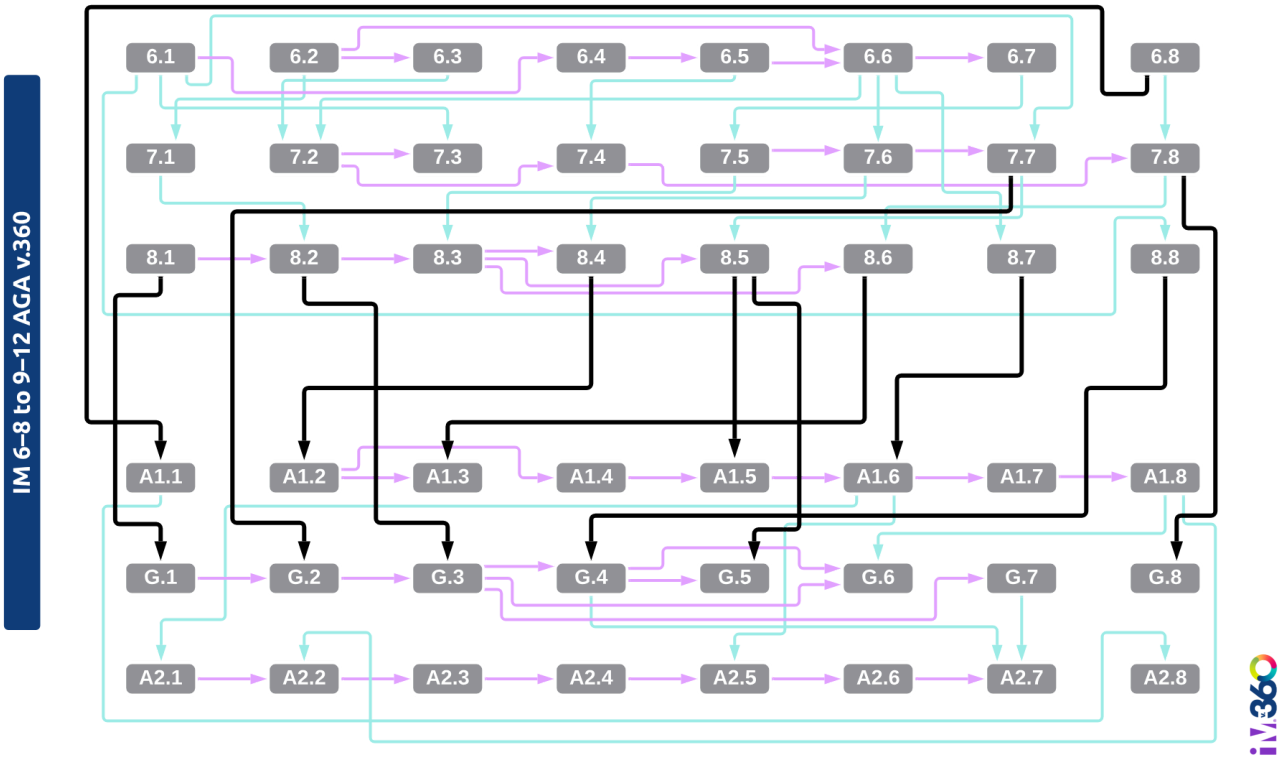
Problem Solving
- iM's focus on real-world modeling and problem-solving strategies
- Multiple solution pathways are encouraged and explored
- Students develop perseverance through challenging tasks

Critical Thinking
- Students analyze mathematical relationships and justify their reasoning
- Regular opportunities to critique others' reasoning
- Emphasis on understanding "why" not just "how"

Communication and Collaboration
- Structured mathematical discourse is built into lessons
- Students explain their thinking both verbally and in writing
- Many activities involve partner and group work

Link to *Completed Equity Audit*: Equity Curriculum Review Audit: 6-12 Illustrative Math (2026)

Additional Course Information: *Knowledge/Skill Dependent courses/prerequisites*



Standard Matrix

Standard	Unit 1 iM Alg 2 Unit 1	Unit 2 iM Alg 1 Unit 7	Unit 3 iM Alg 1 Unit 8	Unit 4 iM Alg 2 Unit 2	Unit 5 iM Alg 2 Unit 3	Unit 6 iM Alg 2 Unit 4
HSS-ID.A	X					
HSS-ID.A.1	X					
HSS-ID.A.2	X					
HSS-ID.A.3	X					
HSA-CED.A.2		X		X		
HSA-REI.D.10		X	X	X		X
HSA-SSE.A		X	X			
HSA-SSE.A.1		X	X	X		
HSA-SSE.B.3		X	X			
HSF-BF.A.1		X				
HSF.BF.A.1.a		X				
HSF-BF.B.3		X				
HSF-IF.A.2		X	X			
HSF-IF.B.4		X	X			
HSF-IF.B.6		X				
HSF-IF.C		X	X			
HSF-IF.C.7		X	X			
HSF-IF.C.7.a		X	X			
HSF-IF.C.8		X				

HSF-IF.C.8.a		X	X			
HSF-IF.C.9		X	X			
HSF-LE.A		X				
HSF-LE.A.1		X				
HSF-LE.A.2		X	X			
HSA-CED.A.1			X			X
HSA-CED.A.3			X	X		X
HSA-REI.A			X	X		
HSA-REI.A.1			X	X		
HSA-REI.B.3			X	X		X
HSA-REI.B.4			X			
HSA-REI.B.4.a			X			
HSA-REI.B.4.b			X			
HSA-REI.C.7			X			
HSA-REI.D			X			
HSA-SSE.A.2			X			
HSA-SSE.B.3.a			X			
HSA-SSE.B.3.b			X			
HSF-IF.A.1			X			
HSF-IF.B.5			X			
HSN-RN.B			X			
HSN-RN.B.3			X			
HSA-CED.A.4				X		
HSA-REI.C				X		
HSA-REI.C.5				X		
HSF-BF.A.1.b				X		
HSN-Q.A.3					X	
HSS-ID.B.5					X	
HSS-ID.B.6					X	
HSS-ID.B.6.a					X	
HSS-ID.B.6.b					X	
HSS-ID.B.6.c					X	
HSS-ID.C.7					X	
HSS-ID.C.8					X	
HSS-ID.C.9					X	
HSA-REI.D.12						X

Unit Links
Algebra 2 ACA/ACC Unit 1 (iM A2 U1): Sequences and Functions Unit 2 (iM A1 U7): Introduction to Quadratic Functions Unit 3 (iM A1 U8): Quadratic Equations Unit 4 (iM A2 U2): Polynomials Unit 5 (iM A2 U3): Rational Functions and Equations Unit 6 (iM A2 U4): Complex Numbers and Rational Exponents

Unit Title

Unit 1 (iM A2 U1): Sequences and Functions

Relevant Standards

Lesson	Standards	Lesson	Standards	Lesson	Standards
Lesson 1		Lesson 5	HSF-BF.A.1.a HSF-BF.A.2 HSF-IF.A.3 HSF-LE.A.2	Lesson 9	HSF-BF.A.2 HSF-IF.A.3 HSF-IF.B.5 HSF-LE.A.2
Lesson 2	HSF-BF.A.1.a	Lesson 6	HSF-BF.A.2 HSF-IF.C HSF-LE.A.2	Lesson 10	HSF-BF.A.2 HSF-LE.A.2
Lesson 3	HSF-IF.C	Lesson 7	HSF-BF.A.2 HSF-IF.A.3 HSF-LE.A.2	Lesson 11	HSF-BF.A.1.a HSF-BF.A.2
Lesson 4	HSF-IF.C	Lesson 8	HSF-BF.A.2 HSF-LE.A.2		

Essential Question(s)

- How do different representations (tables, graphs, recursive formulas, nth term formulas) help us understand sequences?
- What are the advantages of recursive versus nth term definitions?
- How can we move between different representations of the same sequence?
- How can we determine if a sequence is arithmetic, geometric, or neither?
- What real-world situations are best modeled by sequences rather than continuous functions?

Enduring Understanding(s)

- Sequences follow predictable patterns that can be identified, extended, and represented mathematically.
- The growth characteristics of sequences can be quantified and used to make predictions.
- Mathematical representations of sequences are interconnected and serve different purposes for analysis and communication.
- Real-world contexts impose meaningful constraints on mathematical models.
- Sequences provide powerful tools for modeling growth, decay, and change in authentic situations.

Demonstration of Learning

CFA 1: Checkpoint A (after lesson 4)
CFA 2: Checkpoint B (after lesson 7)
Checkpoint C (after lesson 11) use as opportunity for feedback
EoU: Assessment (after lesson 11)

Pacing for Unit

16 Days (8 class periods)
Lesson Modifications: (from adaptation pack)

- Remove 1.4 - An optional lesson on spreadsheets
- Remove 1.7 - info gap on reinforcing parts of the recursive function

Family Overview (link below)

https://accessim.org/9-12-aga/algebra-2/unit-1?a=family

Integration of Technology:

- Desmos Online Graphing Calculator

Unit-specific Vocabulary

sequence, term (of a sequence), geometric sequence, arithmetic sequence

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

- Desmos Online Graphing Calculator
- Pear Assessment (Edulastic)
- IL Classroom Adapted Resources
- Interactive Tower of Hanoi puzzle
- Paper cutting activity to visualize a sequence (paper and scissors)

Opportunities for Interdisciplinary Connections:

Science

- Population growth models (geometric sequences for bacterial growth, predator-prey relationships): Cell division patterns and exponential reproduction, Fibonacci sequences in nature (plant growth patterns, shell spirals, flower petals), Ecosystem modeling with discrete time intervals
- Population dynamics in ecological systems: Carbon

Anticipated misconceptions

- Thinking sequences can have any real number input rather than just integers
- Mixing up the term value with its position in the sequence
- Looking at differences without checking if they're constant (arithmetic) or assuming any growing pattern is geometric

footprint reduction scenarios, Resource consumption modeling, Climate data analysis with discrete measurements Economics & Business • Compound interest calculations and investment growth: Depreciation models for assets, Market analysis using geometric and arithmetic progressions, Revenue and profit projections over time periods Art & Design • Fractal patterns and geometric art (Koch Snowflake connections): Architectural proportions and scaling, Visual pattern recognition and creation, Digital art algorithms and iterations	• Adding when they should multiply (geometric) or multiplying when they should add (arithmetic) • Expecting all sequences to be either arithmetic or geometric when many are neither • Writing f(n−1) incorrectly or confusing it with f(n)+1 • Initial term confusion: Not clearly stating the starting value (e.g., f(1)=3) • Not being clear whether n starts at 0 or 1, leading to different but equivalent formulas • Not recognizing arithmetic sequences as linear functions with restricted domain • Not connecting geometric sequences to exponential functions • Difficulty understanding sequences that decrease (growth factor < 1) • Thinking a sequence is geometric when it involves both addition and multiplication • Difficulty moving from specific steps to general nth term formulas • Using inappropriate domains for real-world contexts • Mixing up terms like "growth factor," "common ratio," and "rate of change" See teacher's guide for specific misconceptions aligned to each lesson
Connections to Prior Units	**Connections to Future Units**
Relevant Unit(s) to review: Algebra 1: Units 5 and 6 • Alg 1 Unit 5 Lesson 2 Activity 1 • Alg 1 Unit 5 Lesson 4 • Alg 1 Unit 6 Lesson 3 Warm-up (pay particular attention to the review in the launch) Essential prior concepts to engage with this unit • Function notation. • Translating among table, graph, function, and description for both linear and exponential situations.	Connection to Unit 4 (iM A2 U2): Polynomial Functions • Building explicit formulas • Function representation skills • Domain understanding:
Differentiation through *Universal Design for Learning*	
Engagement • Connect sequences to real-world contexts and familiar patterns students encounter daily • Offer multiple entry points and representations to accommodate different learning preferences • Scaffold learning progression systematically from concrete examples to abstract notation • Build on prior knowledge of linear and exponential functions while celebrating incremental progress • Make learning goals transparent and provide opportunities for reflection on different representations Encourage metacognitive strategies and mathematical discourse about sequence patterns and formulas. **Representation** • Present sequences through multiple sensory modalities (visual graphs, numerical tables, written patterns) • Use clear visual design in coordinate plane representations and ensure accessibility of mathematical notation • Support vocabulary development for key terms (sequence, term, recursive, explicit, arithmetic, geometric) • Provide multiple representations of mathematical notation and connect symbolic expressions to verbal descriptions • Activate prior knowledge by explicitly connecting sequences to familiar linear and exponential functions • Guide pattern recognition through scaffolded examples and highlight critical features that distinguish arithmetic from geometric sequences **Action & Expression** • Provide multiple ways for students to demonstrate understanding (verbal explanations, written formulas, graphical representations, or digital tools) • Support planning and strategy development by teaching systematic approaches to identify sequence types and choose appropriate representations • Offer various tools and assistive technologies for mathematical expression including graphing calculators, spreadsheets, and function notation templates	

- Scaffold executive functions by providing organizational frameworks for moving between recursive and explicit formulas
- Create opportunities for students to express mathematical thinking through multiple modalities and support fluency development in function notation
- Guide students in monitoring their progress as they transition from informal pattern description to formal mathematical modeling

Supporting Multilingual/English Learners

The Illustrative Mathematics curriculum incorporates eight Mathematical Language Routines (MLRs) that support English Language Learners:

MLR1: *Stronger and Clearer Each Time* - Students revise and refine their mathematical language through multiple drafts
MLR2: *Collect and Displa*y - Students capture and organize language in visual displays
MLR3: *Clarify, Critique, Correct* - Students analyze mathematical writing/talk
MLR4: *Information Gap* - Students share information to solve problem
MLR5: *Co-Craft Questions* - Students create and improve questions
MLR6: *Three Reads* - Students analyze complex mathematical text
MLR7: *Compare and Connect* - Students connect different mathematical representations
MLR8: *Discussion Supports* - Students participate in mathematical discussions

MLR1: Stronger and Clearer Each Time
Used in Lesson 1 (Tower of Hanoi) where students refine their mathematical language through multiple drafts when describing sequences

MLR2: Collect and Display
Used in Lesson 3 (Three Sequences) to capture and organize student language about different types of sequences

MLR5: Co-Craft Questions
Used in Lesson 2 (Paper Slicing) where students generate mathematical questions about geometric sequences

MLR6: Three Reads
Used in Lesson 8 (Sierpinski Triangle) to help students analyze complex mathematical text about sequence definitions

MLR7: Compare and Connect
Used in Lesson 5 (Let's Define Some Sequences) where students compare different recursive definitions and representations

MLR8: Discussion Supports
Used in multiple lessons (Lessons 6, 11) to support rich mathematical discussions about sequences and their representations

Sentence Frames and Stems

Section A
- The next term(s) in the sequence _____ (list the given terms) is/are _____ because ...
- I know the sequence _____ (list the given terms) is arithmetic/geometric because ...
- The pattern is growing by _____ which represents a/an _____ sequence because ...
- The rate of change in the arithmetic sequence is _____ because ...
- The growth factor in the geometric sequence is _____ because ...

Section B
- The recursive definition f(1) = _____, f(n) = _____ ["f of 1" is _____, "f of n" is _____] describes this sequence because ...
- To create a graph of the sequence _____ (list the given terms), first I _____, then I ...
- The table shows the _____ terms which are _____ by _____. This means the sequence is _____ because ...
- Given the recursive definition f(1) _____, f(n) _____ ["f of 1" is _____, "f of n" is _____], the first _____ terms of the _____ sequence are ...

Section C
- The formula _____ defines the sequence _____ (list the given terms) because ...
- The function _____ can be used to find the nth term in the sequence _____ (list the given terms) because ...
- The function _____ can be used to represent this situation because ...
- A reasonable domain for this situation is _____ because ...

Related *CELP standards* and Learning Targets:

	Emerging	Expanding	Bridging
LT1	Find the next two terms by counting or simple addition/multiplication, using short phrases, single words, or drawings to communicate the rule and answer. Focus is on sequences with small whole numbers.	Find a missing term in the middle of a sequence, calculating with integers and simple decimals. Uses short, simple sentences with general academic terms (e.g., "I added the number four").	Find any missing term (nth term) using the explicit formula. Articulates and justifies the process using complex sentences and content-specific language (e.g., "I used the explicit formula $a_n=a_1+(n-1)d$").
LT2	Identify the growth factor/rate when given adjacent terms that are small whole numbers. Verbalizes or writes the answer as a number or simple	Calculate the rate of change (d) or growth factor (r) given a table or two terms, including sequences with negative numbers. Explains the	Derive and justify the rate of change or growth factor from non-adjacent terms or a complex verbal situation. Uses precise technical vocabulary ("common

	phrase (e.g., "plus 5" or "times 2").	calculation using connected, but simple, sentences.	difference," "common ratio") and defends the solution in a coherent paragraph.
LT3	Complete a pre-made table or graph by filling in a few steps of a sequence given the initial term and the rule, using a template or heavy scaffolding.	Create a complete table and accurately sketch a graph OR write a basic recursive rule for a sequence, using short sentences to explain the pattern.	Independently create an accurate table, graph, AND a recursive rule for a sequence based on a complex context, using well-structured language to define the relationship between consecutive terms.
LT4	Insert numerical values into a provided explicit equation template or sentence frame to represent a simple situation. Focus on correct substitution (e.g., f(n)=[start]+n · [rate]).	Write the explicit equation for an arithmetic or geometric sequence from a given table or scenario, using appropriate function notation.	Develop and write both the explicit and recursive equations for a sequence representing a complex real-world situation, and clearly articulate in writing the meaning of each variable and why the equation is appropriate.
LT5	State the starting point (n=1 or n=0) and correctly identify that the domain uses whole numbers, possibly by pointing or circling options.	Explain, using simple sentences, why the domain must be integers (i.e., discrete data) based on the context (e.g., "Because you only have whole stairs, not half a stair").	Analyze a complex scenario to determine, state, and mathematically justify the full domain and range restrictions (start, end, and integer-only) using precise set notation.

Unit Description

This unit provides students an opportunity to revisit functions by way of sequences. Through many concrete examples, students will see arithmetic and geometric sequences as linear and exponential functions restricted to a domain that is a subset of the integers. This unit reinforces understanding of functions by using multiple representations (including graphs, tables, and expressions).

Students begin with an invitation to describe sequences with informal language and learn to identify if a sequence is geometric, arithmetic, or neither. Students write out the terms of sequences arising from mathematical situations, in addition to interpreting and creating tables and graphs about the given relationship.

Students learn that sequences are a type of function in which the input variable is the position and the output variable is the term at that position. They learn to interpret sequences and then use function notation to write their own recursive definitions of the sequences. Students make connections between the sequences and different representations of functions.

Students then build on their prior knowledge of linear and exponential functions to develop explicit formulas for arithmetic and geometric sequences and to model several situations represented in different ways.

In the last section of the unit, students use sequences to model several situations represented in different ways. This work is meant to touch on some practices that must be attended to while modeling, such as choosing a good model and identifying an appropriate domain. Students also recognize that a sequence is an appropriate type of function to use as a model for these situations since the domain of each situation is a subset of the integers. Finally, students encounter some situations in which it makes sense to compute the sum of a finite sequence. This thinking connects to later work in which students will determine the formula for the sum of the first terms of a geometric sequence.

Lesson Sequence	Learning Target	Success Criteria/Assessment
Section A Sequences (Lessons 1-4)	**Learning Target 1** Determine missing terms in arithmetic and geometric sequences. **Learning Target 2** Determine the growth factor of a geometric sequence and the rate of change of an arithmetic sequence.	**Lesson 1 A Towering Sequence** • I can give an example of a sequence. **Lesson 2 Introducing Geometric Sequences** • I can find missing terms in a geometric sequence. **Lesson 3 Different Types of Sequences** • I can explain what it means for a sequence to be arithmetic or geometric. Checkpoint A Problems 1 and 2 **ACC Lesson 4 Using Technology to Work with Sequences**

		• I can use a spreadsheet to create many terms of a sequence. • I can use technology to graph a sequence.
Checkpoint A	*Responding to Student Thinking* **Problem 1 & 2** (remove 1c) More Chances - Students will have more opportunities to develop this understanding in later lessons. There is no need to slow down or add additional work to review this concept at this time.	
Section B Representing Sequences (Lessons 5-7)	**Learning Target 3** Create a table, graph, or recursive definition of a sequence from given information.	**Lesson 5 Sequences Are Functions** • I can use function notation to define arithmetic and geometric sequences recursively. Checkpoint B Problem 1 End of Unit Problems 1 and 4 **Lesson 6 Representing Sequences** • I can represent a sequence in different ways. **ACC Lesson 7 Representing More Sequences** • I can ask questions to get the information needed to represent a sequence in different ways.
Checkpoint B	*Responding to Student Thinking* Points to Emphasize - If most students struggle to write a recursive definition, spend more time asking students to share their strategies for writing a recursive definition in the Activity Synthesis of the activity referred to here.	
Section C What's the Equation? (Lessons 8-11)	**Learning Target 4** Create equations for sequences representing situations. **Learning Target 5** Identify restrictions on the domain of a sequence based on the context.	**Lesson 8 The nth Term** • I can explain why different equations can represent the same sequence. End of Unit Problems 2, 3, 6 and 7 **Lesson 9 What's the Equation?** • I can represent situations with sequences. Checkpoint B Problem 1 (feedback opportunity) End of Unit Problem 5 **Lesson 10 Situations and Sequences Types** • I can define a sequence using an equation. **Lesson 11 Adding Up** • I can determine the sum of a sequence representing a situation.
Checkpoint C	*Responding to Student Thinking* Press Pause - By this point in the unit, there should be some student mastery of writing equations for sequences representing situations. If most students struggle, make time to revisit related work in the section referred to here. See the Course Guide for ideas to help students re-engage with earlier work. For example, consider having students create their own patterns with black and white squares, similar to those in the activity referred to here, and exchange with a partner to write equations for the patterns.	

END OF UNIT ASSESSMENT

General End of Unit Assessment Notes:

- Modify select all questions to mimic SAT-style "I-II-III Questions"
- #1 - Press enter after each part of the formula
- #2 - Make them all (n-1) and switch the start at and rate of change in B and D
- #3 - make some n and some n-1, but make the rate of change and start at correct on all, remove E and F, make SAT-like but only 1 correct answer
- #4 - do not include domain restrictions/index, tell them it's arithmetic, put blank in the table between 1 and 3 (optional)
- #5 - A strip that is ⅓ the orignal area is cut off, and the remaining area is recorded. Part c) Reword: What is a reasonable domain for this situation? Justify why you included some values of n and not others in your domain.
- #6 - Add a fill in the blank for rate of change before each definition (0.5 pt), definition as (1.5 pts)
- #7 - Rephrase and b: Use words to describe how to get from one term to the next, make everything with Sequence A together and B together. Add back in/keep Which is greater A(9) or B(9)

Unit Title:

Unit 2 (iM A1 U7): Introduction to Quadratic Functions

Also see Algebra 1 ACA Unit 6/Alg+ Unit 8 (Algebra 1 is aiming to cover through Lesson 11)

Relevant Standards

Lesson	Standards	Lesson	Standards	Lesson	Standards
Lesson 1	HSF-BF.A.1.a	Lesson 7	HSF-BF.A.1.a HSF-IF.B.5 HSF-IF.C.7.a	Lesson 13	HSA-SSE.B.3 HSF-BF.B.3 HSF-IF.C.7 HSF-IF.C.7.a
Lesson 2	HSA-SSE.A.1 HSA-SSE.B.3 HSF-BF.A.1.a HSF-IF.A.3	Lesson 8	HSA-APR.A HSA-SSE.A HSA-SSE.A.2 HSA-SSE.B.3	Lesson 14	HSF-IF.A.2 HSF-IF.B.4 HSF-IF.C.7.a HSF-IF.C.8 HSF-IF.C.9
Lesson 3	HSA-SSE.A.1 HSF-BF.A.1.a HSF-IF.A.2	Lesson 9	HSA-APR.A HSA-SSE.A.2 HSA-SSE.B.3	Lesson 15	HSF-BF.B.3 HSF-IF.C HSF-IF.C.7.a
Lesson 4	HSF-BF.A.1.a HSF-IF.C HSF-LE.A.3	Lesson 10	HSA-SSE.B.3	Lesson 16	HSF-IF.C HSF-IF.C.7.a
Lesson 5	HSF-BF.A.1.a HSF-IF.A.2	Lesson 11	HSA-SSE.A HSF-IF.C.7.a	Lesson 17	HSF-BF.B.3 HSF-IF.C HSF-IF.C.7.a
Lesson 6	HSF-BF.A.1 HSF-BF.A.1.a HSF-IF.B.5 HSF-IF.C HSF-IF.C.7.a	Lesson 12	HSF-BF.B.3 HSF-IF.CHSF-IF.C.7 HSF-LE.A.2		

Essential Question(s):

- How do different forms of a function's equation help us understand its key features and behavior?
- What do the key features of a function—such as intercepts, maximums, minimums, and end behavior—reveal about its graph and real-world meaning?
- How do transformations, such as shifts, reflections, and stretches, affect the graph and equation of a function?
- How do we determine whether a function best models a real-world situation as linear, quadratic, or exponential?
- What are the different kinds of growth and how do they compare?
- How can we analyze and compare functions that are represented in different ways, such as equations, graphs, tables, and verbal descriptions?
- How can expressing the same equation in different forms reveal different properties of a quadratic function?

Enduring Understanding(s):

- Functions can be represented in multiple ways and each representation provides different insights into the function's behavior.
- Rewriting expressions through factoring, expanding, and completing the square reveals important characteristics of functions, such as zeros, intercepts, and vertex points.
- Transformations, including shifts, reflections, stretches, and compressions, help us understand how function graphs change and how different functions relate to one another.
- The structure of an algebraic expression can be analyzed and rewritten to make solving equations easier and to reveal key features of the function it represents.
- Exponential, linear, and quadratic functions model different types of real-world relationships, and understanding their differences allows us to choose the best function for a given situation.
- Comparing functions in different forms—such as equations, tables, graphs, and descriptions—helps us analyze relationships and make predictions.
- Projectile motion can be represented using a quadratic function.

Demonstration of Learning:

Section A Checkpoint

Pacing for Unit

21 Days (11 class periods)

Section B Checkpoint Section C Checkpoint Mid-Unit Assessment Section D Checkpoint End-of-Unit Assessment	Lesson Modifications: (from adaptation pack) No lessons are recommended to remove or modify for additional lessons. If time is an issue, these modifications could be made to move students more quickly into working with quadratic equations in the next unit: • Combine Lessons 1 and 2. Emphasize Activities 2.2 and 2.3. • Combine Lessons 3 and 4. Emphasize Activity 4.2 and the idea that exponential functions always eventually grow more quickly than quadratic functions. • Remove Lesson 7. This focuses on quadratic functions in the context of price versus revenue. • Remove Lesson 13. This focuses on the effect of the linear term in quadratic functions and is beyond the scope of Algebra 1 standards. • Remove Lessons 15–17. These lessons introduce vertex form. While vertex form is important, the lessons in the first sections of Unit 7 are of higher priority for Algebra 1 students.
Family Overview (link below)	**Integration of Technology:**
https://accessim.org/9-12-aga/algebra-1/unit-7?a=family	• Desmos Online Graphing Calculator
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Quadratic expression, quadratic function, vertex, zero, factored form, standard form, vertex form	• Desmos Online Graphing Calculator • Pear Assessment (Edulastic) • IL Classroom Adapted Resources
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
Science • Quadratic functions describe projectile motion and acceleration in physics, helping students understand real-world applications of parabolic paths. • Transformations of functions relate to wave motion, sound frequencies, and light reflection in physics. Economics & Business • Linear and quadratic models help analyze profit, revenue, and cost trends in business scenarios. • Understanding function transformations allows for predicting market growth and stock trends over time. Computer Science & Engineering • Quadratic and exponential functions play a role in algorithm efficiency and machine learning models in computer science. • Graph transformations and function comparisons help analyze digital image processing, scaling, and animation effects in game development.	• Many students misunderstand that transformations (shifts, reflections, stretches) apply to all points on a function, not just specific ones like the vertex. • Some students assume that exponential and quadratic functions both grow at a constant rate instead of recognizing that exponentials grow by multiplication while quadratics do not. • Students may incorrectly believe that the x-intercepts (solutions) are always the maximum or minimum of the function, rather than understanding how the vertex relates to symmetry and extrema. • Some students struggle to compare functions across different representations (graph, table, equation, verbal) and focus only on algebraic form. See teacher's guide for specific misconceptions aligned to each lesson
Connections to Prior Units:	**Connections to Future Units:**
Prior to this unit, students have studied what it means for a relationship to be a function, used function notation, and investigated linear and exponential functions. In this unit, they look at some patterns that grow quadratically and contrast this growth with linear and exponential growth. Essential prior concepts to engage with this unit: Write equivalent expressions by combining like terms and applying the distributive property. • If students need additional support with combining like terms or applying the distributive property, Grade 7 Unit 6 Lessons 18–22 address these topics.	Connections to Units in Future Courses Transformations of Functions • Understanding shifts, reflections, stretches, and compressions of functions lays the foundation for geometric transformations in Geometry and function transformations in Algebra 2. Circles, Higher-Degree Polynomials, and Rational Expressions • Skills like factoring and completing the square extend to deriving the equation of a circle and factoring and solving higher-degree polynomials in Algebra 2.

• The Algebra 1 Extra Supports materials, particularly Lessons 1 and 3, provide additional material for students who may need resources to support their understanding of area and perimeter.	

Differentiation through *Universal Design for Learning*

Engagement

- Connect rational exponents to familiar geometric contexts like area and volume calculations to make abstract concepts concrete
- Build on familiar integer exponent rules to justify and extend understanding to fractional exponents
- Address the conceptual challenge of imaginary numbers by introducing them as solutions to previously unsolvable equations
- Scaffold learning progression from square and cube roots to rational exponents to complex number operations
- Make learning goals transparent about extending the number system and solving all quadratic equations
- Encourage mathematical discourse about why extraneous solutions arise when squaring both sides of equations

Representation

- Present complex numbers through multiple sensory modalities using the imaginary axis, coordinate plane representations, and algebraic notation
- Ensure clear visual design for representing square roots, cube roots, and rational exponent notation
- Support vocabulary development for terminology (rational exponent, imaginary number, complex number, extraneous solution, principal root)
- Connect symbolic radical expressions to verbal descriptions and geometric interpretations of roots
- Activate prior knowledge by explicitly connecting rational exponents to familiar exponent rules and root operations
- Guide pattern recognition in complex number operations and highlight critical features like $i^2 = -1$

Action & Expression

- Provide multiple ways for students to demonstrate understanding through radical equations, complex arithmetic, or geometric applications
- Support planning strategies for choosing appropriate methods to solve quadratic equations including those with complex solutions
- Offer various tools including graphing technology, exponent rule organizers, and complex number operation templates
- Scaffold executive functions by providing organizational frameworks for connecting rational exponents to radical notation
- Create opportunities for students to express mathematical thinking about extending the number system beyond real numbers

Supporting Multilingual/English Learners

The Illustrative Mathematics curriculum incorporates eight Mathematical Language Routines (MLRs) that support English Language Learners:

MLR1: *Stronger and Clearer Each Time* - Students revise and refine their mathematical language through multiple drafts
MLR2: *Collect and Displa*y - Students capture and organize language in visual displays
MLR3: *Clarify, Critique, Correct* - Students analyze mathematical writing/talk
MLR4: *Information Gap* - Students share information to solve problems
MLR5: *Co-Craft Questions* - Students create and improve questions
MLR6: *Three Reads* - Students analyze complex mathematical text
MLR7: *Compare and Connect* - Students connect different mathematical representations
MLR8: *Discussion Supports* - Students participate in mathematical discussions

MLR1: Stronger and Clearer Each Time

Used in Lesson 9 (Standard Form and Factored Form) where students refine their explanations of different forms, and Lesson 16 (Graphing from the Vertex Form) where students improve their descriptions of graphing strategies

MLR2: Collect and Display

Used in Lesson 3 (Expanding Squares) to capture student language about quadratic patterns, Lesson 5 (Galileo and Gravity) for language about falling objects, and Lesson 11 (What Do We Need to Sketch a Graph?) to organize terminology about graph features

MLR5: Co-Craft Questions

Used in Lesson 5 (Falling from the Sky) where students generate mathematical questions about free-falling objects and quadratic motion

MLR6: Three Reads

Used in Lesson 17 (A Peanut Jumping over a Wall) to help students analyze complex contextual problems involving quadratic functions

MLR7: Compare and Connect

Used in Lesson 8 (Using Diagrams to Find Equivalent Quadratic Expressions) where students compare different strategies for expanding expressions and connect area diagrams to algebraic methods

MLR8: Discussion Supports

Used extensively throughout multiple lessons (Lessons 1, 2, 9, 15, 16) to support rich mathematical discussions about quadratic

patterns, different forms of expressions, and graph transformations

Sentence Frames and Stems

Section A

- This pattern represents a _____ relationship because ...
- Using the _____ I see that the pattern is growing by ...
- The expression _____ represents this situation because ...

Section B

- The expression _____ represents this situation because ...
- When the input is _____, the output for the function _____ is greater/less than the output for the function _____ because ...
- The height of the _____ after _____ is _____ because ...
- The function _____ represents this situation because ...

Section C

- If the factored form of a quadratic expression is _____, then the standard form is _____ because ...
- In this situation, the _____ (feature of the graph) represent(s) _____ because ...
- The equation _____ defines the function of the graph shown because ...

Section D

- When the equation is written in _____ form, I can easily identify the _____ (feature of the graph) which is _____ because ...
- In the equation _____, if the value _____ is changed to _____, the graph changes by ...
- To graph the function _____, first I _____, then I ...
- In this situation, the _____ (feature of the graph) represent(s) _____ because ...
- An EL can . . . construct grade appropriate oral and written claims and support them with reasoning and evidence.

Related *CELP standards* and Learning Targets:

	Emerging	Expanding	Bridging
LT1	I can identify quadratic expressions by looking for an x^2 term using a visual checklist and word bank.	I can explain that a relationship is quadratic when it contains a squared term (such as x^2) using sentence frames.	I can define and explain how a squared term (x^2) creates a non-linear quadratic relationship in equations, tables, and graphs.
LT2	I can sort visual patterns into linear, exponential, or quadratic groups using pattern cards and graphic organizers.	I can explain whether a visual pattern is linear, exponential, or quadratic by describing how it grows using sentence starters.	I can analyze visual patterns and construct a mathematical argument proving whether the growth rate is linear, exponential, or quadratic.
LT3	I can match points on a projectile graph (starting height, peak, landing point) to picture cards or simple labels.	I can describe what key parts of a quadratic graph mean in real-world contexts (e.g., maximum height, time in air) using sentence frames.	I can analyze quadratic expressions and graphs modeling physical phenomena to interpret key features (vertex, intercepts, domain) in context.
LT4	I can compare tables or graphs to point out where an exponential line passes above a quadratic curve using visual guides.	I can use tables, graphs, and calculations to show how an exponential function eventually becomes larger than a quadratic function using sentence starters.	I can demonstrate and justify numerically and graphically why exponential growth will always eventually exceed quadratic growth.
LT5	I can match the numbers in a factored form equation, like $(x - a)(x - b)$, to the x-intercepts on a graph using color-coding.	I can explain how to find the x-intercepts of a parabola from its factored form equation using step-by-step guides and sentence frames.	I can connect the zero product property to factored form quadratic equations to determine and explain the x-intercepts of a graph.
LT6	I can use an area model (box method) to multiply two binomials and write an equivalent expression with visual templates.	I can use the distributive property or area model to convert factored form into standard form ($ax^2 + bx + c$) using guided prompts.	I can algebraically convert quadratic expressions from factored form into standard form using the distributive property and prove their equivalence.
LT7	I can match parameter changes in an equation to visual movement of a parabola (shifts up, down, flips) using visual cards.	I can describe how changing numbers in standard, factored, or vertex form changes a graph's shape or position using sentence starters.	I can explain in detail how changing parameters a, b, c, h, k, and roots affects the graph's orientation, width, vertex, and intercepts across forms.
LT8	I can circle the vertex point (h, k) in an equation like $f(x) = a(x - h)^2 + k$ and point to the high or low point on a graph.	I can identify the maximum or minimum value of a quadratic function from its vertex form equation using structured sentence frames.	I can analyze a quadratic equation in vertex form $f(x) = a(x - h)^2 + k$ to determine its vertex, identify if it is a maximum or minimum, and justify why using the sign of a.

Unit Description

Prior to this unit, students have studied what it means for a relationship to be a function, used function notation, and investigated linear and exponential functions. In this unit, they look at some patterns that grow quadratically and contrast this growth with linear and exponential growth. They further observe that eventually these quadratic patterns grow more quickly than do linear patterns but more slowly than exponential patterns grow.

Students examine the important example of free-falling objects whose height over time can be modeled with quadratic functions. They use tables, graphs, and equations to describe the movement of these objects, eventually looking at the situation in which a projectile is launched upward. They interpret the meaning of each term in this context and work toward understanding how the coefficients influence the shape of the graph. Additional situations, such as revenue and area, are also introduced.

Next, students examine standard, factored, and vertex forms of quadratic functions. They recognize what information about the graph is easily obtained from each form and how the different values in each form influence the graph. In particular, they begin to generalize ideas of how horizontal and vertical translation, as well as vertical and horizontal stretching of graphs, relate to modifying the equation of a function.



Note on materials: Access to graphing technology is necessary for many activities. Examples of graphing technology are: a handheld graphing calculator, a computer with a graphing calculator application installed, and an internet-enabled device with access to a site like desmos.com/calculator or geogebra.org/graphing. For students using the digital version of these materials, a separate graphing calculator tool isn't necessary. Interactive applets are embedded throughout, and a graphing calculator tool is accessible in the student math tools.

Lesson Sequence	Learning Target	Success Criteria/Assessment
Section A: A Different Kind of Change Lessons 1-2	**Learning Target 1** I can comprehend that a "quadratic relationship" can be expressed with a squared term. **Learning Target 2** I can determine and explain whether a visual pattern represents a linear, exponential, or quadratic relationship.	**Lesson 1 A Different Kind of Change** • I can create drawings, tables, and graphs that represent the area of a garden. • I can recognize a situation represented by a graph that increases and then decreases. **Lesson 2 How Does it Change?** • I can describe how a pattern is growing. Checkpoint B Problem 1 Middle of Unit Problem 1 • I can tell whether a pattern is growing linearly, exponentially, or quadratically. Checkpoint A Middle of Unit Problem 1 • I know a quadratic expression has a squared term. Checkpoint A
Checkpoint A	*Responding to Student Thinking* **Problem 1:** More Chances: Students will have more opportunities to develop this understanding in later sections. There is no need to slow down or add additional work to review this concept at this time.	
Section B Quadratic Functions Lessons 3-7	**Learning Target 3** I can interpret quadratic functions that represent a physical phenomenon, given expressions and graphs. **Learning Target 4** I can use graphs, tables, and calculations to show that exponential functions eventually overtake quadratic functions.	**Lesson 3 Building Quadratic Functions from Geometric Patterns** • I can explain using graphs, tables, or calculations that exponential functions eventually grow faster than quadratic functions. Middle of Unit Problem 5 • I can recognize quadratic functions written in different ways. • I can use information from a pattern of shapes to write a quadratic function. Middle of Unit Problem 1

		Lesson 4 Comparing Quadratic and Exponential Functions • I can explain using graphs, tables, or calculations that exponential functions eventually grow faster than quadratic functions. Middle of Unit Problem 5 **Lesson 5 Quadratic Functions to Describe Situations (Part 1)** • I can explain the meaning of the terms in a quadratic expression that represents the height of a falling object. Checkpoint B Problem 2 Middle of Unit Problem 2 • I can use tables, graphs, and equations to represent the height of a falling object. **Lesson 6 Building Quadratic Functions to Describe Situations (Part 2)** • I can create quadratic functions and graphs that represent a situation. • I can relate the vertex of a graph and the zeros of a function to a situation. • I know that the domain of a function can depend on the situation it represents. Middle of Unit Problem 2 **ACC Lesson 7 Building Quadratic Functions to Describe Situations (Part 3)** • I can choose a domain that makes sense in a revenue situation. Middle of Unit Problem 7 • I can model revenue with quadratic functions and graphs. Middle of Unit Problem 4 *NOTE: Middle of Unit Problem 4 Test question context is area but the Lesson is based on revenue, may want to preview revenue.* Middle of Unit Problem 7 • I can relate the vertex of a graph and the zeros of a function to a revenue situation.
Checkpoint B	*Responding to Student Thinking* **Problem 1:** Points to Emphasize: If students struggle to describe why exponential growth is eventually faster than quadratic growth, plan to revisit the idea throughout the rest of the unit. For example, as students explore graphs of quadratic functions in the lesson referred to here, use different functions of the form $y = ab^x$ to show that the exponential functions eventually grow faster. **Problem 2:** More Chances: Students will have more opportunities to develop this understanding in later sections. There is no need to slow down or add additional work to review this concept at this time.	
Section C Working with Quadratic Expressions Lessons 8-10	**Learning Target 5** I can coordinate a quadratic expression given in factored form and the intercepts of its graph. **Learning Target 6** I can use the distributive property to write equivalent quadratic expressions from factored into standard form.	**Lesson 8 Equivalent Quadratic Expressions** • I can rewrite quadratic expressions in different forms by using an area diagram or the distributive property. Checkpoint C Middle of Unit Problem 3 Middle of Unit Problem 6 **Lesson 9 Standard Form and Factored Form** • I can rewrite quadratic expressions given in factored form, in standard form, using either the distributive property or a diagram. Middle of Unit Problem 3

		Middle of Unit Problem 6 • I know the difference between "factored form" and "standard form." Checkpoint C **Lesson 10 Graphs of Functions in Standard and Factored Forms** • I can explain the meaning of the intercepts on a graph of a quadratic function in terms of the situation it represents. Middle of Unit Problem 7 End of Unit Problem 5 *NOTE: End of Unit Problem 5 Clare's function in factored form should be looked at. Question b. Give a different time value so that someone's height is higher and they are NOT the same. Difficult to understand why a student made an error.* End of Unit Problem 7 • I know how the numbers in the factored form of a quadratic expression relate to the intercepts of its graph. Middle of Unit Problem 7 End of Unit Problem 5 End of Unit Problem 7
Checkpoint C	*Responding to Student Thinking* **Problem 1:** More Chances: Students will have more opportunities to develop this understanding in later sections. There is no need to slow down or add additional work to review this concept at this time.	
Section D Features of Graphs of Quadratic Functions Lessons 11-17	**Learning Target 7** I can explain how a graph is affected by changing parameters in quadratic expressions written in standard, factored, and vertex forms. **Learning Target 8** I can use an equation in vertex form to identify the maximum or minimum of a quadratic function.	**Lesson 11 Graphing from the Factored Form** • I can graph a quadratic function given in factored form. End of Unit Problem 4 • I know how to find the vertex and y-intercept of the graph of a quadratic function in factored form without graphing it first. End of Unit Problem 4 End of Unit Problem 5 **Lesson 12 Graphing the Standard Form (Part 1)** • I can explain how the a and c in $y = ax^2 + bx + c$ affect the graph of the equation. Checkpoint D Problem 1 End of Unit Problem 3 • I understand how graphs, tables, and equations that represent the same quadratic function are related. **ACC Lesson 13 Graphing the Standard Form (Part 2)** • I can explain how the b in $y = ax^2 + bx + c$ affects the graph of the equation. • I can match equations given in standard and factored form with their graph. End of Unit Problem 1 End of Unit Problem 2 **Lesson 14 Graphs That Represent Situations** I can explain how a quadratic equation and its graph relate to a situation. End of Unit Problem 5 **ACC Lesson 15 Vertex Form**

		• I can recognize the “vertex form” of a quadratic equation. • I can relate the numbers in the vertex form of a quadratic equation to its graph. End of Unit Problem 2 End of Unit Problem 6 **ACC Lesson 16 Graphing from the Vertex Form** • I can graph a quadratic function given in vertex form, showing a maximum or minimum and the y-intercept. • I know how to find a maximum or a minimum of a quadratic function given in vertex form without first graphing it. Checkpoint D Problem 2 End of Unit Problem 6 **ACC Lesson 17 Changing the Vertex** • I can describe how changing a number in the vertex form of a quadratic function affects its graph. End of Unit Problem 6 Note: May condense Lessons 15-16 for ACA
Checkpoint D	*Responding to Student Thinking* **Problem 1:** Press Pause: If students struggle to describe how graphs of quadratic functions differ based on the functions, make time to explore the idea further. For example, revisit the digital form of the activity referred to here to explore how changing the parameters influence the graph. **Problem 2:** Press Pause: If students struggle to identify the maximum or minimum of a quadratic function in vertex form, plan to make time to revisit the idea. For example, use the optional lesson referred to here to practice connecting the equation of the quadratic function with the graph that represents it.	
END OF UNIT ASSESSMENT		

Unit Title

Unit 3 (iM A1 U8): Quadratic Equations

Relevant Standards

Lesson	Standards	Lesson	Standards	Lesson	Standards
Lesson 1	HSA-CED.A.1	Lesson 9	HSA-REI.B.4.b HSA-SSE.B.3.a HSF-IF.C.8.a	Lesson 17	HSA-CED.A.1 HSA-REI.A HSA-REI.B.4.b HSF-IF.B.5
Lesson 2	HSA-REI.B.4 HSA-REI.B.4.b	Lesson 10	HSA-REI.B.4.b HSA-REI.D HSA-SSE.A HSA-SSE.A.2 HSF-IF.B.4 HSF-IF.C.8.a	Lesson 18	HSA-CED.A.1 HSA-REI.B.4.b HSF-IF.A.2
Lesson 3	HSA-REI.A.1 HSA-REI.B.4.b	Lesson 11	HSA-REI.B.4.b HSA-SSE.A.2	Lesson 19	HSA-REI.B.4.a HSA-SSE.A.2
Lesson 4	HSA-REI.B.4	Lesson 12	HSA-REI.B.4.a HSA-REI.B.4.b HSA-SSE.A HSA-SSE.A.2	Lesson 20	HSA-REI.B.4.b HSF-IF.C.7.a HSN-RN.B.3
Lesson 5	HSA-REI.A.1 HSA-REI.B.4 HSA-REI.B.4.b HSA-REI.D HSA-REI.D.10	Lesson 13	HSA-REI.A HSA-REI.B.4.b	Lesson 21	HSA-REI.B.4.b HSN-RN.B HSN-RN.B.3
Lesson 6	HSA-SSE.A.2	Lesson 14	HSA-REI.B.4.a HSA-REI.B.4.b HSA-SSE.A.2	Lesson 22	HSA-SSE.A.2 HSA-SSE.B.3 HSA-SSE.B.3.b HSF-IF.C
Lesson 7	HSA-SSE.A.2	Lesson 15	HSA-REI.B.4.a HSA-REI.B.4.b HSA-REI.D	Lesson 23	HSA-SSE.B.3.b HSF-IF.C HSF-IF.C.9
Lesson 8	HSA-SSE.A.2	Lesson 16	HSA-REI.B.4.b HSA-SSE.A	Lesson 24	HSA-REI.B.4.b HSA-REI.C.7 HSF-IF.C.8.a

Essential Question(s):	Enduring Understanding(s):
• Why do we need different methods to solve quadratic equations? • How can the same quadratic equation have 0, 1, or 2 solutions, and what does this tell us about real-world situations? What mathematical structures and patterns help us transform quadratic expressions to reveal important information? • How do we determine when solutions to equations are rational versus irrational, and why does this matter? • When is it worth completing the square instead of using other solving methods? • How does the quadratic formula connect to and generalize other solving methods we've learned? • What makes a quadratic model appropriate for a real-world situation, and how do we interpret solutions in context? • How do different representations of the same quadratic relationship highlight different aspects of	• Multiple solution methods exist for quadratic equations, and strategic method selection depends on the form of the equation and the desired information. • The structure of quadratic expressions determines their solvability and the nature of their solutions. • Completing the square is both a solving technique and a method for transforming quadratic expressions to reveal maximum/minimum values. • The quadratic formula represents a generalized method derived from the completing the square process and works for any quadratic equation. • Quadratic equations can have 0, 1, or 2 real solutions, and this number connects to graphical features and real-world constraints. • Different forms of quadratic expressions reveal different information: standard form shows y-intercept, factored form shows zeros, and vertex form shows maximum/minimum. • Solutions to quadratic equations can be rational or irrational, and understanding the nature of these

a problem?	solutions helps in determining appropriate representations and approximations. • Quadratic models effectively represent many real-world phenomena involving optimization, projectile motion, and area problems, but solutions must be interpreted within contextual constraints.
Demonstration of Learning:	**Pacing for Unit**
Section A Checkpoint Section B Checkpoint Mid-Unit Assessment Section C Checkpoint Section D Checkpoint Section E Checkpoint End-of-Unit Assessment	30 days (15 class periods) Lesson Modifications: (from adaptation pack) • Combine Lessons 1 and 2 (particularly if Unit 7 Lesson 8 was skipped). Focus on Lesson 2 Activity 1. • Remove Lesson 10. This focuses on factoring when the coefficient of the squared term is greater than 1. • Remove or condense Lessons 11–15 on completing the square, depending on the emphasis in your standards on completing the square. • Remove Lessons 19–21.
Family Overview (link below)	**Integration of Technology:**
https://accessim.org/9-12-aga/algebra-1/unit-8?a=family	• Desmos Online Graphing Calculator
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Factored form (of a quadratic expression), quadratic equation, standard form (of a quadratic expression), zero (of a function), zero product property, linear term, perfect square, completing the square, quadratic formula	• Desmos Online Graphing Calculator • Pear Assessment (Edulastic) • IL Classroom Adapted Resources
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
Science & Engineering • Projectile Motion: The flying potato activity (Lesson 1) models object trajectories using $h(t) = -16t^2 + 80t + 64$ • Maximum Height Problems: Using vertex form to find optimal launch conditions in physics • Arch Design: Parabolic shapes in bridge and building construction • Population Growth: Quadratic models for limited growth scenarios in biology • Antenna Design: Parabolic reflectors for communication systems Business & Economics • Ticket Sales Revenue: Lesson 2's concert revenue model R=(8−2x)(x+5) • Maximum Profit: Using vertex form to determine optimal production levels • Break-even Analysis: Finding when profit equals zero using quadratic equations • Price-Demand Relationships: Quadratic revenue functions showing optimal pricing • Manufacturing Costs: Quadratic cost functions with economies of scale Arts & Recreation • Frame Design: The framing problem (Lesson 1) connects to mat cutting and display optimization • Basketball Trajectories: Parabolic paths of shot attempts in sports analysis • Diving Trajectories: Height vs. time relationships (Lesson 24's diving context) • Garden Planning: Maximum area problems for	• Missing both solutions when solving quadratic equations • Errors in quadratic formula application (sign errors, arithmetic mistakes) • Confusion about number of solutions (thinking all quadratics have 2 solutions) • Factoring errors when rewriting expressions • Completing the square mistakes • Misunderstanding rational vs. irrational solutions See teacher's guide for specific misconceptions aligned to each lesson

landscape design
- Parabolic Art: Mathematical curves in sculpture and graphic design

Connections to Prior Units	Connections to Future Units
Relevant Unit(s) to review: • Grade 7, Unit 6: Expressions, Equations, and Inequalities Essential prior concepts to engage with this unit: • Write equivalent expressions by combining like terms and applying the distributive property.	Unit 4 (iM A2 U2): Polynomial Functions • Introduces complex solutions (a ± bi) that become central in this unit and and factoring techniques extend to polynomial functions Mathematical Modeling Foundations • Emphasizes setting up equations from real contexts and interpreting solutions within constraints, preparing students for the increased applications focus throughout Algebra 2 Unit 5 (iM A2 U3): Rational Functions and Equations • Students develop flexibility in choosing solving methods (factoring vs. quadratic formula vs. completing the square) that transfers to solving rational equations

Differentiation through *Universal Design for Learning*

Engagement
- Connect quadratic patterns to engaging real-world contexts like projectile motion, ball tosses, and revenue optimization
- Compare quadratic growth to familiar linear and exponential patterns to build understanding and maintain interest
- Scaffold learning progression from concrete visual patterns to abstract function forms and equations
- Build on prior knowledge of linear and exponential functions while highlighting unique characteristics of quadratic growth
- Make learning goals transparent about understanding different forms of quadratic expressions and their graphical meaning
- Encourage mathematical discourse about how coefficients affect parabola shape and position

Representation
- Present quadratic functions through multiple sensory modalities using tables, graphs, equations, and physical motion contexts
- Ensure graphing technology accessibility and provide clear visual design for parabola key features
- Support vocabulary development for quadratic terminology (vertex, axis of symmetry, standard/factored/vertex form)
- Connect symbolic expressions to verbal descriptions and graphical representations of parabola transformations
- Activate prior knowledge by explicitly connecting quadratics to familiar function types and growth patterns
- Guide pattern recognition in quadratic sequences and highlight critical features that distinguish parabola characteristics

Action & Expression
- Provide multiple ways for students to demonstrate understanding through graphing technology, algebraic manipulation, or contextual interpretation
- Support planning strategies for choosing appropriate quadratic forms to reveal specific function properties
- Offer various tools including graphing calculators, interactive applets, and function transformation templates
- Scaffold executive functions by providing organizational frameworks for moving between standard, factored, and vertex forms
- Create opportunities for students to express mathematical thinking about parabola transformations and real-world modeling
- Guide students in monitoring progress as they interpret coefficients' effects on graph shape and position

Supporting Multilingual/English Learners

The Illustrative Mathematics curriculum incorporates eight Mathematical Language Routines (MLRs) that support English Language Learners:

MLR1: *Stronger and Clearer Each Time* - Students revise and refine their mathematical language through multiple drafts
MLR2: *Collect and Displa*y - Students capture and organize language in visual displays
MLR3: *Clarify, Critique, Correct* - Students analyze mathematical writing/talk
MLR4: *Information Gap* - Students share information to solve problems
MLR5: *Co-Craft Questions* - Students create and improve questions
MLR6: *Three Reads* - Students analyze complex mathematical text
MLR7: *Compare and Connect* - Students connect different mathematical representations
MLR8: *Discussion Supports* - Students participate in mathematical discussions

MLR2: Collect and Display
Used in Lesson 12 (Building Perfect Squares) to capture and organize student language about completing the square

MLR5: Co-Craft Questions
Used in Lesson 2 (Revenue from Ticket Sales) where students generate mathematical questions about quadratic situations

MLR6: Three Reads

Used in Lesson 23 (All the World's a Stage) to help students analyze complex mathematical text about quadratic applications

MLR7: Compare and Connect

Used in Lesson 1 (Representing the Framing Problem) where students compare different approaches to writing quadratic equations and connect mathematical representations

MLR8: Discussion Supports

Used extensively throughout multiple lessons (Lessons 2, 4, 6, 9, 12, 16, 23) to support rich mathematical discussions about quadratic equations, factoring, completing the square, and the quadratic formula

Sentence Frames and Stems

Section A

- The equation _____ represents this situation because ...
- The solution(s) to the equation is/are ____. The solution(s) represent(s) ...

Section B

- To factor the expression _____ given in standard form, first I _____, then I ...
- I know the equation _____ has _____ solution(s) because ...
- To find the solution(s) to the equation _____, first I _____, then I ...
- The solution(s) to the equation _____ is/are _____.

Section C

- The equation _____ can be more easily solved by completing the square because ...
- The solution(s) to the equation _____ is/are _____.
- I know _____ is a perfect square because ...
- To solve the equation _____ by completing the square, first I _____, then I ...

Section D

- The product/sum of the values _____ is rational/irrational because ...
- The equation _____ can be more easily solved by using the quadratic formula because ...
- The solution(s) to the equation _____ is/are _____.
- The solution(s) represent(s) _____ in this situation.

Section E

- To convert the equation _____ to vertex form, first I _____, then I ...
- Using the equation _____ in vertex form, I recognize the _____ (feature of the graph) is _____ which represents _____.
- The solution(s) to the equation _____ is/are _____.

Section F

- I chose to write the quadratic equation in _____ form because ...
- Using the graph, the _____ (feature of the graph) is _____ and represents _____.
- Without graphing, I can tell _____ about a situation when the equation is in _____ form because ...

Related *CELP standards* and Learning Targets:

	Emerging	Expanding	Bridging
LT 1	Identify the key quantities and match a given quadratic equation to its described real-world situation. Use a word bank to label the meaning of the solutions.	Describe in short, connected sentences how the solutions (roots) of a given equation relate to the starting, ending, and maximum/minimum points of a simple context (e.g., a ball's flight).	Write a quadratic equation to model a described complex situation and justify the meaning of the solutions (real or non-real) in the context of the problem, using academic vocabulary.
LT 2	Use provided graphic organizers or manipulatives (e.g., algebra tiles) to factor the standard form of a quadratic expression, identifying the correct factors.	Explain the steps used to factor a quadratic expression and correctly create the equivalent expression in factored form with minor support.	Analyze a given quadratic expression and systematically generate the equivalent factored form, justifying the choice of factoring method used.
LT 3	Select the correct solutions (roots) from a multiple-choice list when given a quadratic equation already in factored form. Complete a sentence frame to state the zero-product property.	Explain in simple, ordered steps how to use the zero-product property to find the solutions to a factored quadratic equation.	Apply the zero-product property to solve a multi-step quadratic equation, explaining the logical connection between the equation's factors and the resulting solutions.
LT 4	Match the +/- symbol to the concept of "two solutions" and the square root symbol to the concept of "only one positive solution."	Compare and contrast the meaning and necessary use of the +/-symbol versus the square root symbol in mathematical contexts, using short comparative sentences.	Justify the mathematical reasoning for why the +/- symbol is required when solving by taking the square root, but not when interpreting the radical symbol, using precise mathematical language.

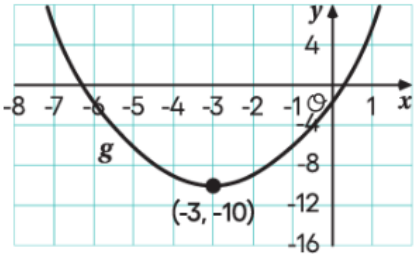
LT5	Follow a provided step-by-step example, labeling each step and identifying the missing number to create a perfect square trinomial (when b is even).	Describe and execute the steps for solving a quadratic equation by completing the square, using mathematical action verbs.	Evaluate and solve any quadratic equation by completing the square, explaining the transformation of the equation and the rationale for rearranging terms.
LT6	Classify given numbers as rational or irrational using a checklist. Use a provided rule (e.g., Rational + Irrational = Irrational) to state the result of a single operation.	Describe, using simple language and one numerical example for each, the general rules for the sum and product of a rational number and an irrational number.	Justify with clear mathematical evidence whether a given statement about the closure properties of rational and irrational numbers under addition and multiplication is true or false.
LT7	Identify and label the values of a, b, and c in a quadratic equation. Match the labeled values to the correct placement within the structure of the quadratic formula template.	Describe the purpose of the quadratic formula and demonstrate its use to solve a given quadratic equation, clearly showing the substitution and calculation steps.	Analyze the structure of the quadratic formula and use it to solve an equation, interpreting the discriminant to predict the number and type of solutions before fully solving.
LT8	Identify the vertex coordinates (h, k) from an equation written in vertex form $y=a(x-h)^2+k$. Select whether the vertex is a maximum or minimum from two choices.	Describe the process for finding the vertex of a quadratic function (using -b/2a or completing the square) and explain how the vertex relates to the function's maximum or minimum value.	Rewrite a quadratic expression from standard form to vertex form (by completing the square) and use the vertex form to mathematically justify the maximum or minimum value in a practical context.

Unit Description

In this unit, students interpret, write, and solve equations algebraically.

Previously, students represented quadratic functions using expressions, tables, and descriptions. They connected important features of graphs to standard, factored, and vertex forms and expanded expressions into standard form.

Students begin with solving quadratic equations through reasoning without much algebraic manipulation. Then, they examine solving using the zero product property for quadratic equations that can be written in factored form. They notice patterns that help them rewrite quadratic expressions in factored form and recognize that not all of them are easily factorable.



This motivates finding another process of solving quadratic equations. Students recognize the benefits of equations of the form and develop the method of completing the square. Then, they generalize this process to the quadratic formula.

Throughout the unit, students analyze quadratic equations to recognize that there can be 0, 1, or 2 solutions. Solutions can be rational, irrational, or combinations of these. Students interpret the solutions that arise in different contexts.

The unit concludes with rewriting quadratic expressions from standard form into vertex form to find maximum and minimum values, then apply all of their understanding to applied problems.

Lesson Sequence	Learning Target	Success Criteria/ Assessment
Section A Finding Unknown Inputs Lessons 1-2	**Learning Target #1** Write quadratic equations, and reason about their solutions in terms of a situation.	**Lesson 1 Finding Unknown Inputs** I can explain the meaning of a solution to an equation in terms of a situation. • I can write a quadratic equation that represents a situation. Checkpoint A Problem 1 **Lesson 2 When and Why Do We Write Quadratic Equations?** • I can recognize the factored form of a quadratic expression and know when it can be useful for solving problems.

		• I can use a graph to find the solutions to a quadratic equation but also know its limitations.
Checkpoint A	*Responding to Student Thinking* **Problem 1:** Points to Emphasize - If students struggle to determine reasonable solutions from a situation, revisit the idea throughout the unit. For example, in the activity referred to here, when students find a solution, ask them about its meaning in the situation and whether it is reasonable.	
Section B Solving Quadratic Equations Lessons 3-10	**Learning Target #2** Given a quadratic expression of the form $ax^2 + bx + c$, create an equivalent expression in factored form. **Learning Target #3** Use factored form and the zero-product property to solve quadratic equations.	**Lesson 3 Solving Quadratic Equations by Reasoning** • I can find solutions to quadratic equations by reasoning about the values that make the equation true. • I know that quadratic equations may have two solutions. Mid-Unit Assessment Problem 1 **Lesson 4 Solving Quadratics Equations with the Zero-Product Property** • I can explain the meaning of the "zero product property." • I can find solutions to quadratic equations when one side is a product of factors and the other side is zero. Checkpoint B Problem 1 **Lesson 5 How Many Solutions?** • I can explain why dividing by a variable to solve a quadratic equation is not a good strategy. • I know that quadratic equations can have no solutions and can explain why when there are none. Mid-Unit Assessment Problem 2- 7c **Lesson 6 Rewriting Quadratic Expressions in Factored Form (Part 1)** • I can explain how the numbers in a quadratic expression in factored form relate to the numbers in an equivalent expression in standard form. • When given quadratic expressions in factored form, I can rewrite them in standard form. • When given quadratic expressions in the form of • $x^2 + bx + c$, I can rewrite them in factored form. Checkpoint B Problem 2 **Lesson 7 Rewriting Quadratic Expressions in Factored Form (Part 2)** • I can explain how the numbers and signs in a quadratic expression in factored form relate to the numbers and signs in an equivalent expression in standard form. • When given a quadratic expression given in standard form with a negative constant term, I can write an equivalent expression in factored form. Mid-Unit Assessment Problems 3-4 **Lesson 8 Rewriting Quadratic Expressions in Factored Form (Part 3)** • I can explain why multiplying a sum and a difference, $(x + m)(x - m)$, results in a quadratic expression with no linear term. • When given quadratic expressions in the form of $x^2 + bx + c$, I can rewrite them in factored form.

		Lesson 9 Solving Quadratic Equations by Using Factored Form • I can rearrange a quadratic equation to be written as an expression in factored form equal to zero and find the solutions. • I can recognize the number of solutions for a quadratic equation from the factored form. Mid-Unit Assessment Problem 6-7a,b **ACC Lesson 10 Rewriting Quadratic Expressions in Factored Form (Part 4)** • I can use the factored form of a quadratic expression or a graph of a quadratic function to answer questions about a situation. • When given quadratic expressions of the form • $ax^2 + bx + c$, where a is not 1, I can write equivalent expressions in factored form. Mid-Unit Assessment Problem 5
Checkpoint B	*Responding to Student Thinking* **Problem 1:** More Chances - Students will have more opportunities to develop this understanding in later sections. There is no need to slow down or add additional work to review this concept at this time. **Problem 2:** Points to Emphasize - If students struggle to factor quadratic expressions in standard form, provide additional practice throughout the rest of the unit. For example, the practice problems referred to here can help draw the connection between factored forms and standard forms. Algebra 1, Unit 8, Lesson 13, Practice Problem 5 Algebra 1, Unit 8, Lesson 15, Practice Problem 5	
Mid-Unit Assessment		
Section C Completing the Square Lessons 11-15	**Learning Target #4** Comprehend that the plus-minus symbol is used to represent both square roots of a number and that the square root notation expresses only the positive square root. **Learning Target #5** Solve quadratic equations of the form $x^2 + bx + c = 0$ by rearranging terms and completing the square.	**Lesson 11 What are Perfect Squares?** • I can recognize perfect-square expressions written in different forms. • I can recognize quadratic equations that have a perfect-square expression and solve the equations. End-of-Unit Assessment Problem 1 **Lesson 12 Completing the Square (Part 1)** • I can explain what it means to "complete the square" and describe how to do it. • I can solve quadratic equations by completing the square and finding square roots. Checkpoint C Problem 1 **Lesson 13 Completing the Square (Part 2)** • When given a quadratic equation in which the coefficient of the squared term is 1, I can solve it by completing the square. End-of-Unit Assessment Problem 4a **Lesson 14 Completing the Square (Part 3)** • I can complete the square for quadratic expressions of the form $ax^2 + bx + c$, where a is not 1, and explain the process. • I can solve quadratic equations in which the squared term coefficient is not 1 by completing the square. End of Unit Problem 4b **Lesson 15 Quadratic Equations with Irrational Solutions** • I can use the radical and "plus-minus" symbols to represent solutions to quadratic equations. • I know why the plus-minus symbol is used when

		solving quadratic equations by finding square roots. Checkpoint C Problem 2
Checkpoint C	*Responding to Student Thinking* **Problem 1:** Points to Emphasize - If students struggle to complete the square to solve quadratic equations, emphasize the idea throughout the next section. For example, return to the idea of completing the square whenever the quadratic formula is used to remind students of the connection. The lesson referred to here shows a connection. Algebra 1, Unit 8, Lesson 19 Deriving the Quadratic Formula **Problem 2:** Points to Emphasize: If students struggle to understand ± notation, emphasize its meaning throughout the next section. For example, in the lesson referred to here, write the quadratic formula three times: once using the plus-minus sign, then again, splitting it into the two forms, one with only a plus sign and one with only a minus sign. Algebra 1, Unit 8, Lesson 16 The Quadratic Formula	
Section D The Quadratic Formula Lessons 16-21	**Learning Target #6** Explain whether the products or sums of combinations of rational and irrational numbers are rational or irrational. **Learning Target #7** Use the quadratic formula to solve quadratic equations of the form $ax^2 + bx + c = 0$.	**Lesson 16 The Quadratic Formula** • I can use the quadratic formula to solve quadratic equations. • I know some methods for solving quadratic equations can be more convenient than others. Checkpoint D Problem 1 **Lesson 17 Applying the Quadratic Formula (Part 1)** • I can use the quadratic formula to solve an equation and interpret the solutions in terms of a situation. **Lesson 18 Applying the Quadratic Formula (Part 2)** • I can identify common errors when using the quadratic formula. • I know some ways to tell if a number is a solution to a quadratic equation. **ACC Lesson 19 Deriving the Quadratic Formula** • I can explain the steps and complete some missing steps for deriving the quadratic formula. • I know how the quadratic formula is related to the process of completing the square for a quadratic equation $ax^2 + bx + c = 0$. End-of-Unit Assessment Problem 5 **ACC Lesson 20 Rational and Irrational Solutions** • I can explain why adding a rational number and an irrational number produces an irrational number. • I can explain why multiplying a rational number (except 0) and an irrational number produces an irrational number. • I can explain why the sum or product of two rational numbers is rational. Checkpoint D Problem 2 **ACC Lesson 21 Sums and Products of Rational and Irrational Numbers** • I can explain why adding a rational number and an irrational number produces an irrational number. • I can explain why multiplying a rational number (except 0) and an irrational number produces an irrational number. • I can explain why the sum or product of two rational numbers is rational. End-of-Unit Assessment Problem 6
Checkpoint D	*Responding to Student Thinking*	

	Problem 1: Points to Emphasize - If students struggle to use the quadratic formula to solve equations, make time to provide additional practice throughout the rest of the unit. For example, revisit the practice problems referred to here to provide additional chances to use the formula. Algebra 1, Unit 8, Lesson 19, Practice Problems 1 and 5 **Problem 2:** Points to Emphasize - If students struggle to classify values as rational or irrational, make time to revisit the idea. For example, after the Warm-up referred to here, revisit this problem, and use the Lesson Summary from the lesson also referred to here to match the values given in this checkpoint question to the bulleted statements about sums and products. Algebra 1, Unit 8, Lesson 22, Activity 1 Three Expressions, One Function Algebra 1, Unit 8, Lesson 21 Sums and Products of Rational and Irrational Numbers	
Section E Vertex Form Revisited Lessons 22-23	**Learning Target #8** Rewrite a quadratic expression in vertex form to identify the maximum or minimum value of the function that the expression defines.	**Lesson 22 Rewriting Quadratic Expressions in Vertex Form** • I can identify the vertex of the graph of a quadratic function when the expression that defines it is written in vertex form. • I know the meaning of the term "vertex form" and can recognize examples of quadratic expressions written in this form. • When given a quadratic expression in standard form, I can rewrite it in vertex form. Checkpoint E Problem 1 **Lesson 23 Using Quadratic Expressions in Vertex Form to Solve Problems** • I can find the maximum or minimum of a function by writing, in vertex form, the quadratic expression that defines it. • When given a quadratic function in vertex form, I can explain why the vertex is a maximum or minimum. Checkpoint E Problem 1 End of Unit Problem 3
Checkpoint E	*Responding to Student Thinking* **Problem 1:** Points to Emphasize - If students struggle to find the vertex of the quadratic functions, plan to emphasize the idea during the lesson referred to here. For example, spend additional time discussing methods for finding the vertex, including completing the square to rewrite the equations in vertex form as well as using symmetry arguments. Algebra 1, Unit 8, Lesson 24, Activity 2 The Dive	
Section F Let's Put It To Work Lesson 24	*There are no new goals for this section.*	**ACC Lesson 24 Using Quadratic Equations to Model Situations and Solve Problems** • I can interpret information about a quadratic function given its equation or a graph. • I can rewrite quadratic functions in different but equivalent forms of my choosing and use that form to solve problems. • In situations modeled by quadratic functions, I can decide which form to use depending on the questions being asked. End-of-Unit Assessment Problem 7
End of Unit Assessment		

Unit Title

Unit 4 (iM A2 U2): Polynomials

Relevant Standards: Bold indicates priority

Lesson	Standards	Lesson	Standards	Lesson	Standards
Lesson 1	HSA-CED.A.2 HSA-SSE.A.1.a HSF-IF.A.2 HSF-IF.B.4 HSF-IF.B.5	Lesson 6	HSA-APR.A HSA-APR.A.1 HSA-APR.B HSA_SSE.B.3 HSF-IF.A.2	Lesson 11	HSA-REI.C.7 HSA-REI.D.11
Lesson 2	HSA-APR.A.1 HSA-CED.A.2 HSA-REI.D.11 HSA-SSE.A.1 HSF-IF.A.2	Lesson 7	HSA-APR.B HSA-SSE.A.1.a	Lesson 12	HSA-APR.A HSA-APR.B.3 HSF-IF.C.7.c
Lesson 3	HSA-SSE.A HSF-IF.C.7 HSF-IF.C.9	Lesson 8	HSA-SSE.A	Lesson 13	HSA-APR.A
Lesson 4	HSA-APR.A.1	Lesson 9	HSA-SSE.A HSF-IF.C	Lesson 14	HSA-APR.A HSA-APR.B HSA-APR.B.3 HSF-IF.C.7.c
Lesson 5	HSA-APR.B HSA-APR.B.3 HSF-IF.C.9	Lesson 10	HA-APR.B.3 HSF-IF.C.7.c	Lesson 15	HSA-APR.B.2

Essential Question(s)	Enduring Understanding(s)
• Why is it useful to write polynomials in factored form versus standard form? • What can we learn from a polynomial's factors that we can't see from its expanded form? • When is each form most advantageous for solving problems? • How are polynomial operations similar to operations with whole numbers? • Why do the same rules for multiplication and division apply to both polynomials and integers? • How can we predict the x-intercepts of a polynomial from its factored form? • What does it mean when a zero has "multiplicity," and how does this affect the graph? • Why does (x−a) being a factor guarantee that a is a zero? • What determines the end behavior of a polynomial function? • How can we sketch a polynomial's graph without plotting many points? • What role do degree and leading coefficient play in a polynomial's behavior? • What types of situations can be modeled by polynomials of different degrees? • How do we determine a reasonable domain for polynomial models? • What are the limitations of polynomial models? • What does the Remainder Theorem tell us about factors and zeros?	Polynomial functions can be represented in multiple equivalent forms (standard form, factored form), and each form reveals different structural information that helps us understand the function's behavior, including its zeros, intercepts, end behavior, and overall shape.

• How is polynomial division similar to and different from numerical division? • When is it useful to divide polynomials in problem-solving contexts?	
Demonstration of Learning	**Pacing for Unit**
CFA 1 Checkpoint A (Lessons 1-4) CFA 2 Checkpoint B (Lessons 5-7) CFA 3 Checkpoint C (Lessons 8-11) NOTES • Question 1 replace written end behavior with notation instead of words "as x->infinity... • Remove question 3 CFA 4 Checkpoint D (Lessons 12-15) End of Unit Assessment NOTES • Problem 1: change to drop down menus for different parts (degree - odd/even)(constant - positive/negative)(end behavior - written using notation instead of words "as x->infinity, etc...) • Problem 2: remove answer choice E - change to SAT style question • Problem 3: remove this question (not a key concept for this unit) - Change to "rewrite the following polynomial in standard form: y = (x + 2)(x - 9)(x + 6)" • Problem 5: Change the equation to say " + d" instead of " - d" Also change the equation to have d come out to a whole number • Problem 6: For academic only, change the given factor of (x-3) to (2x+1) • Problem 7: Change equation so that the (3x+4) changes to (2x +5), then reorder the question: start with part b (change to x- and y- intercepts), then part c (give drop down box for end behavior), then part a (graph)	20 days (10 class periods) Lesson Modifications: (from adaptation pack) • No lessons to remove or merge
Family Overview (link below)	**Integration of Technology:**
https://accessim.org/9-12-aga/algebra-2/unit-2?a=family	• Desmos Online Graphing Calculator
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
polynomial, degree, relative maximum, relative minimum, end behavior, multiplicity	• Desmos Online Graphing Calculator • Pear Assessment (Edulastic) • IL Classroom Adapted Resources • Blank paper • Chart paper • Desmos graphing calculator • Math Community Chart • Rulers • Scientific calculators • Scissors • Slips of paper • Tape
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
CTE • Investment growth modeling • Profit maximization • Market analysis • Break-even analysis • Package design optimization Science (Physics, Environmental) • Projectile motion	• Degree confusion: Saying $5x^2+3x^4-2$ has degree 2 instead of degree 4 • Zeros from factors: Not connecting (x-3) as a factor to x = 3 as a zero • Sign errors: Thinking (x + 4) gives a zero at x = 4 instead of x = -4 • Multiplicity confusion: Not recognizing $(x-2)^3$ creates

• Wave behavior • Optics • Population dynamics	different graph behavior than (x- 2) • End behavior patterns: Thinking all polynomial graphs "go up" on both ends. • Not connecting odd degree → opposite ends, even degree → same ends • Leading coefficient impact: Ignoring how negative leading coefficients affect end behavior • Intercept vs. zeros: Confusing x-intercepts (points) with zeros (values) See teacher's guide for specific misconceptions aligned to each lesson
Connections to Prior Units	**Connections to Future Units**
Relevant Unit(s) to review: • Algebra 1, Unit 2 and Unit 6 • Algebra 1, Unit 7, Lesson 8 Essential prior concepts to engage with this unit • Multiplying binomials. • Solving systems of linear equations by substitution.	Unit 5 (iM A2 U3): Rational Functions and Equations • End behavior analysis from polynomial functions directly applies to understanding asymptotic behavior in rational functions • Factoring polynomial expressions is essential for simplifying rational expressions and finding vertical asymptotes • Polynomial division (Remainder Theorem) connects to analyzing rational function behavior and finding holes vs. asymptotes Unit 6 (iM A2 U4): Complex Numbers and Rational Exponents • Polynomial zeros and factors extend to finding complex zeros using the Fundamental Theorem of Algebra • Factoring techniques learned with real polynomials apply to factoring over the complex numbers • Polynomial degree and multiplicity concepts transfer to understanding complex solutions

Differentiation through *Universal Design for Learning*

Engagement

- Connect polynomial patterns to familiar contexts and extend understanding from linear and quadratic functions
- Compare polynomial growth rates to previously learned function types to maintain interest and build understanding
- Scaffold learning progression from concrete graphical features to abstract algebraic operations and polynomial division
- Build on prior knowledge of factoring and multiplication while highlighting connections to zeros and factors
- Make learning goals transparent about understanding polynomial forms and their relationship to graphical features
- Encourage mathematical discourse about end behavior, multiplicity effects, and the Remainder Theorem

Representation

- Present polynomials through multiple sensory modalities using graphs, factored forms, standard forms, and division algorithms
- Ensure graphing technology accessibility and provide clear visual design for polynomial key features like zeros and end behavior
- Support vocabulary development for polynomial terminology (degree, leading coefficient, multiplicity, end behavior, Remainder Theorem)
- Connect symbolic polynomial expressions to verbal descriptions and graphical representations of function behavior
- Activate prior knowledge by explicitly connecting polynomial operations to familiar number operations and distributive property
- Guide pattern recognition in polynomial graphs and highlight critical features that distinguish degree and multiplicity effects

Action & Expression

- Provide multiple ways for students to demonstrate understanding through factoring, graphing, division algorithms, or contextual interpretation
- Support planning strategies for choosing appropriate polynomial forms to reveal specific function properties like zeros or end behavior
- Offer various tools including graphing technology, polynomial division templates, and factoring organizers
- Scaffold executive functions by providing organizational frameworks for moving between standard and factored forms
- Create opportunities for students to express mathematical thinking about factor-zero relationships and polynomial behavior
- Guide students in monitoring progress as they connect algebraic operations to graphical features and apply the Remainder Theorem

Supporting Multilingual/English Learners

The Illustrative Mathematics curriculum incorporates eight Mathematical Language Routines (MLRs) that support English Language Learners:

MLR1: *Stronger and Clearer Each Time* - Students revise and refine their mathematical language through multiple drafts
MLR2: *Collect and Displa*y - Students capture and organize language in visual displays
MLR3: *Clarify, Critique, Correct* - Students analyze mathematical writing/talk
MLR4: *Information Gap* - Students share information to solve problems
MLR5: *Co-Craft Questions* - Students create and improve questions
MLR6: *Three Reads* - Students analyze complex mathematical text
MLR7: *Compare and Connect* - Students connect different mathematical representations
MLR8: *Discussion Supports* - Students participate in mathematical discussions

MLR1: Stronger and Clearer Each Time

Used in Lesson 10 (Sketching Polynomials) where students refine their explanations of how to sketch polynomial graphs from factored form

MLR2: Collect and Display

Used extensively in multiple lessons

Sentence Frames and Stems

Section A

- The degree of the polynomial _____ is _____ because ...
- The constant term of the polynomial _____ is _____.
- The point _____ is the relative minimum/maximum on the graph because ...
- A reasonable domain for the polynomial function _____ is _____ because ...
- The function _____ represents this situation because ...
- When the polynomial _____ is combined with the polynomial _____ using _____ (operation), the result is/is not a polynomial because ...

Section B

- The expression _____ represents the polynomial _____ with zeros at ...
- The zeros of the polynomial _____ are _____ because ...
- The degree of the polynomial _____ is _____ because ...
- The constant term of the polynomial _____ is _____.
- The polynomial _____ in standard/factored form is _____ in factored/standard form.

Section C

- To sketch the graph of the polynomial _____, first I _____, then I ...
- To find the point(s) of intersection for the polynomials, first I _____, then I ...
- The system of equations has _____ solution(s). I know this because ...
- The solution to the system of equations is _____ because ...
- _____ is a possible equation for a polynomial with the following properties: ...
- As _____ gets _____ in the _____ direction, _____ gets _____ in the _____ direction.

Section D

- The polynomial _____ with a known factor of _____, can be written as a product of the linear factors _____ (a set of 2 or factors)because ...
- To divide the polynomial _____ by the factor _____, first I _____, then I ...
- I chose to use _____ (method) to write the polynomial _____ in factored form because ...

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can identify the dimensions (length, width, height) of a box and recognize that volume = length x width x height with visual support and sentence frames like "The volume is _____ times _____ times _____."	I can write volume expressions like V=x(x-2)(x+3) and explain what each factor represents using mathematical language with some support: "The factor (x-2) represents the width because..."	I can independently create volume expressions, interpret what restrictions on xxx make sense in context, and explain why certain values are reasonable: "Since x represents length, x>2 because width must be positive."
LT2	I can match polynomial expressions to real-world contexts (area, volume, profit) using visual aids and choose from given options like "This polynomial could represent: A) area B) number of people C) temperature"	I can explain connections between polynomial features and context with sentence frames: "The degree tells us..." "The coefficient means..." and identify which situations polynomials can and cannot model.	I can analyze polynomial models critically, compare different polynomial models for the same situation, and justify why polynomial models are appropriate or inappropriate for specific contexts.
LT3	I can locate and name basic features (x-intercepts, y-intercepts, maximum/minimum points) using vocabulary cards and sentence frames	I can describe relationships between algebraic and graphical features using mathematical language: "The factor (x-3) creates an x-intercept at..." "The	I can analyze and compare multiple representations fluently, explaining connections: "The multiplicity of the zero affects the graph's behavior

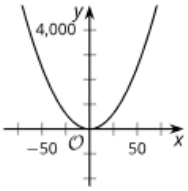
	like "The x-intercept is at x=" "The graph increases/decreases."	leading coefficient affects..."	because..." and make predictions about unseen features.
LT4	I can perform polynomial operations with step-by-step guidance and recognize the result is still a polynomial using sentence frames: "When I add these polynomials, I get..." "The result is still a polynomial because..."	I can explain why polynomial operations result in polynomials using mathematical language: "The degree of the sum is..." "Polynomial closure means..." and connect this to the definition of polynomials.	I can generalize the closure property, explain exceptions (like division), and apply this understanding to determine if expressions are polynomials: "This expression is/isn't a polynomial because of the closure property..."
LT5	I can identify zeros by setting each factor equal to zero using sentence frames: "If (x-3) is a factor, then x = ___" and visual supports showing the connection between factors and x-intercepts.	I can find zeros from factored form and explain the process using mathematical language: "The zeros are found by..." and connect zeros to x-intercepts on graphs with guided support.	I can find zeros from complex factored forms, explain the relationship between factors and zeros, and analyze how multiplicity affects the graph at each zero.
LT6	I can identify basic features (degree, leading coefficient, x-intercepts) from standard and factored forms using vocabulary cards and sentence frames: "The degree is ___" "The leading coefficient is ___"	I can compare how standard and factored forms reveal different information using mathematical language: "Standard form shows..." "Factored form reveals..." and explain advantages of each form.	I can analyze polynomial features across multiple representations, strategically choosing forms based on needed information, and explaining complex relationships between algebraic and graphical features.
LT7	I can write simple polynomial expressions with given x-intercepts using patterns: "If zeros are 2 and -1, then factors are (x-2) and (x+1)" with step-by-step guidance and visual supports.	I can construct polynomial functions with specified intercepts and explain my reasoning: "To have zeros at x = 3 and x = -2, I need factors..." using mathematical language with some support.	I can create polynomial functions with complex intercept conditions (including multiplicity), justify my methods, and explain how different constructions affect the graph's behavior.
LT8	I can identify the leading term and describe basic end behavior using sentence frames: "As x gets very large, y..." "As x gets very negative, y..." with visual graphs showing patterns.	I can explain why the leading term determines end behavior using mathematical language: "The leading term dominates because..." and predict end behavior from equations with guided support.	I can analyze end behavior in complex situations, explain the mathematical reasoning behind leading term dominance, and compare end behavior across different polynomial types.
LT9	I can plot zeros on a graph and identify whether the graph crosses or touches the x-axis using visual patterns and sentence frames: "At x = 2, the graph crosses/touches because the multiplicity is ___"	I can sketch polynomial graphs using zeros and multiplicities, explaining the relationship: "When multiplicity is even, the graph touches..." "When multiplicity is odd, the graph crosses..." with mathematical language.	I can create accurate polynomial graphs considering zeros, multiplicities, and end behavior, explaining complex behaviors and making connections between algebraic features and graphical characteristics.
LT10	I can find where two simple polynomial functions intersect by setting them equal and solving with step-by-step support, using sentence frames: "To find intersections, I set ___ equal to ___"	I can solve intersection problems for polynomial functions and explain my method: "The functions intersect when..." using mathematical language and connecting algebraic solutions to graphical intersections.	I can find intersections of complex polynomial functions, analyze the meaning of solutions in context, and explain why intersection points represent equation solutions.
LT11	I can perform basic polynomial division with step-by-step guides and identify quotient and remainder using vocabulary supports and sentence frames: "When I divide ___ by ___, I get quotient ___ and remainder ___"	I can divide polynomials using long division and explain the process using mathematical language: "First, I divide the leading terms..." connecting division to multiplication relationships.	I can perform complex polynomial division, apply the division algorithm strategically, and explain how division relates to factoring and the Remainder Theorem.
LT12	I can use a known factor to find other factors through division with guided support, using sentence frames: "If (x-2) is a factor, then dividing gives me..." and visual step-by-step processes.	I can apply polynomial division to completely factor polynomials starting from one known factor, explaining the process: "After dividing by the known factor, I can factor the quotient..."	I can strategically use division and known factors to completely analyze polynomial functions, sketch graphs from factored forms, and explain the complete factorization process.
LT13	I can apply the Remainder Theorem using substitution with step-by-step guidance: "To find the remainder when dividing by (x-a), I substitute x = a" using sentence frames and examples.	I can explain the Remainder Theorem and why it works using mathematical language: "The remainder equals f(a) because..." and apply it to solve problems with guided support.	I can prove why the Remainder Theorem is true, apply it in complex situations, and connect it to broader concepts of polynomial division and function evaluation.

Unit Description

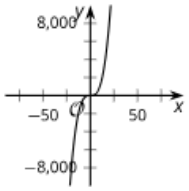
This unit extends students' previous work with linear and quadratic functions as they investigate polynomials of higher degree. Students rewrite polynomials in different forms, recognizing the benefits of the various forms for their ability to reveal the structure of key features of their graphs.

The unit begins with an introduction to two situations that can be modeled by a polynomial function. Students build their understanding of what polynomials are and what their graphs can look like. Certain aspects, such as end behavior, will be important in a later unit when students explore the end behavior of rational functions.

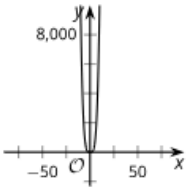
$y = x^2$



$y = x^3$



$y = x^4$



Focusing on functions expressed in factored form and their graphs, students connect that a factor of $(x - a)$ means a is a zero of the function and $(a, 0)$ is a horizontal intercept. The effect of the degree and leading coefficient on end behavior is established along with the effect of multiplicity on the shape of the graph near zeros of the function. Taking in all of these features, students learn to sketch polynomial functions expressed as a product of linear factors.

In a previous course, students used the distributive property to multiply factors, and also factored quadratics. Opportunities to review these skills and apply them to polynomials of higher degree are embedded throughout the unit and in practice problems. This prepares students for the final section where students divide a polynomial written in standard form by a suspected factor. From there, the connection between division and multiplication equations is used to establish the Remainder Theorem. This allows the conclusion that if a polynomial has a zero at $x = a$, then it must also have $(x - a)$ as a factor.

Lesson Sequence	Learning Target	Success Criteria/ Assessment	Resources
Section A What Is a Polynomial? Lessons 1-4	**Learning Target 1** Generalize that when polynomials are combined by addition, subtraction, or multiplication, the result is a polynomial. **Learning Target 2** Identify and interpret relative minimums, relative maximums, the degree, and the constant term of polynomials and their graphs.	**Lesson 1 Let's Make a Box** • I can create and interpret an expression that models the volume of a box. **Lesson 2 Funding the Future** • I can use polynomials to understand different kinds of situations. **Lesson 3 Introducing Polynomials** • I can identify important characteristics of polynomial graphs and expressions. Checkpoint A Problem 1 End of Unit Problem 1 **Lesson 4 Combining Polynomials** • I understand that if you add, subtract, or multiply polynomials, you get another polynomial. Checkpoint A Problem 2 End of Unit Problem	
Checkpoint A	*Responding to Student Thinking:* **Problem 1**: More Chances: Students will have more opportunities to develop this understanding in later lessons. There is no need to slow down or add additional work to review this concept at this time. **Problem 2:** Points to Emphasize: If most students struggle with the definition of a polynomial, focus on this as opportunities arise in the next several lessons. For example, in the Synthesis of the activity referred to here, ask students whether these are polynomial functions and to explain how they know.		
Section B Working with Polynomials	**Learning Target 3**	**Lesson 5 Connecting Factors and Zeros** • I can find the zeros of a function from its factored form.	

Lessons 5-7	Determine properties of polynomials by representing them in standard or factored form. **Learning Target 4** Generate a possible expression for a polynomial function given the horizontal intercepts of the function. **Learning Target 5** Identify zeros of polynomial functions written in factored form.	Checkpoint B Problem 1 **Lesson 6 Different Forms** • I can identify features of polynomials and their graphs using their standard and factored forms. End of Unit Problems 1 and 2 **Lesson 7 Using Factors and Zeros** • I can write an expression for a function that has specific horizontal intercepts. End of Unit Problems 2
Checkpoint B	*Responding to Student Thinking* **Problem 1:** Points to Emphasize: If most students struggle with finding the zeros of a polynomial from its factors, focus on this as opportunities arise over the next several lessons. For example, in the Activity Synthesis of this activity, spend time discussing how the factored form of the polynomials can be used to find where the value of y is 0. **Problem 2:** Press Pause: By this point in the unit, there should be some student mastery of identifying the degree and constant term of a polynomial from its factored form. If most students struggle with these, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work.	
Section C Graphs of Polynomials Lessons 8-11	**Learning Target 6** Calculate the solution to a system of polynomial equations. **Learning Target 7** Create equations for polynomial functions with specific end behavior. **Learning Target 8** Use zeros and multiplicities to sketch a graph of a polynomial function given in factored form.	**Lesson 8 End Behavior (Part 1)** • I understand why a function's end behavior is determined by its leading term. End of Unit Problem 1 and 7 **Lesson 9 End Behavior (Part 2)** • I can identify the end behavior of a polynomial function from its equation. End of Unit Problem 1 and 7 **Lesson 10 Multiplicity** • I can use zeros and multiplicities to sketch a graph of a polynomial. End of Unit Problem 7 **Lesson 11 Finding Intersections** • I can find where two polynomial functions intersect. End of Unit Problem 4
Checkpoint C	*Responding to Student Thinking* *More Chances: Students will have more opportunities to develop this understanding in later lessons. There is no need to slow down or add additional work to review this concept at this time.*	
Section D: Polynomial Division Lessons 12-15	**Learning Target 9** Generalize that for a polynomial p(x) and a number a, the remainder on division by (x-a) is p(a). **Learning Target 10** Rewrite a polynomial as the product of linear factors.	**Lesson 12 Polynomial Division (Part 1)** • I can divide one polynomial by another. End of Unit Problem 5 and 6 **Lesson 13 Polynomial Division (Part 2)** • I can use long division to divide polynomials. End of Unit Problem 5 and 6 **Lesson 14 What Do You Know about Polynomials?** • I can use division to rewrite a polynomial in factored form starting from a known factor and then sketch what it looks like. End of Unit Problem 6 **Lesson 15 The Remainder Theorem** • I understand the Remainder Theorem and why it's true. End of Unit Problem 5

Checkpoint D	*Responding to Student Thinking* Press Pause: By this point in the unit, there should be some student mastery of using polynomial division. If most students struggle with this, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work.
End of Unit Assessment	

Unit Title

Unit 5 (iM A2 U3): Rational Functions and Equations

Relevant Standards: Bold indicates priority

Lesson	Standards	Lesson	Standards	Lesson	Standards
Lesson 1	HSA-CED.A HSA-CED.A.2 HSA-CED.A.4	Lesson 5	HSA-CED.A.1 HSA-REI.A HSA-CED.A.2 HSA-REI.A.1	Lesson 9	HSA-APR.D MP1
Lesson 2	HSA-CED.A.2 HSF-IF.A.2 HSF-IF.C HSF-IF.C.7 HSA-CED.A.4 HSF-BF.B.3 HSF-IF.B.4	Lesson 6	HSA-CED.A.1 HSA-REI.A.1 HSA-REI.D.11 MP1 MP2 MP5	Lesson 10	HSA-APR.C HSA-SSE.A.2 HSA-SSE.B.4 MP1 MP7
Lesson 3	HSA-APR.D.6 HSA-SSE.A.1 HSF-IF.C	Lesson 7	HSA-REI.A.2 MP6 MP7	Lesson 11	HSA-SSE.A.1 HSA-SSE.B.4 MP1 MP5
Lesson 4	HSF-IF.C.7 HSA-APR.D.6 HSA-SSE.A.1 HSA-SSE.A.1.c	Lesson 8	HSA-APR.C.4 HSA-SSE.A.2 HSA-SSE.B.4 MP7 MP8		

Essential Question(s):

- How do rational functions help us model and understand real-world optimization problems?
- What stories do the asymptotes of rational functions tell about real-world situations?
- When does an algebraic solution fail to solve the real-world problem it represents?
- How can we distinguish between equations that are sometimes true and mathematical truths that are always true?

Enduring Understanding(s):

- The algebraic form of rational functions (degree relationships, factorization, restrictions) directly determines their graphical features like asymptotes and discontinuities
- Rational functions naturally model inverse relationships and trade-offs in real-world optimization problems (cost per unit, surface area vs. volume)
- Values that make rational expressions undefined represent physical impossibilities, economic constraints, or logical boundaries in context
- Solving rational equations can produce extraneous solutions that satisfy manipulated equations but not the original problem
- Algebraic, graphical, and contextual views each reveal different aspects requiring flexible movement between them

Demonstration of Learning:

CFA 1: Checkpoint A (Lessons 1-4)
CFA 2: Checkpoint B (Lessons 5-7)

NOTES
- For academic: Change equation to 1/(x-5)=x/(x-5)
- Keep as is for accelerated

CFA 3: (accelerated only) Checkpoint C (Lessons 8-11)
Checkpoint C is for feedback only (for academic)
End of Unit Assessment

NOTES
- Problem 1: Change the denominator to x + 3, then change the answers based on the new equation
- Problem 2: remove for academic, keep for accelerated
- Add additional solving rational equations to test for accelerated only (rational + rational = rational) or (find common factors then solve) - can be done on teacher

Pacing for Unit

20 days (10 class periods)
Lesson Modifications: (from adaptation pack)
- ACA Can remove/skip Lessons 8-11
- Optional Lesson 2 may be safely skipped if the Check Your Readiness assessment indicates that students are familiar enough with the concepts to engage with the other lessons.

level • Problem 5: remove for academic, keep for accelerated: add part b “show that the expressions are equivalent” • Problem 6: split part b into parts b and c - part b “at what value of w does the graph have a vertical asymptote? Explain how you know.” part c “What does the vertical asymptote mean in the situation” • For academic: Add a question where students identify the equations of the vertical and horizontal asymptotes from a graph	
Family Overview (link below)	**Integration of Technology:**
https://accessim.org/9-12-aga/algebra-2/unit-3?a=family	• Desmos Online Graphing Calculator
Unit-specific Vocabulary:	**Aligned Unit Materials, Resources, and Technology (beyond core resources):**
Rational function, Rational expression, Rational equation, Vertical asymptote, Horizontal asymptote, End behavior, Equivalent forms, Extraneous solution, Domain restriction, Discontinuity, Hole (removable discontinuity)	• Desmos Online Graphing Calculator • Pear Assessment (Edulastic) • IL Classroom Adapted Resources
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
Business & Economics • Average cost functions for manufacturing, break-even analysis, geometric series for loan payments, and supply/demand optimization Health & Medicine • Drug concentration and elimination rates, dosage optimization, epidemiological modeling, and medical imaging mathematics Environmental Science • Population dynamics and carrying capacity models, resource sustainability analysis, carbon footprint optimization, and climate modeling	• Domain and Asymptote Confusion • Invalid Algebraic Manipulation • Extraneous Solutions Ignored • Identity vs. Equation Confusion • Modeling Reality Disconnect - Students assume mathematical solutions always make contextual sense See teacher’s guide for specific misconceptions aligned to each lesson
Connections to Prior Units	**Connections to Future Units**
Relevant Unit(s) to review: • Algebra 1 Unit 6: Introduction to Exponential Functions Essential prior concepts to engage with this unit • Exponential functions • Rational exponents The optional lesson and previous units of this course should provide enough support for students to engage in the material for this unit. If the formative assessments provided in this unit indicate that additional resources are needed, consider using Algebra 1 Unit 6 for additional resources.	Unit 6 (iM A2 U4): Complex Numbers and Rational Exponents • Extraneous solutions analysis from rational equations extends to radical equations, where extraneous solutions are even more common • Equation-solving strategies developed in Unit 3 apply to equations with rational exponents • Domain restrictions understanding helps with radical function domains and complex number contexts
Differentiation through *Universal Design for Learning*	
Engagement • Connect rational functions to engaging real-world contexts like average costs, surface area minimization, and travel time calculations • Build on familiar polynomial functions by introducing rational functions as fractions with polynomials in numerator and denominator • Scaffold learning progression from concrete asymptotic behavior observations to abstract polynomial division techniques • Address misconceptions about extraneous solutions by connecting algebraic manipulation to graphical intersections • Make learning goals transparent about understanding asymptotes, end behavior, and the relationship between rational equations and their solutions • Encourage mathematical discourse about polynomial identities and their applications to geometric series formulas	

Representation

- Present rational functions through multiple sensory modalities using graphs showing asymptotes, tables, equations, and real-world contexts
- Ensure graphing technology accessibility and provide clear visual design for asymptotic behavior and discontinuities Support vocabulary development for rational function terminology (asymptote, discontinuity, end behavior, extraneous solution, polynomial identity)
- Connect symbolic rational expressions to verbal descriptions and graphical representations of function behavior and restrictions
- Activate prior knowledge by explicitly connecting polynomial division to familiar long division algorithms with numbers Guide pattern recognition in rational function graphs and highlight critical features like vertical and horizontal asymptotes

Action & Expression

- Provide multiple ways for students to demonstrate understanding through polynomial division, graphing, equation solving, or contextual modeling
- Support planning strategies for choosing appropriate methods to solve rational equations and identify potential extraneous solutions
- Offer various tools including graphing technology, polynomial division organizers, and step-by-step equation solving templates
- Scaffold executive functions by providing organizational frameworks for connecting algebraic manipulation to graphical verification
- Create opportunities for students to express mathematical thinking about asymptotic behavior and prove polynomial identities
- Guide students in monitoring progress as they apply geometric series formulas and verify solutions to rational equations

Supporting Multilingual/English Learners

The Illustrative Mathematics curriculum incorporates eight Mathematical Language Routines (MLRs) that support English Language Learners:

MLR1: *Stronger and Clearer Each Time* - Students revise and refine their mathematical language through multiple drafts
MLR2: *Collect and Displa*y - Students capture and organize language in visual displays
MLR3: *Clarify, Critique, Correct* - Students analyze mathematical writing/talk
MLR4: *Information Gap* - Students share information to solve problems
MLR5: *Co-Craft Questions* - Students create and improve questions
MLR6: *Three Reads* - Students analyze complex mathematical text
MLR7: *Compare and Connect* - Students connect different mathematical representations
MLR8: *Discussion Supports* - Students participate in mathematical discussions

MLR1: Stronger and Clearer Each Time

Used in Lesson 3 (Horizontal Asymptotes) where students refine their explanations of matching graphs to equations, Lesson 6 (Rational Resistance) where students improve descriptions of graphing strategies, and Lesson 7 (Rational Solving) where students refine explanations about extraneous solutions

MLR2: Collect and Display

Used in Lesson 2 (Biking 10 Miles Part 2) to capture and organize student language about rational functions and vertical asymptotes, and Lesson 3 (Publishing a Paperback) to collect language about horizontal asymptotes and end behavior

MLR5: Co-Craft Questions

Used in multiple lessons:

- Lesson 4 (Combined Fuel Economy) where students generate mathematical questions about rational functions in context
- Lesson 5 (Batting Averages) where students create questions about rational equations
- Lesson 6 (Two Directions) where students generate questions about boat travel contexts

MLR6: Three Reads

Used in Lesson 10 (Breakthrough Artist?) to help students analyze complex contextual problems involving geometric sequences and sums

MLR7: Compare and Connect

Used in Lesson 9 (Theorems and Identities) where students compare different strategies for proving polynomial identities, and Lesson 11 (Some Interesting Sums) where students compare different approaches to finding geometric sums

MLR8: Discussion Supports

Used extensively throughout multiple lessons (Lessons 1, 2, 4, 6, 7, 8, 9, 11) to support rich mathematical discussions about rational functions, asymptotes, rational equations, extraneous solutions, and polynomial identities

Sentence Frames and Stems

Section A

- The rational function _____ is helpful in this situation because ...
- The function _____ has/does not have a horizontal asymptote because ...
- The equation _____ represents the horizontal asymptote for the function _____.
- The asymptote _____ represents _____ in this situation because ...

- The end behavior of the function _____ can be written as _____.

Section B

- _____ is/are the solution(s) to the equation _____ because ...
- To solve the rational equation _____, first I _____, then I ...
- The expression _____ represents this situation because ...
- The equation _____ represents this situation because ...
- The equation _____ is equivalent to the equation _____ because ...

Section C

- The equation _____ is/is not an identity because ...
- The sum of the terms in the geometric sequence _____ (list terms) is _____.
- The situation can be modeled using a geometric sequence because ...
- I used the formula _____ to find that the total number of _____ after _____ was/is _____.

Related *CELP standards* and Learning Targets:

	Emerging	Expanding	Bridging
LT 1	I can identify the parts of rational functions that model cylinder properties using visual supports and sentence frames: "The numerator represents ___" "The denominator represents ___" with guided examples.	I can create rational functions to model cylinder situations and explain what each part means: "This function models surface area because..." using mathematical language with some support.	I can develop and analyze complex rational function models for cylinders, justify my modeling choices, and explain limitations and assumptions in real-world contexts.
LT 2	I can locate vertical asymptotes on graphs and find them in equations by setting the denominator equal to zero using sentence frames: "The vertical asymptote is at x = ___" "The denominator equals zero when ___"	I can identify vertical asymptotes from graphs and equations and explain why they occur: "Vertical asymptotes happen when the denominator is zero because..." using mathematical language.	I can analyze vertical asymptotes in complex rational functions, distinguish between asymptotes and holes, and explain the mathematical reasoning behind asymptotic behavior.
LT 3	I can find horizontal asymptotes by comparing degrees of numerator and denominator using visual patterns and sentence frames: "When the degrees are equal, the horizontal asymptote is y = ___"	I can determine horizontal asymptotes and explain the degree comparison rules: "The horizontal asymptote depends on the degrees because..." connecting to end behavior concepts.	I can analyze horizontal asymptotes in complex situations, explain why degree relationships determine asymptotes, and connect to limit behavior of rational functions.
LT 4	I can rewrite simple rational functions in the form f(x) = q(x) + r(x)/b(x) with step-by-step guidance and identify the end behavior using sentence frames: "As x gets large, f(x) approaches ___"	I can perform polynomial division to rewrite rational functions and explain how this reveals end behavior: "The quotient tells us..." "The remainder term approaches zero because..."	I can strategically rewrite complex rational functions to analyze end behavior, explain the mathematical reasoning behind the approach, and connect to asymptotic analysis.
LT5	I can write simple rational expressions for averages using templates and sentence frames: "The average is total divided by number, so the expression is ___" with visual supports showing the relationship.	I can create rational expressions representing averages in various contexts and explain my reasoning: "This expression represents the average because..." using mathematical language.	I can develop and analyze complex average rate models using rational expressions, interpret results in context, and explain how changing conditions affect the average.
LT6	I can solve simple rational equations by finding common denominators with step-by-step guidance using sentence frames: "First, I multiply both sides by ___" "Then I solve ___"	I can solve rational equations and explain my solution method: "I multiply by the LCD because..." "This step eliminates fractions because..." using mathematical language with support.	I can solve complex rational equations using strategic methods, explain why different approaches work, and connect solution processes to function properties.
LT7	I can check solutions by substituting back into the original equation and identify when answers don't work using sentence frames: "When I substitute x = ___, I get ___" "This is extraneous because ___"	I can explain why extraneous solutions occur in rational equations: "Extraneous solutions happen when..." and systematically check all solutions using mathematical language.	I can predict when extraneous solutions might occur, explain the mathematical reasoning behind their existence, and analyze why certain algebraic operations can introduce invalid solutions.
LT8	I can recognize that identities are equations that are always true and identify simple examples using sentence frames: "An identity means ___" "This equation is true for all values because ___"	I can explain what mathematical identities are and distinguish them from conditional equations: "Identities are different from regular equations because..." using mathematical language.	I can analyze complex mathematical identities, explain their significance, and distinguish between identities, conditional equations, and contradictions in various mathematical contexts.

LT9	I can verify simple identities by substituting values or using basic algebraic steps with guided support using sentence frames: "I can show this is true by ___" "Both sides equal ___ when ___"	I can prove identities using algebraic manipulation and explain my reasoning: "I can rewrite the left side as..." "This proves the identity because..." using mathematical language.	I can construct rigorous proofs of complex identities, explain multiple proof strategies, and connect identity verification to broader algebraic reasoning principles.

Unit Description

Building on the "Polynomial Functions" unit, in this unit, students transition to working with rational functions, rational equations, and identities.

The unit begins with an introduction to rational functions as students consider situations they can model, such as when minimizing surface area or determining average costs. Students examine the asymptotic behavior of their graphs, which relates to the structure of the equations. Students continue to build on structure as they use polynomial division to rewrite rational expressions for the purpose of identifying the end behavior of the function. Students then focus on solving rational equations and making sense of how some methods can lead to possible solutions that are in fact not solutions (so-called "extraneous solutions").

In the final section, students study identities. Students sharpen their skills manipulating expressions while proving, or disproving, that two expressions are equivalent. The unit concludes with a return to geometric sequences first examined in the previous unit and, using a polynomial identity proved at the start of the section, students derive the formula for the sum of a finite geometric series before using the formula to solve problems.

Lesson Sequence	Learning Target	Success Criteria/ Assessment
Section A Rational Functions Lessons 1-4	**Learning Target 1** I can create and interpret rational functions that model real-world situations (such as surface area of cylinders with known volume) and explain what the function represents in context. **Learning Target 2** I can identify and interpret key features of rational functions from graphs and equations, including vertical asymptotes, horizontal asymptotes, and end behavior. **Learning Target 3** I can determine horizontal asymptotes and end behavior by analyzing the degrees of numerator and denominator, and by rewriting rational functions in the form f(x) = q(x) + r(x)/b(x). **Learning Target 4** I can interpret graphs of rational functions in context, explaining the meaning of asymptotes and other features in real-world situations, both orally and in writing.	**Lesson 1 Minimizing Surface Area** • I can write a rational function to model different properties of cylinders. End of Unit Problem 7 **Lesson 2 Graphs of Rational Functions (Part 1)** • I can identify a vertical asymptote from a graph or an equation of a rational function. End of Unit Problem 3 Check Point A Problem 1 **Lesson 3 Graphs of Rational Functions (Part 1)** • I can identify a horizontal asymptote from a graph or an equation of a rational function. End of Unit Problem 3 Check Point A Problem 2 **Lesson 4 End Behavior of Rational Functions** • I can find the end behavior of a rational function by rewriting it as f(x) = q(x) + r(x)/b(x) End of Unit Problem 3
Checkpoint A	*Responding to Student Thinking* **Problem 1:** Points to Emphasize - If students struggle to determine reasonable solutions from a situation, revisit the idea throughout the unit. For example, in the activity referred to here, when students find a solution, ask them about its meaning in the situation and whether it is reasonable.	
Section B Rational Equations	**Learning Target 5** I can solve equations involving rational expressions using strategic multiplication and other algebraic methods, and	**Lesson 5 Rational Equations (Part 1)** • I can write rational expressions that represent averages to answer questions about the situation.

Lessons 5-7	determine whether solutions are valid or extraneous.. **Learning Target 6** I can create and solve rational equations to model real-world situations and use these models to answer questions about the context. **Learning Target 7** I can identify when extraneous solutions occur in rational equations and explain why they arise, both orally and in writing.	Check Point B Problem 1 **Lesson 6 Rational Equations (Part 2)** • I can write and solve equations with simple rational expressions on each side. Check Point B Question 1 **Lesson 7 Solving Rational Equations** • I know how to check for extraneous solutions to rational equations. End of Unit Problem 4 Check Point B Question 1
Checkpoint B	*Responding to Student Thinking* **Problem 1:** Press Pause: By this point in the unit, there should be some student mastery of solving rational equations. If most students struggle, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work. **Problem 2:** Press Pause: By this point in the unit, there should be some student mastery of creating rational expressions and equations. If most students struggle, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work.	
ACC Section C: Polynomial Identities Lessons 8-11	**Learning Target 6** Calculate the solution to a system of polynomial equations. **Learning Target 7** I can understand, prove, and create polynomial identities to represent mathematical situations and justify general relationships in writing. **Learning Target 8** I can derive and apply the formula for the sum of the first n terms in a finite geometric sequence to solve problems. **Learning Target 9** I can interpret and explain results involving geometric sums in real-world contexts, both orally and in writing.	**ACC Lesson 8 Polynomial Identities (Part 1)** • I understand what an identity is in mathematics. End of Unit Problem 5 Check Point C Question 1 **ACC Lesson 9 Polynomial Identities (Part 2)** • I can justify why identities are true. End of Unit Problem 5 Check Point C Question 1 **ACC Lesson 10 Summing Up** • I understand why the geometric sum formula is true. End of Unit Problem 2 **ACC Lesson 11 Using the Sum** • I can use the geometric sum formula to solve problems. End of Unit Problem 2 Check Point C Question 2
Checkpoint C	*Responding to Student Thinking* **Problem 1:** Press Pause: By this point in the unit, there should be some student mastery of expanding polynomials to prove identities. If most students struggle, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work. **Problem 2:** Press Pause: By this point in the unit, there should be some student mastery of finding the sum of a finite number of terms of a geometric sequence. If most students struggle, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work.	
End of Unit Assessment		

Unit Title

Unit 6 (iM A2 U4): Complex Numbers and Rational Exponents

Relevant Standards: Bold indicates priority

Lesson	Standards	Lesson	Standards	Lesson	Standards
Lesson 1	HSA-CED.A.1	Lesson 8	HSA-REI.A.2 HSA-REI.D.11	Lesson 15	HSN-CN.A.2
Lesson 2	HSA-REI.B.4 HSA-REI.B.4.b	Lesson 9	HSA-REI.A.2 HSG-GMD.A.3	Lesson 16	HSA-REI.B.4.a HSA-REI.B.4.b
Lesson 3	HSF-IF.C.7.e HSN-RN.A.1 HSN-RN.A.2	Lesson 10	HSN-CN.A.1	Lesson 17	HSA-REI.B.4.b HSA-REI.D.11 HSN-CN.C.7
Lesson 4	HSF-IF.C.7.e HSN-RN.A.1 HSN-RN.A.2	Lesson 11	HSN-CN.A.1	Lesson 18	HSA-REI.B.4 HSN-CN.C.7
Lesson 5	HSN-RN.A.1 HSN-RN.A.2	Lesson 12	HSN-CN.A.1 HSN-CN.A.2	Lesson 19	HSA-REI.B.4.b HSN-CN.C.7
Lesson 6	HSA-REI.A.2 HSF-IF.C.7.b	Lesson 13	HSN-CN.A.1 HSN-CN.A.2	Lesson 20	HSA-CED.A.4 HSA-REI.B.4 HSF-BF.A
Lesson 7	HSA-REI.A.1 HSA-REI.A.2 HSA-REI.B.4.b	Lesson 14	HSN-CN.A.1 HSN-CN.A.2		

Essential Question(s)

- How do we extend mathematical systems to solve problems that previously had no solutions?
- How do we perform arithmetic operations with complex numbers that don't exist on the traditional number line while maintaining consistent mathematical rules?
- When do algebraic operations create extraneous solutions, and how do we determine when our mathematical solutions are valid in both algebraic and real-world contexts?

Enduring Understanding(s)

- When existing number systems prove insufficient, mathematicians create new number types while preserving familiar arithmetic properties and logical consistency
- Fractional exponents provide algebraic notation for roots that maintains exponent rule consistency while connecting area, volume, and other geometric measurements to symbolic expressions
- The introduction of *i* ensures that every quadratic equation has solutions, creating a mathematically complete system where polynomial equations always have the expected number of roots
- Operations like squaring both sides of equations can generate extraneous solutions that satisfy the manipulated equation but not the original problem, requiring systematic verification of all solutions
- Geometric interpretations (area/volume), algebraic notation (rational exponents), and visual models (complex plane) each provide unique insights into the same mathematical relationships
- New numbers and operations must follow the same arithmetic properties (commutative, associative, distributive) as familiar numbers to maintain mathematical coherence and usefulness
- Understanding where functions and operations are defined or undefined reveals both mathematical structure and real-world constraints in problem contexts

Demonstration of Learning

CFA 1: Checkpoint A (Lessons 1-5)
CFA 2: Checkpoint B (Lessons 6-9)
CFA 3: Checkpoint C (Lessons 10-15)
CFA 4: Checkpoint D (Lessons 16-19)

Pacing for Unit

28 days (14 class periods)
Lessons to Modify (from adaptation pack)

- Optional Lessons: 1, 2, 9, 14, 16, 19, 20
- Any of the 7 optional lessons may be safely skipped if

End of Unit Assessment NOTES • Problem 1: for academic: Change to multiple choice keeping choices A, B and E and change C to 4^2 • Problem 5: change directions to "solve for all values of x" • Problem 6: Remove part a, change parts b and c to "solve for all values of x"	the Check Your Readiness assessment indicates that students are familiar enough with the concepts to engage with the other lessons.
Family Overview (link below)	**Integration of Technology:**
https://accessim.org/9-12-aga/algebra-2/unit-4?a=family	• Desmos Online Graphing Calculator
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Rational exponent, Square root, Cube root, nth root, Radicand, Radical expression, Radical equation, extraneous solution, Imaginary number, Imaginary unit (i), Complex number, Complex conjugate, Completing the square, Quadratic formula, Complex solutions, Real solutions, Non-real solutions, Discriminant, Multiple solutions, Simplest radical form, Rationalize, Perfect square, Perfect cube, Irrational number, Number system extension, Closure property	• Desmos Online Graphing Calculator • Pear Assessment (Edulastic) • IL Classroom Adapted Resources • Compasses • Internet-enabled devices • Rulers • Scientific calculators
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
Computer Science & Technology • Complex numbers for 2D graphics rotations and transformations, digital signal processing for audio/image applications, and Fast Fourier Transform algorithms for data compression Music & Audio Production • Complex numbers for sound wave analysis and digital effects processing, rational exponents for musical frequency ratios and harmonic relationships, and synthesizer programming with complex oscillators Finance & Data Science • Compound interest calculations with rational exponents for different compounding periods, complex statistical models for risk analysis and market prediction, and normal distribution mathematics requiring square root operations	• Students think rational functions are just fractions with variables, incorrectly cancel non-factored terms, and forget domain restrictions that exclude values making denominators zero • Students believe graphs can never cross any asymptotes, don't understand the real-world meaning of asymptotic behavior, and confuse holes with vertical asymptotes • Extraneous Solutions Ignored • Students incorrectly apply distributive property to denominators See teacher's guide for specific misconceptions aligned to each lesson
Connections to Prior Units	**Connections to Future Units**
Relevant Unit(s) to review: • Grade 8 Unit 7: Exponents and Scientific Notation • Algebra 1 Unit 7: Introduction to Quadratic Functions • Algebra 1 Unit 8: Quadratic Equations Essential prior concepts to engage with this unit • Properties of Exponents • Square and Cube Roots • Solving quadratics by completing the square • Solving quadratics using the quadratic formula	The entirety of this course prepares students for success on the College Board SAT exam as well as success in Precalculus.
Differentiation through *Universal Design for Learning*	
Engagement • Connect rational exponents to familiar geometric contexts like area and volume calculations to make abstract concepts concrete • Build on familiar integer exponent rules to justify and extend understanding to fractional exponents • Address the conceptual challenge of imaginary numbers by introducing them as solutions to previously unsolvable equations • Scaffold learning progression from square and cube roots to rational exponents to complex number operations • Make learning goals transparent about extending the number system and solving all quadratic equations • Encourage mathematical discourse about why extraneous solutions arise when squaring both sides of equations	

Representation

- Present complex numbers through multiple sensory modalities using the imaginary axis, coordinate plane representations, and algebraic notation
- Ensure clear visual design for representing square roots, cube roots, and rational exponent notation
- Support vocabulary development for terminology (rational exponent, imaginary number, complex number, extraneous solution, principal root)
- Connect symbolic radical expressions to verbal descriptions and geometric interpretations of roots
- Activate prior knowledge by explicitly connecting rational exponents to familiar exponent rules and root operations
- Guide pattern recognition in complex number operations and highlight critical features like $i^2 = -1$

Action & Expression

- Provide multiple ways for students to demonstrate understanding through radical equations, complex arithmetic, or geometric applications
- Support planning strategies for choosing appropriate methods to solve quadratic equations including those with complex solutions
- Offer various tools including graphing technology, exponent rule organizers, and complex number operation templates
- Scaffold executive functions by providing organizational frameworks for connecting rational exponents to radical notation
- Create opportunities for students to express mathematical thinking about extending the number system beyond real numbers
- Guide students in monitoring progress as they verify solutions and identify extraneous solutions in radical equations

Supporting Multilingual/English Learners

The Illustrative Mathematics curriculum incorporates eight Mathematical Language Routines (MLRs) that support English Language Learners:

MLR1: *Stronger and Clearer Each Time* - Students revise and refine their mathematical language through multiple drafts
MLR2: *Collect and Displa*y - Students capture and organize language in visual displays
MLR3: *Clarify, Critique, Correct* - Students analyze mathematical writing/talk
MLR4: *Information Gap* - Students share information to solve problems
MLR5: *Co-Craft Questions* - Students create and improve questions
MLR6: *Three Reads* - Students analyze complex mathematical text
MLR7: *Compare and Connect* - Students connect different mathematical representations
MLR8: *Discussion Supports* - Students participate in mathematical discussions

MLR4: Information Gap

Used in Lesson 15 (Info Gap: What Was Multiplied?) where students must ask precise questions to determine what complex numbers were multiplied together

MLR5: Co-Craft Questions

Used in Lesson 12 (What Does This Path Mean?) where students generate mathematical questions about complex number representations on the complex plane

MLR7: Compare and Connect

Used in Lesson 18 (Solving All Kinds of Quadratics) where students compare different methods for solving quadratic equations with complex solutions

MLR8: Discussion Supports

Used extensively throughout multiple lessons (Lessons 1, 2, 3, 4, 6, 9, 11, 12, 13, 17, 18) to support rich mathematical discussions about exponents, radicals, complex numbers, and quadratic solving methods

Sentence Frames and Stems

Section A

- In this situation, the input of the function _____ represents _____. When the input is _____, the output is _____ and represents _____.
- The growth factor in this situation is _____ because ...
- Between _____ and _____, the _____ increased/decreased by _____.
- The function _____ represents this situation because ...

Section B

- The expression _____ in exponential/logarithmic form is equivalent to the expression _____ in logarithmic/exponential form because ...
- The exact solution to the equation _____ is _____.
- To solve the equation _____, first I _____, then I ...
- The logarithmic expression _____ represents this situation because ...

Section C

- I noticed that for the function _____, the value of "f" increases/decreases when "x' increases/decreases.
- To solve the logarithmic equation _____, first I _____, then I ...
- The solution to the equation _____ is _____ because ...
- The constant e is/is not similar to pi because...

Section D

- Using the graph of the situation represented by the equation _____, I know ... because ...
- On the graph of the function _____, the point _____ represents ...
- The _____-intercept of the graph is _____ and represents ...
- The exact solution to the equation _____ is _____.
- The intersection of the two graphs represents ...

Section E

- Logarithms help reason about the acidity in different liquids because ...
- _____ has _____ moles per liter of hydrogen ion concentration, which is _____ times greater/less than _____ because ...
- The logarithmic scale is used to measure _____ (example: earthquake intensity) because ...

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can evaluate simple expressions with integer exponents using patterns and sentence frames: "2^3 means ___" "5^{-2} means ___" with visual supports showing repeated multiplication and division.	I can evaluate expressions with integer exponents and explain the rules: "Negative exponents mean..." "When I multiply powers with the same base..." using mathematical language.	I can evaluate complex expressions with integer exponents, apply exponent rules strategically, and explain why the rules work using mathematical reasoning.
LT2	I can calculate basic square and cube roots using perfect squares and cubes with visual supports: "$\sqrt{9}$ = 3 because 3 x 3 = 9" using sentence frames and number patterns.	I can calculate square and cube roots and explain my reasoning: "I know $\sqrt{25} = 5$ because..." and estimate non-perfect roots using mathematical language with support.	I can calculate various roots efficiently, estimate irrational roots, and explain different methods for finding radical values including approximation techniques.
LT3	I can write simple radicals as fractional exponents using patterns: "$\sqrt{x} = x^{\frac{1}{2}}$" "$\sqrt[3]{x} = x^{\frac{1}{3}}$" with guided examples and sentence frames: "The square root of x is the same as ___"	I can convert between radical and exponential notation and explain the equivalence: "$\sqrt[3]{x^2} = x^{\frac{2}{3}}$ because..." using mathematical language to connect the representations.	I can fluently convert between radical and exponential forms, explain why the equivalence holds, and apply this understanding to simplify complex expressions.
LT4	I can interpret simple fractional exponents with guidance: "$x^{\frac{1}{2}}$ means ___" "$x^{\frac{2}{3}}$ means ___" using visual models and sentence frames connecting to radicals.	I can interpret fractional exponents and explain their meaning: "The denominator tells us..." "The numerator tells us..." connecting to radical notation with mathematical language.	I can interpret complex fractional exponents, explain the general pattern $x^{\frac{m}{n}}$, and apply this understanding to evaluate and simplify expressions.__
LT5	I can interpret negative fractional exponents with step-by-step support: "$x^{\frac{-1}{2}}$ means ___" using sentence frames and connecting to positive fractional exponents and reciprocals.	I can interpret negative fractional exponents and explain the reasoning: "Negative means reciprocal, so $x^{\frac{-2}{3}}$ = ..." using mathematical language to connect multiple concepts.	I can work fluently with negative fractional exponents, explain why the rules work, and apply them to solve complex problems involving rational exponents.
LT6	I can identify that âˆšx means only the positive square root using sentence frames: "$\sqrt{16}$ = 4, not -4, because _" with visual supports showing the distinction	I can explain why the square root symbol represents only positive values: "The radical symbol means the principal root because..." and distinguish this from equation solutions.	I can explain the mathematical reasoning behind the principal root convention, distinguish between $\sqrt{x}$ and solutions to $x^2 = a$, and apply this understanding consistently.
LT7	I can solve simple equations by squaring or taking square roots with guided steps: "If $x^2 = 9$, then x = ___" using sentence frames and checking solutions with support.	I can solve equations involving squares and square roots and explain my method: "I square both sides because..." "I need to check for extraneous solutions because..."	I can solve complex equations involving squares and square roots, explain when different methods are appropriate, and analyze why extraneous solutions occur.
LT8	I can solve basic equations with cubes and cube roots using patterns: "If x^3 = 8, then x = ___" with sentence frames and visual supports showing the relationship.	I can solve equations with cubes and cube roots and explain the process: "Cube roots are different from square roots because..." using mathematical language.	I can solve complex equations involving cubes and cube roots, compare solution processes with square root equations, and explain why cube root equations behave differently.
LT9	I can solve simple radical equations by isolating the radical and squaring with step-by-step guidance using sentence	I can solve radical equations and explain my solution process: "I isolate the radical because..." "I must check my	I can solve complex radical equations using strategic methods, explain why checking is essential, and predict when

	frames: "First, I isolate ___" "Then I square both sides to get ___"	answer because..." using mathematical language with support__	extraneous solutions might occur.
LT10	I can identify that $\sqrt{-1}$ = i and work with simple multiples like 2*i*, 3*i* using sentence frames: "$\sqrt{-4}$ = 2*i* because ___" with visual supports on the imaginary number line.	I can represent $\sqrt{-1}$ and its multiples using *i* notation and explain why this is necessary: "We need *i* because..." connecting to the impossibility of real square roots of negatives.	I can work fluently with $\sqrt{-1}$ and complex radicals, explain the historical development of imaginary numbers, and connect to the complex number system.
LT11	I can use i to solve simple equations like $x^2 = -4$ with guided support using sentence frames: "Since $x^2 = -4$, then x = ___" with step-by-step examples.	I can solve equations that require imaginary solutions and explain when to use *i*: "This equation needs *i* because..." using mathematical language to justify the approach.	I can solve complex equations requiring imaginary numbers, explain why complex solutions are necessary, and connect to the fundamental theorem of algebra.
LT12	I can add complex numbers and calculate simple powers of i using patterns and sentence frames: "(3 + 2i) + (1 + 4i) = ___" "i^2 = ___" with visual aids.	I can perform operations with complex numbers and explain the processes: "To add complex numbers, I..." "Powers of i follow the pattern..." using mathematical language.	I can perform all operations with complex numbers fluently, explain the underlying mathematical principles, and recognize patterns in complex number arithmetic.
LT13	I can multiply simple complex numbers using the distributive property with guided steps: "(2 + i)(3 + i) = ___" using sentence frames and step-by-step support.	I can multiply complex numbers and explain my method: "I use FOIL and remember that i^2 = -1..." connecting to polynomial multiplication with mathematical language.	I can multiply complex expressions efficiently, explain different multiplication strategies, and connect complex multiplication to polynomial operations.
LT14	I can perform basic arithmetic operations on complex numbers with step-by-step guidance using sentence frames for each operation type with visual supports and pattern recognition.	I can perform all arithmetic operations on complex numbers and explain when each is used: "Division requires..." "Multiplication involves..." using mathematical language consistently.	I can perform complex arithmetic fluently, choose efficient methods strategically, and explain the mathematical principles underlying complex number operations.
LT15	I can identify real and imaginary parts when given simple information with guided examples using sentence frames: "If z_1z_2 = 12 + 5i, then the real part is ___"	I can determine real and imaginary parts from given information about complex numbers and their relationships using mathematical reasoning: "Since the product is..., then..."	I can solve complex problems involving unknown complex numbers, use algebraic reasoning to find parts, and explain sophisticated relationships between complex numbers.
LT16	I can solve quadratic equations using completing the square and the quadratic formula with step-by-step guidance using sentence frames for each method and visual supports.	I can solve quadratic equations using multiple methods and explain when to use each: "I use the quadratic formula when..." "Completing the square is helpful when..."	I can solve quadratic equations strategically, choose efficient methods, and explain the advantages and connections between different solution techniques.
LT17	I can find complex solutions by completing the square with guided steps using sentence frames: "When I get $x^2 = -4$, then x = ___" connecting to previous learning about i.	I can complete the square to find complex solutions and explain the process: "When the constant is negative after completing the square..." using mathematical language.	I can complete the square to find complex solutions in various forms, explain when this method is most useful, and connect to graphical interpretations.
LT18	I can use the quadratic formula to find complex solutions when the discriminant is negative with step-by-step support using sentence frames about each part of the formula.	I can apply the quadratic formula for complex solutions and explain when this occurs: "Complex solutions happen when the discriminant..." using mathematical language.	I can use the quadratic formula for complex solutions efficiently, predict solution types from the discriminant, and explain the mathematical significance of complex solutions.
LT19	I can identify when quadratic equations have complex solutions and find them using either method with guided support and sentence frames connecting discriminant to solution type.	I can find complex solutions to quadratics using appropriate methods and explain my choice: "I chose this method because..." connecting discriminant analysis to solution strategies.	I can find complex solutions efficiently using strategic methods, analyze the nature of solutions before solving, and explain the complete solution process including verification.

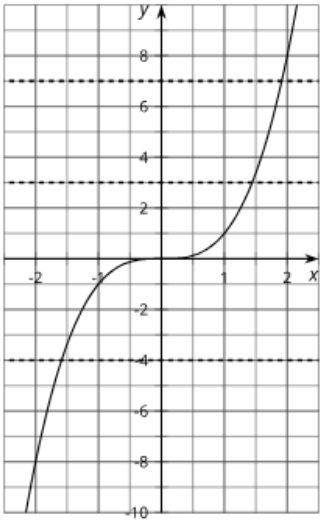
Unit Description

In this unit, students use what they know about exponents and radicals to extend exponent rules to include rational exponents, solve equations involving squares and square roots, develop an understanding of complex numbers, and solve quadratic equations that include complex roots.

The unit opens with an optional review of exponent rules before using those rules to justify why $x^{\frac{a}{b}} = \sqrt[b]{x^a}$ when a and b are integers and x is positive. The new rule leads to an exploration of square and cube roots as solutions to equations of the form $x^2 = c$ or $x^3 = c$. In particular, students learn that positive numbers have two square roots and that $\sqrt{c}$ represents only the positive root.

Students explore equations involving square and cube roots to recognize that squaring each side of an equation can introduce solutions that are not solutions to the original equation.

Note that there are claims in the unit like, "When a square is equal to a negative number, there are no solutions," which would be more precisely stated as "When a square is equal to a negative number, there are no real number solutions." However, until students learn about imaginary numbers in the next section, it doesn't make sense to make this distinction.



The third section introduces imaginary and complex numbers by proposing i as a solution to the equation $x^2 = -1$. Students explore the implications of this new type of number by representing it on an imaginary axis off of the real number line. This exploration includes adding imaginary and real numbers together to get complex numbers, and then adding and multiplying complex numbers.

Next, students use their new understanding of complex numbers to solve more quadratic equations. Finally, there is an optional exploration of data representation on a map using circles with area proportional to the data, in which students must use their understanding of square roots to find the radii of the appropriate circles.

Lesson Sequence	Learning Target	Success Criteria/ Assessment	Resources
Section A Exponent Properties Lessons 1-5	**Learning Target 1** I can understand and justify why exponent properties hold for positive integers and use repeated reasoning to extend these properties to all integers and rational exponents. **Learning Target 2** I can comprehend the meaning of radicals (square roots, cube roots) and justify the equivalence between radical notation and rational exponents $(b^{\frac{1}{n}} = \sqrt[n]{b}$ and $b^{\frac{m}{n}} = \sqrt[n]{b^m})$ **Learning Target 3** I can determine exact side lengths using radicals, use graphs to estimate values of expressions with rational exponents, and represent numbers using both radical and exponential notation.	**Lesson 1 Properties of Exponents** • I can evaluate expressions with integer exponents. Check Point A Question 1 End of Unit Question 1 **Lesson 2 Square Roots and Cube Roots** • I can calculate square and cube roots. End of Unit Question 1 **Lesson 3 Exponents That Are Unit Fractions** • I can write square and cube roots as exponents. Check Point A Question 1 **Lesson 4 Positive Rational Exponents** • I can interpret exponents that are fractions. Check Point A Question 1 End of Unit Question 1 **Lesson 5 Negative Rational Exponents** • I can interpret exponents that are negative fractions.	
Checkpoint A	*Responding to Student Thinking* **Problem 1:** Press Pause: By this point in the unit, there should be some student mastery of writing expressions using rational exponents and radicals. If most students struggle, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work.		

<table>
<tr><td>Section B
Solving Equations with Square and Cube Roots

Lessons 6-9</td><td>Learning Target 4
I can explain the difference between square roots (which denote only positive values) and cube roots (which exist for all real numbers), and justify why equations involving these have different numbers of solutions.

Learning Target 5
I can solve equations involving square roots, cube roots, and other radicals, explaining my solution methods and using graphs to represent solutions.

Learning Target 6
I can explain why squaring or taking roots of equations may change the solution set, create radical equations with specified numbers of solutions, and identify extraneous solutions.</td><td>Lesson 6 Squares and Square Roots
• I understand that the square root symbol means the positive square root.
Lesson 7 Inequivalent Equations?
• I can solve equations by squaring or finding square roots.
Checkpoint B Question 1
End of Unit Question 3
Lesson 8 Cubes and Cube Roots
• I can solve equations by cubing or finding cube roots.
Checkpoint B Question 1
End of Unit Question 6
ACC Lesson 9 Solving Radical Equations
• I can solve equations with radicals in them.
Checkpoint B Questions 1 and 2
End of Unit Question 5</td></tr>
<tr><td>Checkpoint B</td><td colspan="2">Responding to Student Thinking
Problem 1: Press Pause: By this point in the unit, there should be some student mastery of finding the number of solutions for an equation. If most students struggle, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work.
Problem 2: Press Pause: By this point in the unit, there should be some student mastery of solving radical equations. If most students struggle, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work.</td></tr>
<tr><td>Section C
A New Kind of Number

Lessons 10-15</td><td>Learning Target 7
I can justify why $x^2 = -1$ has no real solutions using graphs, understand that i represents $\sqrt{(-1)}$, and comprehend that complex numbers have the form a + bi where a and b are real numbers.

Learning Target 8
I can add, subtract, and multiply complex numbers, represent results in the form a + bi, and justify equivalence of complex expressions using the fact that $i^2 = -1$.

Learning Target 9
I can represent complex numbers and their operations on the complex plane, determine powers of i using patterns, and analyze what information is needed to find factors of complex number products.</td><td>Lesson 10 A New Kind of Number
• I can represent $\sqrt{-1}$ and multiples of it.
Lesson 11 Introducing the Number i
• I can use i to solve equations.
End of Unit Question 3 and 7
Lesson 12 Arithmetic with Complex Numbers
• I can add complex numbers and calculate powers of imaginary numbers.
Checkpoint C Question 1
End of Unit Question 4
Lesson 13 Multiplying Complex Numbers
• I can multiply complex numbers.
Checkpoint C Question 1
End of Unit Question 4
ACC Lesson 14 More Arithmetic with Complex Numbers
• I can do arithmetic with complex numbers.
Checkpoint C Question 1
End of Unit Question 4
Lesson 15 Working Backward
• I can find real and imaginary parts of complex numbers if I know enough about the numbers and their product.
Checkpoint C Question 1</td></tr>
<tr><td>Checkpoint C</td><td colspan="2">Responding to Student Thinking
Problem 1: Press Pause: By this point in the unit, there should be some student mastery of complex number arithmetic. If most students struggle, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work.</td></tr>
<tr><td>Section D</td><td>Learning Target 10</td><td>Lesson 16 Solving Quadratics</td></tr>
</table>

Solving Quadratics with Complex Numbers Lessons 16-19	I can solve quadratic equations using completing the square and the quadratic formula, and explain my reasoning in writing for both real and complex solutions. **Learning Target 11** I can calculate complex solutions to quadratic equations, represent them in the form c ± di, and explain when and why solutions are non-real using both algebraic and graphical reasoning. **Lesson Target 12** I can create quadratic equations with specified solution types (real or non-real), critique solution methods used by others, and justify whether radical expressions are equivalent.	• I can solve quadratic equations by completing the square or by using the quadratic formula. Checkpoint D Question 1 End of Unit Question 3 and 7 **Lesson 17 Completing the Square and Complex Solutions** • I can find complex solutions to quadratic equations by completing the square. End of Unit Question 7 **Lesson 18 The Quadratic Formula and Complex Solutions** • I can find complex solutions to quadratic equations by using the quadratic formula. Checkpoint D Question 1 End of Unit Question 7 **Lesson 19 Real and Non-Real Solutions** • I can find complex solutions to quadratic equations CheckPoint D Question 1 End of Unit Questions 3 and 7
Checkpoint D	*Responding to Student Thinking* **Problem 1:** Press Pause: By this point in the unit, there should be some student mastery of solving quadratic equations. If most students struggle, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work. **Problem 2:** Press Pause: By this point in the unit, there should be some student mastery of the number and type of solutions for quadratic equations. If most students struggle, make time to revisit related work in the practice problems referred to here. See the Course Guide for ideas to help students re-engage with earlier work.	
Section E Let's Put It to Work Lesson 20		**ACC Lesson 20 Map Data** • I can represent data on a map using appropriate sized circles.
End of Unit Assessment		

This is a living document.
For the most recent electronic copy of this document scan the QR code

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
Grade 6 Science	Science	6	N/A (Middle School Course)

Course Description:

This course utilizes an inquiry-based framework grounded in national standards to foster advanced analytical and scientific literacy skills. Throughout the academic year, students engage in evidence-based scientific and engineering practices (including modeling phenomena, interpreting data, and constructing arguments) across four comprehensive disciplines of study.

This Grade 6 Science curriculum provides an integrated exploration of life, earth, and physical science through three comprehensive units: Ecosystems, Destructive Weather, and Waves (Sound, Light, and Technology). Students engage in inquiry-based learning, utilizing hands-on laboratory experiments, interactive simulations, and scientific modeling to investigate complex natural systems—ranging from the intricate energy flow within bio-bottles and symbiotic relationships to the mechanics of severe weather patterns and the fundamental properties of wave energy. By analyzing real-world case studies and leveraging data-driven investigations, students develop the skills to explain cause-and-effect relationships, interpret geographic and climate data, and understand the practical technological applications of wave physics in fields like communication and radio astronomy

Aligned Core Resources:	Connection to the ***BPS Vision of the Graduate***
Grade 6 - MS Science Instructional Guide Next Generation Science Standards (NGSS) Cluster/Item Specifications Specifications for Middle School • MS-LS2: Ecosystems: Interactions, Energy, and Dynamics • MS-ESS2: Earth's Systems • MS-PS4: Waves and their Applications in Technologies for Information Transfer	**Meaningfully Contribute to a Global Society** Collaboration during labs and inquiry related activities, social and cross-cultural skills during small and large group discussions and activities **Effectively Communicate in a Global Society** Media literacy through lab activities, investigations and projects, communication, information literacy **Demonstrate Academic Knowledge and Skills** Checking content mastery through labs and assessments, opportunities for critical thinking and problem solving during independent and group analysis
Additional Course Information: ***Knowledge/Skill Dependent courses/prerequisites***	**Link to *Completed Equity Audit***
N/A	Equity Curriculum Review Audit (Gr. 6-8 Science)

Standard Matrix

Standard		Unit 1	Unit 2	Unit 3
MS-LS2-1	Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.	✔		
MS-LS2-2	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.	✔		
MS-LS2-3	Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.	✔		
MS-LS2-4	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	✔		
MS-LS1-6	Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.	✔		
MS-ESS2-4	Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.		✔	
MS-ESS2-5	Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.		✔	
MS-ESS2-6	Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.		✔	
MS-ESS3-3	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.		✔	

MS-PS4-1	Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.			✔
MS-PS4-2	Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.			✔
MS-PS4-3	Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.			✔

Unit Links

Grade 6 Science
- Unit 1: Ecosystems
- Unit 2: Destructive Weather
- Unit 3: Sound, Light & Technology Waves

Use of Instructional Time (181 School Days)
- ➔ Maximum of 172 Content and Assessment Days
- ➔ 15 Flex Days
- ➔ 2 Culture and Climate Days at the start of the year
- ➔ 2 half-days before long school breaks
- ➔ 5 SBA/NGSS testing days

Unit Title
Unit 1: Ecosystems

Relevant Standards

MS-LS1-6: Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.
MS-LS2-1: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
MS-LS2-2: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
MS-LS2-3: Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
MS-LS2-4: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Essential Question(s)	Enduring Understanding(s)
• If nature is a competition for resources, how can so many different species live in the same space? • How does the sun's energy eventually end up inside a decomposer underground? • Is a 'healthy' ecosystem one that never changes, or one that knows how to break?	• The growth and survival of organisms are dependent on the availability of living and non-living resources; when these resources are limited, it dictates the "carrying capacity" of the entire environment • Matter cycles and energy flows through an ecosystem; while energy is eventually lost as heat, the atoms that make up organisms are recycled infinitely through the food web. • Ecosystems are dynamic and constantly shifting; their ability to maintain balance (homeostasis) depends on their biodiversity and their capacity to recover from disturbances.
Demonstration of Learning	**Pacing for Unit**
• MS-LS2-1: Pear Assessment CFA • Formative: Creation and predictions of bio bottle • MS-LS2-6: Pear Assessment CFA • MS-LS2-2: Pear Assessment CFA • MS-LS2-3: Pear Assessment CFA • MS-LS2-4: Claim - Evidence - Reasoning response (CER) • SBA Interim Assessment (IAB): Choose 1 ○ IAB: Japanese Beetles ○ IAB: Hippopotamus/Oxpecker ○ IAB: Osprey and Trout • End of Unit Summative Assessment	Trimester 1
Family Overview (link below)	**Integration of Technology:**
Grade 6 Science - Family Overview	OpenSci Ed Virtual Labs Gizmos Demonstration PhEt Simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
NGSS Required - Algae, aquatic, atom, biodiversity, carbon, carbon dioxide, carnivore, chemical process, chemical reaction, competition, conservation, consumer, consumers, convert, decomposer, decomposers, disperse, ecological role, ecosystem, evolve, food chain/web, fungi, genetic, glucose, herbivore, host, hydrogen, infection, interdependent, microbe, microorganism, moisture, molecule, mutualism, mutually beneficial, mutually beneficial	See Instructional Guide - Grade 6 - MS Science Instructional Guide (rev. 2026)

interactions, nitrogen, nutrient, omnivore, organic, organic matter, organic waste, oxygen, parasite, photosynthesis, phytoplankton, predator, prey, producer, producers, product, reactant, reaction, relative, resource, stimulus, structure, sugar, tissue, transformation

BPS Additional - Biotic factor, Abiotic factor, Chlorophyll, Chloroplast, Phloem tubes, Xylem tubes, Transpiration, Stomata, Water Cycle, Scientific Drawing, Model, Primary Consumer (1st), Secondary Consumer (2nd), Tertiary Consumer (3rd)

Opportunities for Interdisciplinary Connections:

Common Core Standards Connections

ELA/Literacy

RST.6-8.1: Cite specific textual evidence to support analysis of science and technical texts.

WHST.6-8.1: Write arguments to support claims with clear reasons and relevant evidence.

Mathematics

MP.4: Model with mathematics.

6.RP.A.3: Use ratio and rate reasoning to solve real-world and mathematical problems.

Connections to Prior Units

Elementary School science bundles

Anticipated misconceptions

- Things that are dead are abiotic factors
- Predation is an example of a parasitic relationships
- Only plants rely on solar energy
- Plants need oxygen
- Food Chain arrows point to consumption

Connections to Future Units

- Cycling of Matter appears again in Unit 2 when the Water Cycle is discussed.
- Conservation appears again in Unit 2 when climate change and water consumption is discussed.
- Photosynthesis appears again when global temperature rises are discussed in unit 2.
- Carbon Dioxide appears when climate change is discussed in unit 2

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Bio-Bottle Launch" building mini sealed bottle ecosystems and predicting how long plants can survive inside without opening them.	Closed-system diagram mapping how soil, water, air, and plant life interact within a sealed bottle environment.	Write a system breakdown or record a video explaining how the sealed bio-bottle provides all essential conditions for plant survival.
LT2	"Schoolyard Safari" exploring outdoor school habitats to spot, list, and categorize items into living and nonliving components.	T-chart and photo matrix comparing biotic factors (plants, animals, fungi, bacteria) vs. abiotic factors (sunlight, water, soil, air, temperature).	Sort physical or digital card sets into biotic/abiotic categories and write brief explanations defending tricky items (e.g., dead leaves, wood).
LT3	"Oh Deer!" ecosystem simulation game playing as animals competing for limited food, water, and shelter resources.	Population vs. Resource line graph illustrating how carrying capacity changes as resource availability fluctuates over time.	Analyze simulation data and write a Claim-Evidence-Reasoning (CER) statement detailing how resource availability limits animal population sizes.
LT4	Plant dissection lab taking apart real flowers and plants to examine roots, stems, leaves, and reproductive structures up close.	Labeled plant anatomy diagram detailing the specific photosynthesis role of each part (e.g., roots absorb water, leaves catch light/gas).	Draw and label a plant diagram or present a physical plant model explaining how each macroscopic structure supports photosynthesis.
LT 5	"Sunlight Solar Bank" demonstration placing plants in sunlight vs. dark closets to observe energy absorption and plant growth differences.	Energy flow diagram showing sunlight entering producer leaves, driving chemical energy creation, and passing to consumers.	Create an energy chain poster or explain in a short presentation why solar energy is the foundational power source for ecosystems
LT 6	Microscope lab creating leaf peels and celery cross-sections to directly observe stomata guard cells and vascular bundles (xylem/phloem).	Magnified cell diagrams showing stomata gas exchange (CO_2/O_2) alongside xylem (water transport) and phloem (sugar transport) pathways.	Sketch labeled microscope views of stomata and vascular tissue and write a short walkthrough of how these microscopic structures move materials.
LT 7	"Inside the Bottle" tracking gas and condensation cycles in a bio-bottle	Chemical equation diagram (Water + Carbon Dioxide + Light -> Sugar +	Build a visual bio-bottle photosynthesis model labeling input/output pathways

	under daylight and night conditions.	Oxygen) mapped directly onto the physical bio-bottle setup.	(light, H2O, CO2, O2, glucose) across the bottle system.
LT 8	Interactive food web and matter cycle simulation linking decomposers, producers, consumers, and abiotic nutrient pools.	Dual-model diagram showing one-way energy flow (sun to top predator) alongside circular matter cycling (carbon, water, nutrients).	Construct a comprehensive ecosystem web model (digital drawing, physical poster, or yarn-map) highlighting energy flow and matter cycling.
LT9	Ecosystem Collapse Mystery" analyzing real-world environmental change case studies (e.g., invasive species introduction, drought, deforestation).	Cause-and-effect flow chart detailing how a physical change (drought) or biological change (new predator) cascades through food webs.	Write a formal CER essay or record an argumentative presentation citing real data to show how a specific ecosystem disruption impacts populations.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can label and match the living and non-living parts of a bio-bottle using picture cards and a word bank.	I can describe how soil, water, and air work together in a bio-bottle to help plants grow using sentence frames.	I can explain in detail how living and non-living elements in a closed bio-bottle interact and recycle resources to support plant life.
LT2	I can sort items into living (biotic) and non-living (abiotic) groups using pictures and word cards.	I can classify items as abiotic or biotic and explain my choices using sentence starters.	I can differentiate between abiotic and biotic factors across different ecosystems and justify tricky examples using scientific reasoning.
LT3	I can match resource pictures to animal needs and show if a population goes up or down using arrows or icons.	I can describe how changes in food, water, or shelter affect animal population sizes using cause-and-effect sentence frames.	I can analyze data and explain how limited resources control animal population growth and competition in an ecosystem.
LT4	I can label the main plant parts (roots, stem, leaves, flower) and match them to picture cards showing their jobs.	I can describe the job of each plant part during photosynthesis using sentence frames and labeled diagrams.	I can explain in detail how roots, stems, leaves, and flowers work together as a system to collect materials and make food through photosynthesis.
LT 5	I can order picture cards to show energy moving from the sun to plants and animals.	I can explain how energy from the sun moves through plants to animals using sentence starters and food chain templates.	I can explain in detail how producers capture sun energy and pass chemical energy to consumers in a food web.
LT 6	I can point to and label microscopic plant parts (stomata, xylem, phloem) on microscope images using a word bank.	I can describe the jobs of stomata, xylem, and phloem during plant growth using microscope notes and sentence frames.	I can explain using direct observations how stomata, xylem, and phloem work together at the microscopic level to move water, food, and gases for photosynthesis.
LT 7	I can place pre-made input and output cards on a bio-bottle picture to show photosynthesis.	I can draw and label a diagram showing how photosynthesis inputs and outputs move inside a bio-bottle using a guide.	I can create and explain a detailed model showing how energy and matter transform during photosynthesis inside a bio-bottle.
LT 8	I can trace energy flow and matter cycling on an ecosystem diagram using color-coded arrows and picture cards.	I can complete a model showing how energy flows and matter cycles through living and nonliving things using graphic organizers.	I can develop and defend a complex model comparing how energy flows in one direction while matter continuously cycles through an ecosystem.
LT9	I can select picture cards and simple claims to show if an ecosystem change helps or hurts an animal population.	I can write a simple CER (Claim, Evidence, Reasoning) argument using sentence frames to show how a physical or biological change affects a population.	I can construct a complete written argument supported by data and scientific evidence to prove how ecosystem changes impact populations over time.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences See: Grade 6 - MS Science Instructional Guide
Learning Sequence 1: 10 Days			
1-4	**Learning Target 1**		**Phenomena Launch** • I can ask questions to better understand how the bio-bottle

	I can explain how the elements of a bio bottle create an ecosystem that supports plant life.	works • I can create a visual bio-bottle model including: how the plant will get food to grow, get water, and how other organisms contribute to the bottle's success. • I can construct a bio-bottle based on my predictions for how it works • I can make predictions for how the plant will change in the bio-bottle
5	**Learning Target 2** I can differentiate between Abiotic & Biotic Factors	• I can categorize things as being Living or Nonliving • I can dissect the words abiotic and biotic to further my understanding
6-7	**Learning Target 3** I can explain the relationship between the number of resources and living animals in an ecosystem	• I can make a prediction about the relationship between resources and animals • I can simulate the effects that resources have on population • I can analyze data to determine the relationship between the number of resources and the number of deer.
8	**Flex Day**	
9	**Assessment of MS-LS2-1**	
Learning Sequence 2: 16 Days		
11	**Learning Target 4** I can identify and describe the main parts of a plant (roots, stems, leaves, flowers) and explain how each part contributes to the process of photosynthesis.	• I can use text to create a systemic order for the events of photosynthesis • I can model the inputs and outputs of photosynthesis • I can model how the ingredients of photosynthesis travel into the leaf • I can create a model of photosynthesis within a bio-bottle • I can explain how the carbon cycle works within a biobottle, describing how plants, animals, decomposers, and the air interact to recycle carbon and maintain balance in a closed ecosystem. • I can design a successful bio-bottle
12	**Learning Target 5** I can explain the role of sunlight as an initial source of energy for most living things	• I can define what is means to be a primary source • I can explain how photosynthesis plays an energy role in an ecosystem
13-14	**Learning Target 6** I can identify and describe the microscopic parts of a plant (stomata, xylem, phloem) and explain their roles in the plant's growth and photosynthesis, using both direct observation and magnified views.	• Identify the microscopic plant parts through direct observation or with the aid of a microscope. • Explain the function of each plant part in relation to photosynthesis and overall plant growth.
15	**Flex Day**	
16	**Assessment of MS-LS1-6**	
Learning Sequence 3: 9 Days		
17-23	**Learning Target 7** I can create a model of photosynthesis within a bio-bottle	• I can compare how David Latimer's bio bottle and Jadav Payeng's forest support living things and stay balanced over time • I can differentiate between the 3 types of symbiotic relationships • I can collaboratively discover which plants and animals have symbiotic relationships and how this impacts each organism. • I can demonstrate my knowledge by completing symbiosis task cards

24	**Flex Day**	
25	**Assessment of MS-LS2-2**	
Learning Sequence 4: 11 Days		
25-33	**Learning Target 8** I can develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem	• I can dissect text to differentiate between the main roles of organism in an ecosystem • I can develop a model to show the movement of an energy in an ecosystem • I can create accurate food chains by analyzing relationships within a food web • I can develop a food web model for a Barn Owl's Menu
34	**Flex Day**	
35	**Assessment of MS-LS2-3**	
Learning Sequence 5: 5 Days		
36-39	**Learning Target 9** I can construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	• I can analyze data to draw conclusions about whether or not humans should intervene with Isle Royale • I can construct an explanation using data to support or not support the intervention of humans at Isle Royale
40-41	**Flex Days**	
42	**Assessment of MS-LS2-4**	
43	**Flex Day**	
44	**EOU Assessment**	
45	**IAB Practice**	

NOTE: *IAB can be given at a different point in the unit and all flex days can be used strategically throughout the unit if needed.*

Unit Title
Unit 2: Destructive Weather

Relevant Standards

MS-ESS2-4: Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
MS-ESS2-5: Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.
MS-ESS2-6: Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

Essential Question(s)	Enduring Understanding(s)
• How do solar energy and gravity drive the continuous movement of water through Earth's atmosphere and surface systems? • How do the collisions and complex interactions of different air masses cause sudden changes in local weather conditions? • How do the Earth's rotation and unequal heating by the sun create global atmospheric and oceanic patterns that dictate regional climates?	• Targets the water cycle as the baseline engine for weather, focusing on phase changes (evaporation, condensation, precipitation) powered by the sun and pulled by gravity. • Explores how variables like air pressure, temperature, and humidity change over time, and why weather can only be predicted within probabilistic ranges. • Connects individual weather events to broader climate scales, highlighting the Coriolis effect, convection cycles, and the ocean's role in redistributing solar energy across latitudes.
Demonstration of Learning	**Pacing for Unit**
Various models, quizzes, labs, tests, projects (see Lesson Sequence and Grade 6 - MS Science Instructional Guide)	Trimester 2
Family Overview (link below)	**Integration of Technology:**
Grade 6 Science - Family Overview	OpenSci Ed Virtual Labs Gizmos Demonstration PhEt Simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Agriculture, Air mass, Air mass circulation, Air pressure, Altitude, Anemometer, Aquifer, Atmosphere, Atmospheric pressure, Barometer, Climate, Cloud, Cold front, Cold/warm front, Condensation, Conservation, Consumption, Convection, Coriolis effect, Crystallization, Current, Density, Development, Dew point, Economic, Evaporation, Fertile, Flow, Groundwater, Humidity, Industry, Land usage, Land use management, Latitude, Levee, Longitude, Material world, Mineral, Occluded front, Particle, Precipitation, Preservation, Pressure, Rain shadow, River delta, Runoff, Stationary front, Temperature, Thermometer, Transpiration, Vegetation, Warm front, Water cycle, Water usage, Wetland, Wind direction, Wind speed	See Instructional Guide - Grade 6 - MS Science Instructional Guide (rev. 2026)
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
Common Core Standards Connections **ELA/Literacy** RST.6-8.1: Cite specific textual evidence to support analysis of science and technical texts.	• Weather and climate mean the same thing. • Air has no mass or pressure because it cannot be seen. • Air is just oxygen. • Wind is caused by temperature rather than differences in air pressure.

WHST.6-8.1: Write arguments to support claims with clear reasons and relevant evidence. **Mathematics** MP.2: Reason abstractly and quantitatively. MP.4: Model with mathematics. 6.NS.C.5: Positive and negative numbers in context	• Temperature and heat are the same thing. • The water cycle only includes evaporation and precipitation. • Fronts are storms instead of boundaries between air masses. • Warm fronts and cold fronts refer only to the temperature outside. • Wind speed and temperature measure the same thing. • Conservation and preservation mean the same thing. • Consumption only means eating food. • Currents only occur in oceans and not in air. • High pressure means warm temperatures. • Low pressure means cold temperatures..
Connections to Prior Units	**Connections to Future Units**
Elementary School science bundles	Grade 7 Mt. Everest unit Grade 8 Patterns in the Sky unit

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Storm Chasers Lab" analyzing video footage and radar data from tornadoes, hurricanes, and blizzards to identify common storm triggers.	Graphic organizer detailing key severe weather ingredients: moisture, atmospheric instability, temperature contrast, and wind shear/lift.	Create a "Severe Weather Recipe" profile card or record a short forecast breakdown explaining the specific conditions needed for a hurricane or tornado.
LT2	"Before & After Disaster Audit" using satellite imagery to observe land changes caused by flash floods, hurricane surges, and coastal erosion over time.	Comparative scale matrix mapping rapid, localized changes (landslides, sinkholes) vs. slow, widespread changes (river delta shaping, barrier island migration).	Write a Claim-Evidence-Reasoning (CER) report or present a case study demonstrating how a severe weather event altered a specific landscape.
LT3	"Global Current Simulator" testing hot vs. cold water density currents in a tank and observing how spinning globes deflect wind paths (Coriolis Effect).	Labeled global atmospheric model displaying equatorial heating, convective air cells, wind belts (trade winds, westerlies), and ocean conveyor currents.	Construct a physical or digital circulation model and deliver a presentation detailing how ocean/wind currents shape a selected regional climate.
LT4	"Weather Station Tracking Lab" recording real-time temperature, humidity, air pressure, and wind direction as active weather fronts pass through.	Synoptic weather map visual mapping cold fronts, warm fronts, high/low pressure systems, and colliding air mass boundaries (maritime vs. continental).	Graph collected weather station data and write a weather forecast predicting upcoming weather shifts based on approaching air mass interactions.
LT5	"Community Resilience Challenge" evaluating local urban flood and erosion risks caused by paved surfaces and deforestation during heavy storms.	Engineering design blueprint and impact matrix evaluating solutions like permeable pavement, bioswales, rain gardens, and seawalls.	Design and present a prototype or engineered plan (e.g., flood runoff barrier or erosion monitor) to minimize human environmental impact during severe weather.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can match picture cards and label basic factors (temperature, air pressure, moisture) that cause severe weather using a word bank.	I can identify and describe key factors (warm air masses, moisture, rapid pressure drops) that create severe weather using sentence frames.	I can explain in detail how complex interactions between air pressure, temperature, humidity, and wind conditions combine to form severe weather systems.
LT2	I can match pictures of fast and slow Earth changes (volcanoes, weathering, erosion) and place them on simple spatial and time scales using visual cards.	I can describe how different geoscience processes change Earth's surface over various sizes and timeframes using graphic organizers and sentence starters.	I can construct a written, evidence-based explanation demonstrating how large-scale and small-scale geoscience processes reshape Earth's surface across both fast and slow time scales.

LT3	I can label warm and cold areas on a globe model and use arrows to show how sunlight and Earth's rotation move air and water using visual guides.	I can use a model to describe how unequal solar heating and Earth's rotation drive ocean and air currents to form regional climates using sentence frames.	I can develop and explain a complex model illustrating how unequal heating and the Coriolis effect drive atmospheric and oceanic circulation patterns to shape global and regional climates.
LT4	I can record weather data (temperature, rain, air pressure) using visual charts and show how colliding air masses change local weather using icon cards.	I can collect and track weather data to explain how interactions between different air masses lead to predictable weather changes using structured data logs and sentence starters.	I can analyze original weather data to construct an evidence-based explanation detailing how the movement, density differences, and collisions of air masses generate specific weather conditions.
LT5	I can select solution pictures and label simple ways to track and reduce human pollution or damage to an environment using graphic organizers.	I can design a plan to monitor and minimize a specific human impact on the environment using a guided engineering template and sentence frames.	I can apply scientific concepts to design, evaluate, and defend a comprehensive method for continuously monitoring and reducing a human impact on an ecosystem.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences See: Grade 6 - MS Science Instructional Guide
Learning Sequence 1: 2 Days			
1-2	**Learning Target 1** I can identify factors that create severe weather systems.	**Phenomena Launch** • I can ask questions about destructive weather. • I can generate ideas to explain the factors of destructive weather.	
Learning Sequence 2: 5 Days			
3-5	**Learning Target 2** I can construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales	• I can identify the steps of the water cycle. • I can identify the factors that influence the cycle of water. • I can describe the role gravity and the sun's energy play in the water cycle	
6	**Flex Day**		
7	**Water Cycle Quiz (MS-ESS2-4)**		
Learning Sequence 1: 13 Days			
8-18	**Learning Target 3** I can develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of *atmospheric* and oceanic circulation that determine regional climates.	• I can analyze weather/climate data to make sense of it. • I can find locations that are on the same latitude. • I can describe the geography of 4 different locations across the United States at the same latitude. • I can describe how altitude and ocean current impact weather at various locations	
19	**Flex Day**		
20	**Common Formative or IAB Practice**		
Learning Sequence 1: 12 Days			
21-29	**Learning Target 3** I can develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and *oceanic circulation* that determine regional climates.	• I can explore the relationship between wind patterns and ocean currents. • I can explain the role of water in climate for the two coastal locations. • I can draw a model to describe the movement of energy in creating severe weather/climate.	

30	**Flex Day**	
31	**Regional Climates Quiz (MS-ESS2-6)**	
Learning Sequence 1: 11 Days		
32-40	**Learning Target 4** I can collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions	• I can explore high and low pressure areas • I can explain the motions and interactions of different air masses. • I can use high and low pressure as predictors for weather conditions
41	**Flex Day**	
42	**Weather Conditions Quiz (MS-ESS2-5)**	
Learning Sequence 1: 11 Days		
43-53	**Learning Target 5** I can apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.	• I can identify human actions that contribute to the greenhouse effect. • I can draw a model showing the impact of the greenhouse effect on weather and climate.
54	**Flex Day**	
55	**Human Impact Quiz ((MS-ESS3-3)**	
56	**Flex Day**	
57	**EOU Assessment**	
58	**IAB Practice**	

NOTE: *IAB can be given at a different point in the unit and all flex days can be used strategically throughout the unit if needed.*

Unit Title	
Unit 3: Sound, Light & Technology Waves	
Relevant Standards	
MS-PS4-1: Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. MS-PS4-2: Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. MS-PS4-3: Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.	
Essential Question(s)	**Enduring Understanding(s)**
• How do wave properties describe how energy moves and behaves? • What happens when light and sound waves encounter different materials and media? • How do living organisms use the physical properties of sound waves to communicate and survive in their environments? • How can waves be used to send messages, and why are digital signals more reliable than analog signals?	• Waves are repeating patterns of motion that transfer energy from place to place without transferring matter. A wave's amplitude determines the amount of energy it carries (greater amplitude = greater energy), while changes in frequency directly alter its wavelength, pitch, and physical shape. • Animals (such as whales) rely on the behavior of sound waves in physical media to send and receive messages over long distances, using variations in frequency, pitch, and amplitude to fulfill essential biological functions. • When waves meet different materials or travel through new media (solids, liquids, gases, or vacuums), their path and speed change as they are reflected (bounced), absorbed (taken in), or transmitted/refracted (passed through and bent). • Information can be encoded into wave patterns; however, converting continuous analog signals into discrete digitized signals (binary code) makes data transmission far more reliable, precise, and resistant to noise or degradation over long distances.
Demonstration of Learning	**Pacing for Unit**
Various models, quizzes, labs, tests, projects (see Lesson Sequence and Grade 6 - MS Science Instructional Guide)	Trimester 3
Family Overview (link below)	**Integration of Technology:**
Grade 6 Science - Family Overview	OpenSci Ed Virtual Labs Gizmos Demonstration PhEt Simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Amplitude, barrier, bending, brightness, coded, color, communicate, computer, conversion/convert, crest, decode, device, digitize, electricity, electromagnetic, encode, filter, force, frequency, kinetic energy, lens, light wave, machine, mechanical waves, medium, mirror, path, prism, propagation, proportional, radio wave, ray, refracted, resting position, sound wave, speed, trough, transparent, visible light, wavelength	See Instructional Guide - Grade 6 - MS Science Instructional Guide (rev. 2026)
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
Common Core Standards Connections **ELA/Literacy** RST.6-8.1: Cite specific textual evidence to support analysis of science and technical texts.	• High Frequency means high volume and vice versa • Sound travels fastest in air because there are fewer particles in the way. • Absorbed light simply disappears inside an object. • Light requires a physical medium (like air) to travel, just

WHST.6-8.1: Write arguments to support claims with clear reasons and relevant evidence. RST.6-8.9: Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. WHST.6-8.9: Draw evidence from informational texts to support analysis, reflection, and research. **Math** MP.2: Reason abstractly and quantitatively. MP.4: Model with mathematics. 6.NS.C.5: Positive and negative numbers in context 6.RP.A.1 & 3/7.RP.A.2 Understanding and using ratios and proportions	like sound waves do. • Loudness/amplitude and pitch/frequency are dependent on each other • In the Doppler Effect, the moving object itself changes the actual frequency/pitch it is producing. • Waves move physical matter from one location to another. • Analog signals are automatically inferior in every scenario because they are older technology.
Connections to Prior Units	**Connections to Future Units**
N/A	High School Physical Science

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Mystery of the Ocean Song" listening to underwater whale vocalizations and investigating how sound travels vast distances through dark water.	Structural diagram illustrating sound wave propagation through a water medium, from whale sound source to receiving whale.	Draw an initial conceptual diagram or construct a digital model mapping how whale sound waves travel through ocean water to convey messages.
LT2	"Slinky & Rope Energy Lab" shaking springs with varying force to observe how input energy changes wave height (amplitude).	Wave anatomy visual (crest, trough, wavelength, amplitude) paired with proportional energy charts showing Energy = Amplitude^2 relationships.	Graph wave amplitude data collected from simulations or slinky labs and write a mathematical description linking wave height to total energy.
LT3	"Soundproofing & Light Box Challenge" shining light and sending sound through mirrors, clear glass, black felt, cardboard, and water.	Ray and wave behavior diagrams showing reflection (bouncing back), absorption (energy captured), and transmission (passing through).	Build a physical or digital interaction model illustrating how light or sound waves behave when hitting different material barriers.
LT4	"Static vs. Binary Challenge" comparing sound distortion on fuzzy vinyl records/landlines against clear digital audio streams and pixel codes.	Comparative signal chart contrasting continuous analog waves (vulnerable to noise and degradation) with discrete digital binary codes (0s and 1s).	Write a Claim-Evidence-Reasoning (CER) argument or construct a technical comparison poster explaining why digitized signals offer more reliable data transfer.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can draw a simple diagram showing sound waves traveling through water between two whales using pre-made labels and arrows.	I can create a labeled model to describe how whale sound waves travel through ocean water to send messages, using sentence frames.	I can construct and explain a detailed initial model illustrating how sound wave emission, transmission through water, and reception enable whale communication over distances.
LT2	I can count wave height (amplitude) on a simple grid and match higher waves to "more energy" picture cards.	I can use a grid graph to measure wave amplitude numbers and describe how higher amplitude means higher energy using sentence frames.	I can use mathematical ratios and graphical models to quantify and prove the non-linear relationship between wave amplitude and wave energy.
LT3	I can match picture cards to show light or sound waves bouncing (reflecting), stopping (absorbing), or passing through (transmitting) different materials.	I can build and use a model to describe how waves reflect, absorb, or transmit through various materials using a structured chart and sentence starters.	I can develop and explain a comprehensive model demonstrating how wave energy is reflected, absorbed, or transmitted depending on the physical properties of different materials.
LT4	I can sort cards showing analog (smooth) and digital (0s and 1s) signals and choose simple evidence cards showing why digital signals have less	I can gather text evidence to write a simple claim explaining why digitized signals are more reliable than analog signals using a graphic organizer and	I can integrate qualitative evidence from scientific sources to construct a written argument supporting the claim that digitized signals transmit

	noise.	sentence starters.	information more reliably with less noise degradation than analog signals.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences See: Grade 6 - MS Science Instructional Guide
Learning Sequence 1: 2 Days			
1-2	**Learning Target 1** I can create an initial model to explain how whales communicate.	**Phenomena Launch** • I can brainstorm possible reasons why animals communicate. • I can analyze whale sounds to determine possible communications.	
Learning Sequence 2: 18 Days			
3-20	**Learning Target 2** I can use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave	• I can break down the diverse ways whales use sound for different functions. • I can revise my initial model of whale sounds using my new knowledge of frequency • I can explain how energy transfers to create waves and analyze the factors that change wave frequency • I can identify the properties of a wave and explain how changing amplitude, frequency, and speed alters its behavior • I can describe how changes to the frequency affect the shape (wavelengths) of a wave • I can construct accurate, scale models of waves based on specific mathematical properties and constraints.	
21	**Flex Day**		
22	**Energy and Amplitude Quiz (MS-PS4-1)**		
Learning Sequence 3: 10 Days			
23-31	**Learning Target 3** I can develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. *(MS-PS4-2 Part 1: sound waves)*	• I can differentiate between the various states of matter • I can explain/describe how a medium affects the movement of sound waves • I can explain how a moving source affects the apparent frequency and wavelength of sound waves • I can mathematically model the Doppler Effect by calculating and comparing the changes in frequency and wavelength from a moving sound source • I can explain how an object exceeding the speed of sound generates a shock wave and results in a sonic boom.	
32	**Flex Day**		
33	**Common Formative Assessment or IAB Practice**		
Learning Sequence 4: 6 Days			
34-38	**Learning Target 3** I can develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. *(MS-PS4-2 Part 2: light waves)*	• I can use evidence from a hands-on investigation to construct an argument for how light wave behavior changes when it interacts with different materials. • I can gather evidence by observing how a light beam's path changes when it travels through different media (such as air, water, and glass).	
39	**Flex Day**		
40	**Wave Properties Quiz (MS-PS4-2)**		
Learning Sequence 5: 7 Days			
41-47	**Learning Target 4** I can integrate qualitative scientific and technical information to support	• I can distinguish between analog and digital technologies by comparing how they display, record, and transmit information	

	the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.	• I can simulate and compare how analog and digital signals encode and transmit information. • I can write a well-structured argument that compares analog and digital signals and explains why digital technology is more reliable for transmitting information.
48	**Flex Day**	
49	**Technology Waves Quiz (MS-PS4-3)**	
50	**Flex Day**	
51	**EOU Assessment**	

NOTE: *All flex days can be used strategically throughout the unit if needed.*

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
Grade 7 Science	Science	7	N/A (Middle School Course)

Course Description:

This course utilizes an inquiry-based framework grounded in national standards to foster advanced analytical and scientific literacy skills. Throughout the academic year, students engage in evidence-based scientific and engineering practices (including modeling phenomena, interpreting data, and constructing arguments) across four comprehensive disciplines of study.

Throughout the year, students investigate how living, physical, and Earth systems work together through the lens of structure, function, and interaction. Beginning with the organization of life from cells to body systems, learners explore how parts interact to maintain balance and respond to change. They then turn to Earth's dynamic systems, using Mt. Everest as a model to uncover how internal and external forces shape our planet. Building on these ideas, students apply Newton's Laws of Motion to design and test rollercoasters, connecting physics to real-world engineering. The course culminates in the Congo Medicine Drop challenge, where students use scientific reasoning and design thinking to solve global problems through innovation and teamwork. Across all units, inquiry, collaboration, and hands-on investigation empower students to see science as an interconnected process that explains and improves the world around them.

Aligned Core Resources:	**Connection to the *BPS Vision of the Graduate***
Grade 7 - MS Science Instructional Guide Next Generation Science Standards (NGSS) Cluster/Item Specifications Specifications for Middle School • MS-LS1: From Molecules to Organisms: Structures and Processes • MS-ESS2: Earth's Systems • MS-PS2: Motion and Stability: Forces and Interactions • MS-PS3: Energy • MS-ETS1: Engineering Design	**Meaningfully Contribute to a Global Society** Collaboration during labs and inquiry related activities, social and cross-cultural skills during small and large group discussions and activities **Effectively Communicate in a Global Society** Media literacy through lab activities, investigations and projects, communication, information literacy **Demonstrate Academic Knowledge and Skills** Checking content mastery through labs and assessments, opportunities for critical thinking and problem solving during independent and group analysis
Additional Course Information: ***Knowledge/Skill Dependent courses/prerequisites***	**Link to *Completed Equity Audit***
N/A	Equity Curriculum Review Audit (Gr. 6-8 Science)

Standard Matrix

Standard		Unit 1	Unit 2	Unit 3	Unit 4
MS-LS1-1	Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.	✔			
MS-LS1-2	Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.	✔			
MS-LS1-3	Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.	✔			
MS-LS1-8	Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.	✔			
MS-ESS2-1	Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.		✔		
MS-ESS2-2	Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales		✔		
MS-ESS2-3	Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions.		✔		
MS-PS2-1	Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.			✔	
MS-PS2-2	Plan an investigation to provide evidence that the change in an object's			✔	

	motion depends on the sum of the forces on the object and the mass of the object.				
MS-PS2-3	Ask questions about data to determine the factors that affect the strength of electrical and magnetic forces.			✔	
MS-PS2-4	Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.			✔	
MS-PS3-1	Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object			✔	
MS-PS3-2	Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.			✔	
MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions			✔	
MS-ETS1-1	Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.				✔
MS-PS3-4	Plan an investigation to determine the relationships among energy transferred, type of matter, mass, and change in the average kinetic energy of particles, as measured by the temperature of a sample.				✔
MS-PS3-5	Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object				✔
MS-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.				✔
MS-ETS1-4	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.				✔

Unit Links	
Grade 7 Science Unit 1: Body Systems Unit 2: Mt Everest Unit 3: Rollercoasters Unit 4: Congo Medicine Drop	Use of Instructional Time (181 School Days) ➔ Maximum of 177 Content and Assessment Days ➔ 2 Culture and Climate Days at the start of the year ➔ 2 half-days before long school breaks

Unit Title	
Unit 1: Body Systems	
Relevant Standards	
MS LS1-1: Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. MS LS1-2: Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. MS LS1-3: Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. MS LS1-8: Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.	
Essential Question(s)	**Enduring Understanding(s)**
• How do injuries affect our body from the cellular to the systems level? • What characterizes living organisms? What characteristics of life can be impacted by injury? How might this affect living things? • How do the parts of a cell work together as one functioning unit? How do injuries impact cells and their functions? • How do the body systems interact? How does an injury in one system impact other systems? • What are sense receptors and how do they work? • How do sensory receptors play a role in preventing injury?	• An injury disrupts the structure and function of cells, tissues, and organ systems, triggering a coordinated biological healing process across multiple scales to repair damage. • All living organisms share fundamental characteristics, including cellular organization (being unicellular or multicellular), growth, and the ability to respond to their environment. • A cell operates as an integrated system where specialized organelles perform distinct, complementary functions necessary to sustain cellular life • Multi-cellular organisms are organized hierarchically (from cells to tissues, organs, and organ systems), where individual systems continuously interact and depend on one another to maintain life • Sensory receptors are specialized cells that detect external and internal stimuli and transmit signals through the nervous system to generate body responses. • Sensory receptors detect potential hazards or pain, rapidly sending nerve signals to trigger voluntary or involuntary responses (such as reflexes) that protect the body from damage.
Demonstration of Learning	**Pacing for Unit**
3 Common Assessments (via Pear Assessment) 1 End of Unit Assessment (Performance Task)	51 Days
Family Overview (link below)	**Integration of Technology:**
Grade 7 Science - Family Overview	Open SciEd Virtual Labs Gizmos Demonstration PhET simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Multicellular, unicellular, tissues, organ, system, organism hierarchy, bacteria, colonies, yeast, biotic, abiotic, prokaryote, eukaryote, magnify, microscope, DNA, nucleus, cell wall, cell membrane, algae, chloroplast(s), chromosomes, mitochondrion, diffusion, osmosis, semi-permeable, photosynthesis, cellular respiration, sugar, RNA, energy, cytoplasm, organelle, organization, organ system, response, internal cue, life-sustaining functions, muscular system, anatomy, aorta, artery, automatic, bone, bone marrow, brain, brain stem, cerebellum, cerebrum, circulatory system, connective tissue, cornea,	Non-Consumable • Plant Animal Cell Mystery kit • 3D model of animal and plant cells • 3D models of the human body • Clear slides • Human skeleton model • Microscopes • Rulers • Slides (animal cell (unicellular and multicellular) plant cells, human body cells, • Access to computers for student research • Access to Smartboard and videos • Blindfolds - class set • Calculators • Eye droppers • Triple beam balance or digital balance • White boards • Whiteboard erasers • Stop watches

digestive system, gland, lens, muscle, muscle cell, reflex, sensory, skeletal system, tissue, respiratory system, vertebrate, invertebrate, reproduction, breed, heart, lungs, heart rate, memory, perception, transmit, accuracy, immediate, nerve, receptor, sense receptor, sensory, behavioral response to stimuli, electromagnetic, stimulus, short-term memory, long-term memory, salt, sour, sweet, bitter, nervous system, taste, smell, touch, hear, sight	blood cells, letter e and/or colored string slides) • Stethoscopes Consumable • Cell stain dyes • Chart paper • Colored pencils • Coverslips • Eggs • Index cards • Karo syrup • Legal sized papers • Long swabs • Markers • String • Student composition notebooks • Vinegar • White board markers • Food coloring • Graph paper • Highlighters • White lined paper • Plastic cups clear • Parafilm or saran wrap • Pipettes disposable • Plastic Spoons • Post-it notes •

Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
• Students will meet multiple writing and speaking ELA standards throughout the unit culminating in the formal debate at the end of the unit • Students collect and interpret data from heart rate labs, and create graphs using that data. Ties into Math standards • Students craft lab reports, CER (Claim-Evidence-Reasoning) responses, and design proposals using clear structure and evidence. (ELA)	• Scale and size of cells • Cell organelles and design • Living things are not just humans but includes animals and plants, etc • Not every living organism breathes and needs oxygen, has a heart or blood, has eyes etc
Connections to Prior Units	**Connections to Future Units**
N/A	Size and scale will connect to Unit 2

Enduring Understandings: Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Papercut to Scab" investigation tracking the step-by-step microscopic and macroscopic changes that occur when skin is damaged.	Multi-scale visual diagram showing injury and repair progression across levels: damaged cells -> clotting tissue -> circulatory and immune system response.	Create a labeled comic strip or step-by-step digital storyboard depicting cellular repair and tissue healing following a minor injury.
LT2	Is It Alive?" station lab comparing seeds, yeast, water, robot toys, and crystals under different environmental conditions.	Comparative chart and Venn diagram contrasting unicellular organisms (e.g., amoeba) with multicellular organisms (e.g., humans) across life traits.	Sort physical card sets of mystery items into living vs. non-living categories with written evidence, or record a video justification
LT3	City Analogy mapping individual cell parts (nucleus, membrane, mitochondria) to real-world operational roles.	Interactive 3D cell diagram and functional flowchart displaying key organelles (nucleus, membrane, cytoplasm, mitochondria, vacuole) working together.	Construct a 3D physical cell model or write a comparative "job profile" portfolio detailing how organelles depend on one another.
LT4	"Body System Teamwork" simulation demonstrating how the digestive and circulatory systems cooperate to deliver nutrients to working muscle cells.	Nested organizational pyramid (cell -> tissue -> organ -> organ system -> organism) paired with system interaction flowcharts.	Design an explanatory infographic or presentation tracing how a necessary resource (like oxygen or sugar) moves from an organ system down to an individual cell.
LT5	"Mystery Sensory Box" investigation testing touch, smell, and sound reception to trace how body senses collect information.	Signal pathway diagram mapping the pathway: Stimulus -> Sensory Receptor -> Sensory Neuron -> Brain -> Motor Neuron -> Response.	Draw a labeled pathway map or record a screencast explaining how a specific sensory receptor (sight, touch, or hearing) sends messages to the brain.

LT6	"Ruler Drop & Hot Surface Reflex Challenge" measuring reaction speeds and comparing voluntary choices to involuntary reflex actions.	Reflex arc diagram contrasting rapid involuntary spinal cord loops (protective reflexes) with slower voluntary brain processing routes.	Write a Claim-Evidence-Reasoning (CER) paragraph or script a short skit explaining why reflexes bypass conscious brain decisions to prevent injury.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can match pictures of an injury to affected body parts and label basic changes using a word bank.	I can describe how an injury disrupts cells, tissues, and organs using a graphic organizer and sentence starters.	I can explain in detail how an injury disrupts the structure and function of cells, tissues, and organ systems across multiple scales.
LT2	I can sort items into living and non-living groups and match visual cards to basic characteristics of life.	I can describe the shared characteristics of living things (cells, growth, response to environment) using sentence frames.	I can analyze whether an unknown specimen is living or non-living by evaluating all fundamental characteristics of life in a written response.
LT3	I can label cell organelles and match their pictures to simple job cards using a visual word bank.	I can describe how different cell organelles work together to keep a cell alive using an analogy chart and sentence starters.	I can explain in detail how specialized organelles function as an integrated system to sustain cellular life.
LT4	I can match body system pictures and trace connections between two systems using color-coded arrows.	I can describe how two or more body systems work together to perform a life function using cause-and-effect sentence frames.	I can analyze and explain how multiple body systems continuously interact and depend on each other to maintain overall body function.
LT5	I can label sense organs and trace a signal path from stimulus to brain using visual cards and arrows.	I can describe how sensory receptors detect stimuli and send nerve signals to the brain using a flowchart and sentence starters.	I can explain in detail how specialized sensory receptors detect internal and external stimuli and transmit signals through the nervous system to generate a body response.
LT6	I can match picture cards of dangerous situations (hazards/pain) to quick protective body reactions.	I can describe how pain receptors trigger rapid voluntary or reflex responses to protect the body using graphic organizers and sentence frames.	I can evaluate and explain how sensory receptors detect hazards and send fast neural signals to trigger protective responses (such as reflexes) that prevent injury.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences Grade 7 - MS Science Instructional Guide
Learning Sequence 1: Introduction (4 days)			
1	**Learning Target 1** I can explain how an injury affects the body.	• I can identify an injury I have/had and explain how it impacted other parts of my body. • I can ask scientific questions to help me understand how my injury changed over time.	
2		• I can read an emergency report to gather information on an injury sustained by a middle school student	
3		• I can analyze a doctor's report and develop and start to develop an idea of how the body heals	
4		• I can develop an initial model to show how the body heals.	
Learning Sequence 2: Characteristics of Life (9 Days)			
5-8	**Learning Target 2** I can describe the characteristics that living things possess.	• I can investigate what it means to be alive. • I can list and explain the characteristics of living things.	
9-10		• I can distinguish between different types of cells	
11		• I can classify a living thing as unicellular or multicellular • I can explain why unicellular and multicellular organisms have differences in their cells.	

12-13		• I can properly use a microscope to identify/make observations of different types of cells
Learning Sequence 3: Cell Structure (15 Days)		
14-25	**Learning Target 3** I can explain how the parts of a cell work together as a functioning unit.	• I can identify the parts of a cell and their unique function. • I can explain how the organelles contribute to the cell system as a whole.
26		• I can predict the impact an injury can have on cells of the body.
27-28		• I can describe how the structure of the cell membrane affects the function of a cell as a whole.
Learning Sequence 4: Body Systems (13 Days)		
29-41	**Learning Target 4** I can explain how body systems interact.	• I can identify and organize levels of organization within living things. • I can examine specialized cells in each of the body systems (skeletal, muscular, circulatory, digestive, respiratory) and describe their functions within the correlating body system. • I can describe the components and function of each body system. • I can develop an explanatory model to show how (circulatory, respiratory, digestive, skeletal, muscular) systems work together to support the body as a whole.
Learning Sequence 5: Sensory Receptors (7 Days)		
41-43	**Learning Target 5** I can explain what sense receptors are and how they work.	• I can explain the role of the nervous system in controlling body responses. • I can model the components of the nervous system. • I can compare voluntary and involuntary responses in the body.
44-47	**Learning Target 6** I can explain how sensory receptors play a role in preventing injuries.	• I can explain how sensory experiences create a response in the body. • I can create a model explaining a sensory response at the cellular, tissue, and systems levels (scale/systems).
Culminating Performance Task (3 Days)		
47-49	Students engage in a debate about whether or not youth sports should be full contact	
50	**Flex Day**	
51	**End of Unit Assessment**	

Unit Title

Unit 2: Mt Everest

Relevant Standards

MS-ESS2-1: Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
MS-ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales
MS-ESS2-3: Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions.
MS-ESS3-1: Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
MS-ESS3-2: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

Essential Question(s)	Enduring Understanding(s)
• Why are there marine fossils on the top of Mount Everest? • What evidence do we have that Earth has changed over time? • How do plates move? • What effects does plate movement have on Earth's surface? • How and why does the surface of the Earth change? • What geologic forces shape the Earth? • What are natural hazards and how can we predict them?	• Plate movement across the Earth's surface has caused the phenomenon of various landforms having unexpected features based on their present-day locations • Earth is made of moving plates that move great distances, collide, and spread apart over long periods of time • Tectonic processes make new sea floor at ocean ridges and destroy sea floor at ocean trenches • Matter cycles and energy flows on Earth to cause changes in Earth's materials • Moving water on the surface and underground causes weathering and erosion • Weathering and erosion create and destroy landforms and change Earth's surface • Understanding geologic forces helps predict natural hazards such as earthquakes and volcanoes • Mapping history can predict future natural hazards
Demonstration of Learning	**Pacing for Unit**
4 Formative Assessments 1 End of Unit Assessment	49 Days
Family Overview (link below)	**Integration of Technology:**
Grade 7 Science - Family Overview	Open SciEd Gizmos Demonstrations PhEt Simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Collide, heat conduction, transform, transport, heat transfer, heat radiation, thermal energy, heat convection, precipitation, volcanic eruption, chemical, weathering, erosion, sediment, deposition, rock cycle, ice wedge, fault, fold, igneous rock, metamorphic rock, sedimentary rock, volcanic rock, plate tectonics, crust, mantle, outer core, inner core, earthquake, volcanic eruptions, core, pressure, continent, erosion, weathering, magma, lava, igneous, sedimentary, metamorphic, mineral, meteor, crater, continental drift, divergent boundary, convergent boundary, hot spot, fault, tsunami, hurricane, tornado, fracture, folding, compressing, sea floor spreading, layer, ridge, trench, plateau, slope, landslides, floods, caves, convection, density, plate tectonics, geosphere, element, continental, upwelling, convection,	Non-Consumable • 3D model of Earth's layers • Access to computers for student research • Access to Smartboard and videos • Calculators • Earth timeline kit for hallway wall • Fan • Glass jars • Whiteboard erasers • Ice Cube trays • Marble • Marine fossil kits • Pennies • Rulers • Stop watches • Trays • Triple beam balance or electronic scales • White boards Consumable • Rubbing alcohol • Baby oil • Plastic baggies • Plastic knives

subduction, ridge, volcanic, sedimentary, fault, extension, volcanic rock, sedimentary rock, metamorphic rock, agricultural, biosphere, conservation, consumption, deposition, distribution, efficient, energy source, geologic trap, hydrothermal, impact, interdependence, marine sediment, metal ore, organic, petroleum, regulation, renewable energy, subduction zone.	• Chart paper • Clay • Colored pencils • Food coloring • Graph paper • highlighters • Index cards • Legal sized papers • Markers • Milky Ways • molasses • Paper towels • White lined paper • Whiteboard markers • Playdough • Post-it notes • Salt • Sand • Soil • Straws • Student composition notebooks • Sugar cubes • Various fabrics to prevent erosion • Vegetable oil • Vinegar
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
• Calculating scale models and density reinforces precision and unit conversions via Math standards • Students craft lab reports, CER (Claim-Evidence-Reasoning) responses, and design proposals using clear structure and evidence. (ELA)	• Weathering and erosion are the same thing • Earth does not change • Size and scale of land formations
Connections to Prior Units	**Connections to Future Units**
Teachers can connect Mechanical and Chemical Weathering to Mechanical and Chemical Digestion, which was taught in the Body Systems unit.	In this unit students are taught how the density of magma inside the mantle affects plate movement. During Bundle 4 (Congo Drop), students are exploring and discussing the density of molecules in different states of matter. They use this knowledge to design a vaccine storage container kept at an optimal temperature.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Everest Extreme Lab" exploring weather surges, moving glaciers, avalanches, and active mountain growth on the world's highest peak.	Interactive environment map detailing active geologic, atmospheric, and ice (cryosphere) interactions at high altitude.	Write a dynamic system summary or construct a multi-layer diagram illustrating how Mt. Everest is constantly changing.
LT2	"Fast vs. Slow Earth Time" comparing rapid events (avalanches, earthquakes) with the millions of years required to form the Himalayas.	Dual-scale geologic timeline contrasting sudden changes (seconds to days) with slow, deep-time processes (millions of years).	Construct an annotated timeline plotting key events in Everest's geological history across rapid and gradual time scales.
LT3	"Himalayan Cascade Simulation" modeling how underground fault slips trigger surface avalanches, landslides, and river blockages.	Cause-and-effect flowchart mapping system interactions (e.g., tectonic stress -> earthquake -> slope failure -> river damming).	Analyze an environmental event scenario and write predictions using a cause-and-effect chain diagram or written justification.
LT4	"Continental Collision Lab" pushing clay/foam layers together to simulate how the Indian and Eurasian plates crumple and lift land upward.	Cross-section tectonic diagram showing convergent boundary collision, crustal buckling, and high-altitude mountain uplift.	Draft a Claim-Evidence-Reasoning (CER) report or construct a physical/digital cross-section explaining how plate movement built Everest.
LT5	"Global Earthquake Tracker" plotting real-time seismic data to spot patterns along plate boundaries around the world.	World tectonic map overlay connecting plate boundary types (convergent, divergent, transform) to seismic and mountain-building hot spots.	Analyze tectonic movement data to predict future changes in Everest's height and locate high-risk earthquake zones along convergent boundaries.
LT6	"Glacier Carving & Freeze-Thaw Lab" testing how expanding ice breaks rocks apart and sliding glaciers carve out mountain valleys.	Weathering and erosion diagram detailing freeze-thaw physical weathering, glacial carving (U-shaped valleys), and meltwater sediment transport.	Sketch labeled diagrams or record a video explanation detailing how liquid water and ice reshape Everest's rock structures over time.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can match pictures and label factors (extreme weather, moving glaciers, earthquakes) showing Mt. Everest is constantly changing, using a word bank.	I can describe how freezing weather, moving ice, and tectonic forces make Mt. Everest a changing environment using sentence starters and graphic organizers.	I can explain in detail how interacting Earth systems (atmosphere, hydrosphere, geosphere) make Mt. Everest - a dynamic, continually changing environment.
LT2	I can sort pictures of Earth changes onto a timeline into "fast" (earthquakes, avalanches) or "slow" (mountain uplift, erosion) groups using visual cards.	I can use a geological timeline to describe how Earth processes occur over fast and slow time scales using structured templates and sentence frames.	I can analyze a geological timeline to evaluate and explain how Earth's systems change over varying time scales, from sudden events to millions of years.
LT3	I can match cause-and-effect picture cards showing Earth events (e.g., heavy snow -> avalanche; plate collision -> mountain building).	I can describe cause-and-effect relationships in Earth's systems to predict geological events using sentence frames ("If [cause] occurs, then [effect] will happen because...").	I can analyze cause-and-effect relationships across Earth's systems to predict and justify future geological phenomena in a written response.
LT4	I can label plate movements (crashing, pushing up) on diagrams and match them to visual features like mountain ranges using word banks.	I can describe how tectonic plate movement changes Earth's surface and builds mountains over time using graphic organizers and sentence starters.	I can construct a detailed explanation proving how plate tectonics and continental collisions reshape Earth's surface and uplift mountain ranges like Mt. Everest over time.
LT5	I can match plate boundary symbols (convergent, divergent, transform) on a world map to locations of earthquakes or volcanoes using a map key.	I can use patterns along plate boundaries to predict where future earthquakes or mountain growth will happen using map templates and sentence starters.	I can evaluate global plate boundary patterns to explain geological phenomena and predict future tectonic events and landform changes.
LT6	I can label how water and ice change rocks and soil (freezing, melting, carrying away) on diagrams using visual word cards.	I can describe how water and ice break down rocks (weathering) and move materials (erosion) on Mt. Everest using flowcharts and sentence frames.	I can explain in detail how water in liquid and solid states drives weathering, erosion, and glacial carving to reshape Earth's surface materials.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences Grade 7 - MS Science Instructional Guide
Learning Sequence 1: Introduction to the Anchor Phenomenon (7 Days)			
1-7	**Learning Target 1** I can explain what makes Mt. Everest a dynamic environment.	• I can differentiate between biotic and abiotic factors of Mount Everest • I can formulate questions that explain how fossils were found on the top of Everest. • I can develop an initial model to describe the changes to Mt Everest over time.	
Learning Sequence 2: Earth's Change Over Time (4 Days)			
8-11	**Learning Target 2** I can use a geological timeline to show how Earth's systems change quickly or slowly over time.	• I can differentiate between Earth's four major spheres; biosphere, hydrosphere, atmosphere, and geosphere and describe interactions among them. • I can identify an event (sphere interactions) in Earth's history as microscopic, global, fast, or slow. • I can create a model of how Earth has changed over time. • I can use size and scale to describe the formation and changes related to Mt Everest.	
Learning Sequence 3: Earth's Dynamic Continents (10 Days)			
12-21	**Learning Target 3** I can use cause and effect relationships to predict phenomena in Earth's systems.	• I can investigate how the continents were arranged. • I can observe and analyze scientific evidence used by Wegener. • I can read and interpret maps and map symbols. • I can use the evidence on the puzzle pieces (land shape, rock type, fossil type) to try to reconstruct the continents.	

		• I can interpret the evidence to formulate a hypothesis on why the continents were once together. • I can read an article on Alfred Wegener and his Continental Drift Theory and discuss the strengths and weaknesses of his theory. • I can predict how today's continents might shift millions of years from now.
Learning Sequence 4: Earth's Interior Layers (3 Days)		
22-24	**Learning Target 4** I can explain how Earth's surface changes over time and how plate movement affects the surface.	• I can investigate whether the same types of earth materials exist on the surface and deep below the top of Mt. Everest. • I can read about core samples, investigate and compare rock samples, and observe the surface and underground characteristics of various mountains. • I can investigate the Earth's layers and explain how convection contributes to plate tectonics. • I can construct and label a foldable model of the Earth's layers.
Learning Sequence 5: Plate Boundaries/Geological Events (9 Days)		
25-33	**Learning Target 5** I can use patterns of Earth's movement to predict future events and explain how plate boundaries relate to geological phenomena.	• I can identify types of plate boundaries and what forms at each type. • I can identify where earthquakes and volcanoes would occur on a map. • I can predict where and when a catastrophic event will occur. • I can use graphs, charts, and images to identify patterns in data. • I can identify cause and effect relationships used to predict phenomena in natural or designed systems.
Learning Sequence 5: Weathering and Erosion (11 Days)		
34-44	**Learning Target 6** I can explain how water affects Earth's materials and surface processes.	• I can define and identify examples of weathering and its types. • I can define and identify erosion and deposition and what causes it. • I can explain stability and change in natural or designed systems that are constructed by examining the changes over time and processes at different scales, including the atomic scale.
Culminating Performance Task (3 Days)		
45-47	Students create a virtual or physical animation on how Everest was formed	
48	**Flex Day**	
49	**End of Unit Assessment**	

Unit Title
Unit 3: Rollercoasters

Relevant Standards

MS-PS2-1: Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.
MS-PS2-2: Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.
MS-PS2-3: Ask questions about data to determine the factors that affect the strength of electrical and magnetic forces.
MS-PS2-4: Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.
MS-PS2-5: Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.
MS-PS3-1: Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object
MS-PS3-2: Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.
MS ETS1-1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

Essential Question(s)	Enduring Understanding(s)
• What concepts of physics/force and motion contribute to a well engineered roller coaster? • What causes objects to change their motion? • How is energy conserved? • How does energy define a successful roller coaster? • How do forces act in pairs? • How do the masses of objects and their distance from each other impact their gravitational pull? • How can magnetic forces defeat the pull of gravity?	• Forces always come in equal and opposite pairs (Newton's third law). • An object's motion changes when unbalanced forces are applied. Heavier objects are harder to speed up or slow down than lighter ones. • To measure motion accurately, we must all agree on a shared starting point (reference frame) and units of measurement. • Gravity is an attractive force between all objects with mass. It is most noticeable between very large objects. • Energy of motion (kinetic energy) increases with an object's mass and speed. • Energy can be stored in a system (potential energy) depending on the positions of objects. • Forces like gravity, magnetism, and electricity act across distances through invisible "fields."
Demonstration of Learning	**Pacing for Unit**
3 Formative Assessments 1 End of Unit Assessment 1 PBL Assessment (Roller coaster build/presentation)	46 Days
Family Overview (link below)	**Integration of Technology:**
Grade 7 Science - Family Overview	OpenSci Ed Virtual Labs Gizmos Demonstration PhEt Simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Conservation of momentum, energy transfer, transfer, force, balanced force, friction, direction of a force, impact, net force, inertia, action/reaction, gravity, acceleration, Newton, thrust, lift, applied force, balanced force, collision, force, unbalanced force, position over time, net force, attraction, conductor, electric current, electric field, electromagnetic field, electromagnet, frequency, induction, insulator, permanent magnet, polarity,	Non-Consumable • Balls that can be attached to a string (wiffle) • Basketball (could possibly be borrowed from gym) • Calculators • Coins (penny, dime, quarter) • Dropper poppers - enough for stations • Marbles • Matchbox cars/physics carts • Meter sticks/tapes/rulers • Newton's cradle - one for class • Ping pong balls • Some paper clips or other small magnetic objects

repulsion, resistance, voltage, orbit, magnitude, galaxy, solar system, satellite, force fields, ellipse, proportional, period, Conductor, electric charge, electric current, electric force, electromagnetic field, electromagnet, frequency, induction, insulator, magnetic field lines, magnetic force, permanent magnet, polarity, repulsion, resistance, voltage, direction, magnitude, ampere, charged particle, volts, gravity, Forms of energy, magnitude, motion energy, proportional, ratio, square root, potential energy, elastic collision, inelastic collision, Electron, proton, distribution of charged particles, electrical charge, negatively charged, positively charged, neutrally charged, magnetic polarity, conductor, insulator, electromagnet,	• Film canisters • Hockey pucks • Hole punch • Hand crank flashlight or radio • Iron filings • large iron nail (about 3 inches) • Launch tracks (2 per room) • Magnet sets (cube magnets, preferably strong, permanent magnets like neodymium) • Stop watches • string • Various balls and ramps - enough for stations • Recording device • Stuffed animals • Wooden blocks • Weights/ washers • White boards • Whiteboard erasers Consumable • About 3 feet of THIN COATED copper wire • Alka Seltzer • Balloons • Chart paper • Colored pencils • D size battery (new) • Graph paper • Highlighters • Index cards • Legal sized papers • Markers • notecards • Paper receipt tape • Pencils • Plastic cups • Plastic ziplock bags • Post-it notes • Student composition notebooks • White board markers • White lined paper

Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
• Calculating velocity reinforces precision and unit conversions. Via Math standards. • Rollercoaster design challenges integrate formulas for force, acceleration, and energy transfer, strengthening algebraic thinking. • Students craft lab reports, CER (Claim-Evidence-Reasoning) responses, and design proposals using clear structure and evidence. (ELA) • Group projects emphasize listening, discussion, and presentation skills aligned with speaking and listening standards. (ELA)	• That forces are only working when an object is moving • Gravity is due to mass between 2 objects • Balanced vs Unbalanced forces directions of movement • Mass and weight are the same concept
Connections to Prior Units	**Connections to Future Units**
N/A	When designing a medicine container in Unit 4, students may want to consider how fast the container will be falling.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Thrill Factor Challenge" analyzing POV videos of famous roller coasters to identify where riders feel weightless, pushed back, or pulled sideways.	Comprehensive force map labeling velocity vectors, normal force, friction, air resistance, and gravity throughout a coaster loop and drop.	Design a labeled schematic or present an analysis detailing how speed, direction, and forces interact to create a safe yet thrilling ride.
LT2	"Marble Acceleration Lab" launching marbles down tracks with varying slopes, surface textures, and obstacles to observe speed and direction changes.	Net force diagrams (Newton's 1st & 2nd Laws) illustrating how unbalanced forces cause acceleration, deceleration, or direction shifts.	Write a Claim-Evidence-Reasoning (CER) report or construct force diagrams explaining how unbalanced forces change a coaster car's motion.
LT3	"Energy Skate Park Simulation" tracking potential energy (PE) converting into kinetic energy (KE) and thermal energy loss via friction.	Energy transformation bar graphs (PE + KE + Thermal = Total Energy) mapped onto track heights (highest hill, loops, flat brakes).	Plot PE/KE values across key coaster track points and explain why initial hill height limits total energy available for the rest of the ride.
LT4	"Collision & Braking Lab" crashing	Newton's 3rd Law force pair diagrams	Draw labeled force-pair vectors for key

	sensors or carts together to observe equal and opposite reaction forces during impacts and stops.	highlighting interaction pairs (e.g., cart pushing track vs. track pushing cart, wheels on track, brakes on car).	coaster interactions and present a written or video explanation of equal and opposite forces.
LT5	"Magnetic Launch & Drop Challenge" testing magnetic braking systems vs. gravitational acceleration on different mass coaster carts.	Gravitational force models (mass and distance relationships) paired with magnetic field diagrams showing non-contact magnetic launch and braking mechanisms.	Create a comparative diagram or write an analysis detailing how cart mass affects gravity and how magnetic forces can launch or safely brake a coaster.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can match picture cards and label basic forces (push, pull, gravity, friction) on a roller coaster diagram using a word bank.	I can describe how forces like gravity and friction affect a roller coaster's motion using graphic organizers and sentence starters.	I can explain in detail how force, mass, and motion principles work together to design a safe and well-engineered roller coaster.
LT2	I can select pictures showing balanced forces (no motion change) vs. unbalanced forces (speed up, slow down, turn) using visual cards.	I can describe how unbalanced forces cause objects to speed up, slow down, or change direction using cause-and-effect sentence frames.	I can explain and justify how net forces and mass affect an object's speed and direction of motion using scientific principles.
LT3	I can label high points as "potential energy" and moving points as "kinetic energy" on a roller coaster track diagram using visual icons.	I can describe how potential energy transforms into kinetic energy as a coaster moves using sentence frames and energy bar charts.	I can explain in detail how energy is conserved (potential converting to kinetic and thermal/friction) to allow a roller coaster to complete its track.
LT4	I can draw matching arrows to show opposite push and pull forces on picture cards (e.g., cart pushing on track, track pushing on cart).	I can describe how forces always act in equal and opposite pairs using sentence starters ("When Object A pushes on Object B...").	I can explain and evaluate how force pairs (action-reaction) act on interactive objects within a roller coaster system.
LT5	I can match cards to show that heavier or closer objects have more gravity, and label magnetic brakes stopping a coaster using a visual key.	I can describe how mass and distance change gravitational force, and how magnetic forces work against gravity to slow a coaster using sentence frames.	I can explain in detail how mass and distance affect gravitational pull and how magnetic fields interact with gravity to control coaster motion.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences Grade 7 - MS Science Instructional Guide
Learning Sequence 1: Introduction to the Anchor Phenomenon (1 Day)			
1	**Learning Target 1** I can explain the concepts of physics, force, and motion that contribute to a well-engineered roller coaster.	• I can develop an initial model to describe how a well designed roller coaster works. • I can formulate questions to explain how a roller coaster works?	
Learning Sequence 2: Inertia and Net Force (5 Days)			
2-6	**Learning Target 2** I can explain what causes objects to change their motion.	• I can model and identify the forces acting on a roller coaster. • I can differentiate between forces acting on an object at rest and an object in motion. • I can apply Newton's 1st law, the concept of inertia and net force, to describe the motion of an object.	
Learning Sequence 3: Energy (7 Days)			
7-13	**Learning Target 3** I can explain how energy is conserved and how it defines a successful roller coaster.	• I can define energy and identify different types of energy. • I can describe the relationship between potential and kinetic energy and apply that relationship to the Law of Conservation of Energy. • I can predict the success of a roller coaster design based on potential and kinetic energy.	
Learning Sequence 4: Force, Mass and Acceleration (9 Days)			
14-32	**Learning Target 4** I can explain how forces act in pairs.	• I can use Newton's 2nd Law to describe the relationship between force, mass, and acceleration.	

		• I can use Newton's 3rd Law to describe the relationship of an action force and a reaction force. • I can use Newton's Laws to redesign a model of a roller coaster..
Learning Sequence 5: Gravitational Pull (7 Days)		
33-39	**Learning Target 5** I can explain how the masses of objects and their distance impact gravitational pull and how magnetic forces can interact with gravity.	• I can design and conduct an investigation to collect data on how the masses of objects and their distance affects gravitational fields. • I can design and conduct an investigation to collect data on how the properties of a magnet affects the size of its magnetic field.
Culminating Performance Task (5 Days)		
40-44	Students design a rollercoaster to demonstrate their understanding of forces and energy.	
45	**Flex Day**	
46	**End of Unit Assessment**	

Unit Title
Unit 4: Congo Medicine Drop

Relevant Standards
MS PS3-3: Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. MS-PS3-4 Plan an investigation to determine the relationships among energy transferred, type of matter, mass, and change in the average kinetic energy of particles, as measured by the temperature of a sample. MS-PS3-5: Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. MS ETS1-3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. MS ETS1-4: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Essential Question(s)	Enduring Understanding(s)
• How does energy move between objects and through different types of matter? • Why is temperature not a measure of the total amount of energy in a system? • What scientific principles determine how effectively a design can minimize thermal energy transfer? • How do we evaluate the trade-offs between different design solutions to find an optimal result? • How can scientific reasoning and design thinking be applied to solve complex global humanitarian problems?	• Energy naturally flows from warmer objects to cooler objects, a process that can be managed by selecting specific materials that act as conductors or insulators. • Temperature measures the average kinetic energy of particles, but total energy depends on both that average and the mass/amount of matter present in the system. • Minimizing heat transfer requires limiting the three methods of energy flow by selecting materials and configurations that resist these transfers. • Engineering involves balancing multiple constraints and testing iterative designs; comparing data from these tests reveals which features most effectively meet success criteria. • Designing solutions for real-world problems, like medicine delivery, requires applying core physics principles (like thermal energy) while strictly adhering to the specific environmental constraints of the problem.

Demonstration of Learning	Pacing for Unit
1 Mid Unit Assessment 1 End of Unit Assessment 1 Engineering Build	21 Days

Family Overview (link below)	Integration of Technology:
Grade 7 Science - Family Overview	OpenSci Ed Virtual Labs Gizmos Demonstration PhEt Simulators Ck-12

Unit-specific Vocabulary	Aligned Unit Materials, Resources, and Technology (beyond core resources)
Temperature, kinetic energy, energy transfer, conductor, insulator, convection conduction and radiation, Volume, collide, collision, heat conduction, particle, stored energy, transfer, average, proportional, ratio, thermal energy, Potential energy, heat energy, closed system, open system, friction, joule, force, transformation of energy, thermometer, Fahrenheit, Celsius, pendulum, sound energy, conservation of energy,	Non-Consumable • glass beakers • Heat lamps • hot plate • Hot water maker (such as a hot pot or microwave) • Ice cube trays • Ice melting blocks (arbor) • Ice packs • Infrared Laser thermometers • Metal Flatware (spoons) • Thermometers • Thermoses, Lunch boxes, coolers (various, encourage students to bring in their own) Water/Ice Pitcher Consumable

	• aluminum foil • black construction paper • Bubble wrap • Cardboard pieces • Chart paper • Cotton Balls • Craft Sticks • Dixie and plastic Cups • markers • Styrofoam pieces • Tape (masking, packing) • Multiple Colored construction paper squares • Mylar • Student Composition notebooks • Several materials (metal, cloth, plastic) • Sticky notes • Various colors of felt • Various materials for creating insulators. • various materials for investigation (choice)
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
• The Congo Medicine Drop project invites discussion on global health equity, humanitarian aid, and the role of technology in solving social problems. (Social Studies) • Students craft lab reports, CER (Claim-Evidence-Reasoning) responses, and design proposals using clear structure and evidence. (ELA)	• Objects that are stationary have no energy • The idea that heat moves towards cold, and not the other way around • Energy is not destroyed if used • Heat and temperature are the same
Connections to Prior Units	**Connections to Future Units**
Gravity from Unit 3	N/A

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Insulation Audit Lab" testing everyday materials (foam, bubble wrap, wool, foil) to see which keeps ice melted the slowest in high heat.	Material comparison matrix mapping structural features (trapped air pockets, reflective foils) to low thermal conductivity.	Write a material evaluation report or create a material selection guide rating insulators on their ability to maintain cold temperatures.
LT2	"Particle Speed Simulation" observing how adding thermal energy speeds up water molecules and causes liquid in thermometers to expand.	Visual diagrams contrasting thermal energy (total kinetic energy of particles) vs. temperature (average kinetic energy) with sensor data plots.	Graph temperature changes over time and write an explanation connecting temperature sensor readings directly to microscopic particle motion.
LT3	"Thermal Touch Mystery" touching room-temperature metal, plastic, and wood to investigate why metal feels colder despite being at identical temperatures.	Rate-of-transfer diagrams showing thermal conductors quickly pulling heat energy away from skin vs. thermal insulators doing so slowly.	Write a Claim-Evidence-Reasoning (CER) response explaining why human touch registers the rate of heat transfer rather than actual temperature.
LT4	"Heat Transfer Race" measuring how fast thermal energy moves through different material masses, surface areas, and temperature differences.	Flowcharts detailing conduction, convection, and radiation mechanisms driven by temperature differences until thermal equilibrium is reached.	Analyze experimental data and construct an explanation detailing how mass, surface area, and material type alter the rate of energy transfer.
LT5	"Thermos Dissection" taking apart insulated flasks to identify vacuum gaps, reflective coatings, and stoppers designed to block heat flow.	Annotated cross-section diagram showing how vacuum layers eliminate conduction/convection and shiny walls reflect radiative heat transfer.	Draw and label a system diagram of a thermal containment structure, detailing how each component blocks a specific heat transfer method.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can label materials as insulators or conductors using picture cards and a visual word bank.	I can describe how different materials trap or block heat to keep things warm or cool using sentence frames.	I can explain in detail how specific material structures and thermal properties are engineered to minimize heat transfer and maintain temperatures.
LT2	I can match thermometer readings to picture cards showing fast or slow	I can describe how temperature measurements show the thermal	I can explain in detail how temperature measures average kinetic energy and

	particle movement.	energy (particle motion) in an object using data charts and sentence starters.	how total thermal energy is observed and quantified in an object.
LT3	I can match hot/cold objects to arrow cards showing energy moving into or out of my hand.	I can describe why objects feel hot or cold based on whether thermal energy flows toward or away from my body using sentence frames.	I can explain in detail how human thermal sensation depends on the direction and rate of heat conduction between an object and skin.
LT4	I can draw arrows showing heat moving from warm to cold objects and sort picture cards of factors like mass or material type.	I can describe how thermal energy moves from warm to cool materials and identify factors (material type, mass, temperature difference) using cause-and-effect sentence starters.	I can explain in detail how thermal energy transfers between materials and analyze how factors like mass, temperature gradient, and surface area impact transfer rates.
LT5	I can select picture cards showing ways to trap heat (lids, foam layers) and sort them into "traps heat" or "lets heat escape" bins.	I can describe how insulation and closed barriers slow down heat loss using graphic organizers and sentence starters.	I can explain in detail how thermal energy transfer can be minimized using sealed systems, insulators, and reflective barriers to contain heat.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences Grade 7 - MS Science Instructional Guide (
Learning Sequence 1: Introduction to the Anchor Phenomenon (1 Day)			
1	**Learning Target 1** I can explain how materials are designed to maintain temperatures.	• I can ask questions to understand the design specifications for a cold medicine delivery to a desert climate. • I can understand the design criteria for an aerial medicine drop into a village in Sub-Saharan Africa. • I can create an initial model to describe how I might keep the medicine cold as it is dropped into a village in the Congo.	
Learning Sequence 2: States of Matter and Temperature (4 Days)			
2-5	**Learning Target 2** I can explain how the energy in an object is measured and observed.	• I can design and conduct investigations to understand the relationship between matter, state, and energy change. • I can make connections between temperature and molecular speed. • I can make connections between molecular speed and effectiveness of medicine.	
Learning Sequence 3: Energy Transfer (2 Days)			
6-7	**Learning Target 3** I can explain why objects feel hotter or colder.	• I can construct explanations about how energy is transferred out of hotter objects to colder ones. • I can gather and analyze data about the variables (types, states, and amounts of matter) that affect energy transfer through designed and natural systems. • I can investigate the thermal properties of different materials.	
Learning Sequence 4: Maintaining and controlling Temperature (3 Days)			
8-10	**Learning Target 4** I can explain how energy is transferred between materials and identify the factors that impact energy transfer.	• I can construct explanations about which types of materials allow for less heat transfer. • I can gather and analyze data about the variables (types, states, and amounts of matter) that affect energy transfer through designed and natural systems. • I can test materials and designs for keeping objects cold, and apply that information to designing a medicine drop container that will help keep the medicine at a controlled temperature.	
Learning Sequence 5: Designing a Temperature Controlled Container (3 Days)			
11-13	**Learning Target 5**	• I can construct explanations about which types of	

	I can explain whether and how heat can be contained.	materials allow for less heat transfer. • I can gather and analyze data about the variables (types, states, and amounts of matter) that affect energy transfer through designed and natural systems. • I can test materials and designs for keeping objects cold.
Culminating Performance Task (6 Days)		
14-19	Students building and test a temperature controlling container	
20	**Flex Day**	
21	**End of Unit Assessment**	

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
Grade 8 Science	Science	8	N/A (Middle School Course)

Course Description:

This course utilizes an inquiry-based framework grounded in national standards to foster advanced analytical and scientific literacy skills. Throughout the academic year, students engage in evidence-based scientific and engineering practices (including modeling phenomena, interpreting data, and constructing arguments) across four comprehensive disciplines of study.

In the physical sciences, students analyze atomic structures, chemical reactions, and the thermodynamic properties of matter. The life science and genetics modules investigate cellular growth, ecosystem dynamics, and the mechanisms of inheritance, specifically modeling how DNA mutations and reproductive methods generate biological diversity. Students then scale their understanding to evolutionary biology and geology, utilizing data from the fossil record and plate tectonics to analyze natural selection and Earth's history. Finally, the curriculum culminates in Earth and space systems, where students evaluate gravitational forces and the celestial geometry responsible for cyclical patterns such as tides, eclipses, and seasonal variations.

Aligned Core Resources:	Connection to the *BPS Vision of the Graduate*
Grade 8 - MS Science Instructional Guide Next Generation Science Standards (NGSS) Cluster/Item Specifications Specifications for Middle School • MS-ESS1: Earth's Place in the Universe • MS-ESS2: Earth's Systems • MS-PS1: Matter and its Interactions • MS-PS2: Motion and Stability: Forces and Interactions • MS-LS1: From Molecules to Organisms: Structures and Processes • MS-LS2: Ecosystems: Interactions, Energy, and Dynamics • MS-LS3: Heredity: Inheritance and Variation of Traits • MS-LS4: Biological Evolution: Unity and Diversity	**Meaningfully Contribute to a Global Society** Collaboration during labs and inquiry related activities, social and cross-cultural skills during small and large group discussions and activities **Effectively Communicate in a Global Society** Media literacy through lab activities, investigations and projects, communication, information literacy **Demonstrate Academic Knowledge and Skills** Checking content mastery through labs and assessments, opportunities for critical thinking and problem solving during independent and group analysis
Additional Course Information: ***Knowledge/Skill Dependent courses/prerequisites***	**Link to *Completed Equity Audit***
N/A	Equity Curriculum Review Audit (Gr. 6-8 Science)

Standard Matrix

Standard		Unit 1	Unit 2	Unit 3	Unit 4
MS-ESS1-1	Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.				✔
MS-ESS1-2	Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.				✔
MS-ESS1-3	Analyze and interpret data to determine scale properties of objects in the solar system.				✔
MS-PS2-4	Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.				✔
MS-PS2-5	Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.				✔
MS-LS1-1	Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.	✔			
MS-LS2-4	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	✔	✔		

MS-LS1-4	Use arguments based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.		✔		
MS-LS1-5	Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.	✔	✔		
MS-LS3-2	Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.	✔			
MS-LS4-5	Gather and synthesize information about technologies that have changed the way humans influence the inheritance of desired traits in organisms.		✔		
MS-LS4-2	Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.		✔		
MS-LS4-3	Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.		✔		
MS-LS4-4	Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.		✔		
MS-LS4-6	Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.		✔		
MS-ESS1-4	Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.		✔		
MS-ESS2-2	Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.				✔
MS-ESS2-3	Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.		✔		
MS-LS4-1	Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.		✔		
MS-PS1-1	Develop models to describe the atomic composition of simple molecules and extended structures.			✔	
MS-PS1-3	Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.			✔	
MS-PS1-4	Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.			✔	
MS-PS1-2	Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.			✔	
MS-PS1-5	Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.			✔	
MS-PS1-6	Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.			✔	

Unit Links

Grade 8 Science
- Unit 1: Cell, Genetics and Heredity
- Unit 2: Natural Selection and Evolution
- Unit 3: Chemistry
- Unit 4: Space

Use of Instructional Time (181 School Days)
- ➔ Maximum of 177 Content and Assessment Days
- ➔ 2 Culture and Climate Days at the start of the year
- ➔ 2 half-days before long school breaks

Unit Title	
Unit 1: Cell, Genetics and Heredity	
Relevant Standards	
MS-LS1-1 Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells MS LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. MS-LS3-2 Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.	
Essential Question(s)	**Enduring Understanding(s)**
• How do cells create more cells? • How is genetic information passed from parent to offspring? How does this create genetically diverse offspring and genetic variation and diversity? • How do variations in DNA impact outcomes in organisms?	• Cells can only be created from existing cells • Genetic information is passed from parent to offspring in the form of DNA through sexual reproduction. Sexual reproduction creates genetically diverse offspring by combining DNA of 2 genetically different parents. This in turn creates diversity within the larger population and helps species live longer. • Variations in DNA can also occur which then impact the protein created and then the traits of the organism. This follow the central dogma of DNA → Protein → Trait
Demonstration of Learning	**Pacing for Unit**
Various models, quizzes, labs, tests, projects (see Lesson Sequence and Grade 8 - MS Science Instructional Guide)	~60 days
Family Overview (link below)	**Integration of Technology:**
Grade 8 Science - Family Overview	OpenSci Ed Virtual Labs Gizmos Demonstration PhEt Simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Multicellular, unicellular, bacteria, prokaryote, eukaryote, DNA, nucleus, chromosomes, mate, breed, probability, gene, genetics, genome, genotype, phenotype, environment, growth, development, DNA, predator, prey, competition, biodiversity, development, allele, dominant trait, recessive trait, hereditary information, Punnett square, protein. NGSS Middle School Science Specifications	Ziploc bags, marbles, paper clips, multicolor beads, toothpicks, (any assorted small items), pennies, microscopes, prepared specimen slides for microscopes, graph paper, poster paper, large easel pads, assorted play-doh, dice, colored pencils, markers, rulers, Inner Fish Movie DVD, PTC paper
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
• Collecting data, graphing, and analyzing traits within a population, exponential growth • Probability for predictions of outcomes for offspring • Health/wellness topics (genetic diseases, sexual reproduction)	• Dominant traits are “stronger” than recessive ones • Punnett Squares will show exactly what is going to happen from an outcome • Traits are only controlled by 1 gene • Mutations are always “bad”
Connections to Prior Units	**Connections to Future Units**
7th grade cells/human body	High school biology Unit 2- Natural Selection and Evolution
Differentiation through *Universal Design for Learning*	

	Engagement	Representation	Action & Expression
LT1	Conduct a "Classroom Inventory of Traits" (e.g., earlobe attachment, tongue rolling). Use anonymous digital polling (like Mentimeter) to show real-time diversity in the room.	Provide information about human genetic diversity in multiple formats. Use a short documentary video and/or infographic.	Students will all take a poll on certain traits they have, generate a graph to show the variation of traits in the classroom and have students create a written summary or graph to represent the data and see the classes diversity
LT2	Show time-lapse videos of a seed growing into a tree or a salamander embryo developing. Ask: "Where did the extra 'stuff' come from?"	Provide color-coded diagrams of mitosis of use interactive digital simulations (like PhET or Gizmos) where students can manipulate cell division.	Students will choose a mode of presentation: act it out, draw a comic strip, make a poster to explain how cell division is responsible for an organism's growth
LT3	Use a "Climate Roulette Wheel" where you divide the classroom floor into two ecosystems using masking tape. • Side A (Asexual): Every student is handed an identical card: *"Optimal Temperature: 22°C (72°F)."* • Side B (Sexual): Every student gets a unique card with a range of temperature tolerances (e.g., Some have 15°C, some 22°C, some 30°C). • Spin a digital wheel or pull a card that changes the classroom "weather" drastically (e.g., *An Ice Age hits! The temperature drops to 12°C!*).	Use graphic organizers (like a Venn diagram or T-chart) with visual icons (e.g., a lightning bolt for speed/asexual, a jigsaw puzzle for variety/sexual) to help students organize advantages and disadvantages.	Students act as "Species Consultants." They choose how to deliver their advice to an endangered species: write a quick paragraph for survival recommendations, create a pros/cons poster, or record a 30-second audio clip.
LT4	Use a "Who's the Parent?" games with photos of animals (dogs, birds) where students match offspring to parents based on visible traits.	Use colored beads, Lego bricks, or distinctly colored paper strips to represent genetic information moving from parent to offspring. Use interactive digital simulations (like PhET or Gizmos) that allow students to "breed" virtual organisms and see the DNA transfer in real-time.	Students write a "Genetic Will" for an organism, describing exactly what "assets" (traits/genes) they are leaving behind to their offspring and how.
LT5	Relate the concept to a smartphone: The phone is the Chromosome, the apps are the Genes, and the specific settings/versions of those apps are the Alleles.	Utilize nesting tools to visually demonstrate this "Russian doll" concept. You can use physical nesting boxes (a small box inside a bigger box) or an interactive digital graphic where zooming in reveals the smaller structures.	Students build 3D models using everyday objects (e.g., beads, pipe cleaners, or LEGOs) to show how these structures fit inside one another
LT6	Use a "Create a Monster" activity, where students flip coins to determine which alleles they get from "Mom" and "Dad" monsters, resulting in a unique baby monster.	Provide "Guided Diagrams" where some parts are filled in and others are blank, allowing students to focus on the flow of information rather than just drawing.	Students can draw or use digital drawing tools (like Canva or Jamboard) or physical manipulatives (colored yarn to represent chromosomes) to record their model. Draw or build their "offspring monster" to represent the randomized traits they got. They demonstrate understanding by tagging their monster with a label explaining why it has 3 eyes (For example EE is dominant for 3 eyes "Got one 'E' from Mom and one 'E' from Dad").
LT7	Frame it as a "Genetic Mystery." Use the "Blue People of Kentucky" or a fictional royal family mystery that students must solve using a pedigree.	Provide scaffolding for Punnett squares. Offer templates with varying levels of support—some completely blank, some with color-coded boxes, and some partially filled in. Use step-by-step interactive modules to	Give students a choice of "Case Files." They can write a "Doctor's Report" explaining the probability of a trait or create a video tutorial teaching a peer how to solve the square.

		teach logic.	
LT8	Play the game of "Telephone." The original message is the DNA; the "mutation" is the error that happens down the line, changing the final "trait" (the sentence).	Use a "sentence mutation" analogy. Show how changing one letter in a sentence (e.g., "The cat ate the rat" to "The bat ate the rat") changes the entire meaning, just like changing a DNA base pair changes a protein. Provide "before and after" DNA sequence strips. Show "Before and After" visuals of proteins. Use the "Recipe Analogy": If you change one word in a recipe (Salt instead of Sugar), the "trait" of the cookie changes completely.	Students explore a real world mutation (like the Rock Pocket Mouse changing color to survive on dark lava rock). They choose how to model the effect: design a "Before & After" comic strip, write a short diary entry from the perspective of the mouse, or use a digital simulator (like PhET) to record a video explanation.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can identify physical traits that make humans different by pointing to or labeling pictures using simple words.	I can describe how humans have different traits using sentence frames (e.g., "One way humans are different is...").	I can explain how genetic differences create diversity in human populations using specific academic science vocabulary.
LT2	I can label the stages of cell division using a visual model or color-coded sequencing cards that match the colors used in the classroom diagram.	I can summarize how cell division helps organisms grow using a graphic organizer or sequence words.	I can explain using a word bank how cell division is responsible for an organism's growth.
LT3	I can match pictures of advantages and disadvantages to the correct type of reproduction on a basic T-chart.	I can compare sexual and asexual reproduction using sentence frames (e.g., "An advantage of sexual reproduction is...").	I can judge whether a plant or animal species will survive a disaster based on how they reproduce.
LT4	I can show which traits come from parents by drawing lines on a simple family trait diagram.	I can describe how parents pass traits to their offspring using simple sentences.	I can write a short paragraph explaining the exact path genetic information takes across generations.
LT5	Color-code the smartphone analogy activity strictly to the 3D building materials (e.g., Chromosome = Blue Pipe Cleaner = Blue Phone Case; Gene = Red Bead = Red App).	I can order alleles, genes, traits, and chromosomes from smallest to largest using a visual model.	I can explain the difference between a chromosome, a gene, and an allele, and how they all end up making a physical trait.
LT6	During the "Create a Monster" activity, provide a visual checklist where a "Heads" coin flip corresponds directly to a red sticker and "Tails" to a blue sticker.	I can create and label a diagram to show how parents create offspring with different traits.	I can create a model and explain exactly how sexual reproduction makes sure that children look different or similar to their parents.
LT7	Use a color-coded grid. Dominant letters (B) are bolded and red; recessive letters (b) are lowercase and blue.	I can fill in a partially completed Punnett square and state the most likely outcome.	I can analyze a punnett square/pedigree and explain how a trait was passed down through generations.
LT8	Use the "Telephone" game visually. Give the student a picture sequence with one deliberate error introduced, and have them point out where the error occurred and circle the parts of the sequence it affected.	I can use a model to show how a DNA mutation changes a trait, using sentence frames to explain the change.	I can model how DNA mutations can change the outcome of a trait.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences See: Grade 8 - MS Science Instructional Guide
Learning Sequence 1: Intro to Phenomenon (~2 Days) How is Albinism inherited?			
1 - 2	**Learning Target 1** I can explain how humans have different genetics to create diversity.	• I can use a model to demonstrate how humans inherit traits.	

Learning Sequence 2: Cells and Reproduction (~27 Days)		
3-9	**Learning Target 2** I can explain how cell division is responsible for an organism's growth.	• I can list the reasons why cells divide. • I can use evidence to explain the purpose of asexual reproduction for cell growth. • I can create a model that shows how an organism uses asexual reproduction to repair a cut. • I can explain why unicellular and multicellular organisms use cell division to create identical daughter cells for growth.
10-13	**Learning Target 3** I can evaluate the advantages and disadvantages (patterns) of sexual and asexual reproduction on a species' chance of (cause and effect) survival.	• I can identify components of asexual reproduction. • I can identify components of sexual reproduction. • I can identify advantages and disadvantages of each type of reproduction.
13-27	**Learning Target 4** I can apply concepts of reproduction to describe how genetic information is passed on.	• I can explain that genetic information is passed to organisms through cell division. • I can explain that DNA is organized on chromosomes and that chromosomes are divided during cell division. • I can explain that two contributing sources of DNA (chromosomes) are required for reproduction in mammals. • I can compare and contrast each method of reproduction. (time, type of cells, genetic diversity, amount of daughter cells, number of parents) • I can construct an explanation to explain which method of reproduction would be needed to heal a cut on a hand. • I can construct an explanation to explain how an amoeba reproducing in a pond increases its species' chances of survival. (reading passage)
28	**Flex Day**	
29	**Cell Division and Reproduction Quiz**	
Learning Sequence 3: Genetics and Heredity (~21 Days)		
30-31	**Learning Target 5** I can explain the relationship between alleles, genes, traits, and chromosomes.	• I can determine which traits I have using a traits inventory chart. • I can analyze which traits are most and least common within our class population
32-38	**Learning Target 6** I can create a diagram to model how sexual reproduction produces genetic variation from parents to offspring.	• I can define a gene and use a model of a chromosome to explain where a gene can be located. • I can explain the relationship between genes and traits. • I can list traits of an organism and represent different alleles for each trait. • I can explain the relationship between genes and alleles and how alleles are a factor in genetic diversity. • I can use a model to differentiate between and relate chromosomes, DNA, genes, and alleles. • I can create a model to track the inheritance of a trait from parents to offspring. • I can analyze the genetics of two parents in the potential of a gene being present in their offspring.
39-47	**Learning Target 7** I can analyze and draw conclusions from a pedigree/punnett square.	• I can predict the probabilities of an offspring inheriting a given trait. • I can use a punnett square to organize the potential inheritance of a trait. • I can use a punnett square to predict the likeliness of a trait being inherited. • I can evaluate the potential of a trait being present in

		offspring using either a punnett square or pedigree chart.
48-49	**Flex Days**	
50	**Pedigrees and Punnett Squares Quiz**	
Learning Sequence 4: DNA & Traits (~10 Days)		
51-58	**Learning Target 8** I can create a model to explain how mutations in DNA can affect the outcome of an organism's traits.	• I can identify the structure and function of DNA. • I can define a genetic mutation. • I can define the function of a protein in organisms. • I can explain how DNA codes for proteins which determine an organism's traits. • I can differentiate between harmful, helpful, and neutral mutations. • I can model how structural changes in DNA can lead to harmful, helpful, and neutral mutations • I can explain the connection between genes, proteins and traits. • I can explain how changes in DNA bases may affect the outcome of the protein
59	**Flex Day**	
60	**Heredity and Genetics Test**	

Unit Title	
Unit 2: Natural Selection and Evolution	
Relevant Standards	
MS-LS1-4 Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. MS LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. MS-LS4-1 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth, under the assumption that natural laws operate today as in the past. MS-LS4-2 Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships MS-LS4-3 Analyze displays of pictorial data to compare patterns of similarities in embryological development across multiple species to identify relationships not evident in the fully formed anatomy. MS-LS4-4 Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. MS-LS4-5 Gather and synthesize information about technologies that have changed the way humans influence the inheritance of desired traits in organisms. MS-LS4-6 Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic timescale is used to organize Earth's 4.6-billion-year-old history. MS-ESS2-3 Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions	
Essential Question(s)	**Enduring Understanding(s)**
What evidence from the fossil record is there to determine that organisms change over time?	Organisms change over time in response to the changing environment. Organisms that have traits that help them survive will live longer, reproduce more often, and therefore pass those beneficial traits down to offspring. Organisms that do not have beneficial traits will die off before they are able to reproduce and pass any of the traits down. Over time, this changes the frequency of specific traits in a given population. Over millions of years this is called evolution which occurs through natural selection.
Demonstration of Learning	**Pacing for Unit**
Various models, quizzes, labs, tests, projects (see Lesson Sequence and Grade 8 - MS Science Instructional Guide)	~19 days
Family Overview (link below)	**Integration of Technology:**
Grade 8 Science - Family Overview	OpenSci Ed Virtual Labs Gizmos Demonstration PhEt Simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Natural selection, artificial selection, evolution, adaptation, resources, reproduction, offspring, breeding, genetic engineering, DNA, cloning, inherit, hereditary, proteins, diversity, trend, beneficial, probability, distribution, adaptation, DNA, dominant traits, recessive traits, homologous, analogous, diversity, extinction,, extinct, unicellular, multicellular, organelles, ancestry, species, evolve,	Listed in the Unit 1 since these bundles are connected

Opportunities for Interdisciplinary Connections:	Anticipated misconceptions
• Graphing • Mathematical representation of changes in traits in population over time due to Natural Selection • History of life on Earth - relative fossil dating, superposition	• Organisms want to adapt to their environment, so they choose to change • Humans always negatively impact the environment and organisms living in it
Connections to Prior Units	**Connections to Future Units**
• Unit 1- heredity and how DNA is passed from parent to offspring • Unit 1- a mutation can result in an adaptation • 7th grade, fossil record/sedimentary rocks	High school biology Unit 4- space - Earth's creation and geologic timeline

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Mammoth Mystery Investigation" analyzing climate change data, human hunting pressure, and habitat loss during the Pleistocene epoch.	Cause-and-effect timeline mapping environmental shifts (warming temperatures, loss of tundra vegetation) alongside mammoth population decline.	Write a case study analysis or construct a digital timeline explaining how environmental shifts and low genetic diversity drove mammoth extinction.
LT2	"Dog Breeding vs. Wild Wolves" comparing how humans select dog traits (e.g., size, coat) vs. how nature selects traits in wild wolves.	Comparative T-chart highlighting key components: selective agent (human vs. environment), variation, overproduction, differential survival, and trait inheritance.	Sort real-world scenarios into natural or artificial selection and present a written or visual breakdown comparing their selective pressures.
LT3	"Family Trait Inventory" investigating inherited physical traits passed down through sexual reproduction versus acquired non-genetic traits.	Punnett square visual models, pedigree charts, and diagrams contrast sexual reproduction (genetic shuffling) with asexual reproduction.	Solve genetic cross scenarios using Punnett squares or create an infographic illustrating how selected traits pass across generations.
LT4	"Rock Pocket Mouse / Peppered Moth Simulation" tracking coat color shifts before and after environmental changes (lava flows, industrial soot).	Line graphs and frequency distribution charts showing trait shifts (e.g., dark coat % vs. light coat %) over multiple generations in changing environments.	Analyze population frequency data and write a Claim-Evidence-Reasoning (CER) essay describing how a trait's prevalence changed over time.
LT5	"Bird Beak Adaptation Lab" testing different tool "beaks" on various food types to observe survival and reproductive success rates.	Evolutionary fitness diagram showing how favorable trait variations lead to higher survival, successful mating, and greater offspring production.	Record a video presentation or draft an explanatory narrative describing how a specific trait variation provides a competitive advantage.
LT6	"Fossil Layer Timeline Puzzle" excavating and sequencing fossil stratum cards to trace anatomical changes in horse or whale ancestors.	Geologic time scale charts, fossil layer diagrams (strata), and evolutionary tree diagrams showing appearance, diversification, and extinction events.	Analyze a fossil record dataset and write an empirical evidence summary detailing patterns of life, anatomical shifts, and mass extinctions over time.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can point to and label visual causes of mammoth extinction (e.g., humans, ice melting) using an illustrated word bank. I can match pictures of parent organisms to offspring showing inherited traits (e.g., long fur to long fur).	I can describe why the woolly mammoth went extinct and how it inherited traits using sentence frames (e.g., "The mammoth went extinct because its inherited traits did not help it...").	I can explain the biological causes for the woolly mammoth extinction using Unit specific vocabulary. I can explain the different paths (dominant, recessive, or artificial selection) that organisms take to inherit specific traits from their parents.
LT2	I can sort pictures of animals into categories of "shaped by nature" (Natural Selection) or "shaped by humans" (Artificial Selection).	I can describe the components of natural and artificial selection using a comparative T-chart or sentence starters.	I can compare and contrast the core components of natural selection and artificial selection to show how they both change a species.
LT3 &4	I can circle or point to the traits in a picture that help an animal hide or survive in its environment. I can identify if a trait went up or down	I can use data from a simulation to describe how a trait increases or decreases over time using a graphic organizer.	I can use scientific evidence and vocab to explain how nature selects for or against specific traits, causing them to increase or decrease in a population over time.

	by looking at a simplified bar graph or population chart.		I can explain how helpful trait variations give certain individuals a competitive advantage to survive and reproduce in their environment.
LT5	I can label a diagram of rock layers to show which fossils are the oldest (bottom) and newest (top). I can match fossil drawings to modern animals that look similar to them.	I can describe patterns in the fossil record (like change or extinction) using a timeline and sentence frames.	I can analyze and interpret fossil data to explain how life on Earth has changed, branched out, or gone extinct throughout history using a timeline, images and data..

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences See: Grade 8 - MS Science Instructional Guide (rev. 2026)
Learning Sequence 1: Introduction to Phenomenon (~2 Days) The case of the missing wooly mammoths			
1-2	**Learning Target 1** I can explain the biological causes for the woolly mammoth extinction.	• I can use a model to explain a scientific phenomenon using my initial thinking.	
Learning Sequence 2: Natural vs. Artificial Selection (~10 Days)			
3-5	**Learning Target 2** I can identify the components of natural selection and artificial selection. **Learning Target 3** I can explain the different ways organisms can inherit selected traits from parents	• I can explain how traits are naturally selected. • I can explain how traits are artificially selected • I can differentiate between natural selection and artificial selection. (timing, human vs nature, causes, reasons, environmental factors) • I can use scientific evidence to demonstrate/model how artificial selection affects the genetic population of a species. • I can create and defend a model to demonstrate which type of selection (artificial/natural) would be best to reverse engineer a Woolly Mammoth.	
6	**Artificial Selection Quiz**		
7-10	**Learning Target 4** I can use evidence to describe how, over time, natural selection may lead to increases and decreases of specific traits in a population. **Learning Target 5** I can explain how variations of traits in a population can increase individuals' probability of surviving and reproducing.	• I can define and identify adaptations in a species. • I can identify reasons why an organism would need certain adaptations in order to survive in specific environments/conditions. • I can organize data into a graph to determine if an adaptation is helpful, harmful or neutral in a population. • I can connect the adaptations of a species to the predominance of that trait in the population. • I can use patterns as evidence to predict future generations of traits in a population. • I can use evidence to argue if factors related to an adaptation led to the extinction (cause and effect) of the woolly mammoth.	
11	**Flex Day**		
12	**Natural Selection Quiz**		
Learning Sequence 3: Fossil Patterns (~7 Days)			
13-17	**Learning Target 6** I can analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life throughout history.	• I can use patterns as evidence from the fossil record to show common ancestry • I can explain/model common ancestry between organisms using embryological evidence. • I can use evidence from the fossil record to support the argument that organisms change over time.	

		• I can identify homologous and analogous structures between organisms. • I can create a model to demonstrate how the woolly mammoth could be reverse engineered using a living ancestor.
18	**Flex Day**	
19	**Fossil Record Quiz**	

Unit Title
Unit 3: Chemistry

Relevant Standards

MS-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures
MS-PS1-2 Analyze and interpret data on the properties of substances before and after the substances interact to determine whether a chemical reaction has occurred.
MS-PS1-3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
MS-PS1-4 Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed
MS-PS1-5 Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.
MS-PS1-6 Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.

Essential Question(s)	Enduring Understanding(s)
What is matter made of? How does the natural world constantly satisfy the Law of Conservation of Matter?	Everything is made of matter, which is made of atoms even though we can't see them. All matter is neither created nor destroyed, it is just recycled into something different over and over and over again.
Demonstration of Learning	**Pacing for Unit**
Various models, quizzes, labs, tests, projects (see Lesson Sequence and Grade 8 - MS Science Instructional Guide)	~45 days
Family Overview (link below)	**Integration of Technology:**
Grade 8 Science - Family Overview	OpenSci Ed Virtual Labs Gizmos Demonstration PhEt Simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Element, compound, mixtures, homogenous, heterogeneous, pure substances, solution, reactant, product, compound, matter, mass, volume, density, solubility, dissolve, flammability, odor, gas, solid, liquid, chemical bonds, atom, molecule, pure substance, particle, pressure, carbon dioxide, negative impact, natural gas, oil, phase, phase change, thermal energy, kinetic energy, pure substance, compound, thermometer, melting, freezing, condensation, vapor, heat, vibrate, collide,	Iodine, hydrogen peroxide, distilled water, gloves, cornstarch, baking soda, vinegar, sand, salt, iron fillings, coffee filters, beakers, magnets, Vitamin C tablets, luminol, glow sticks, balloons, alka seltzer tablets, matches, candles, powdered laundry detergent, steel wool, digital scales, calculators, stopwatches
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
There are many opportunities for students to practice Science and Engineering Practice skills during this unit by demonstrating a chemical reaction.	• Every chemical reactions results in an explosion • Once something is "destroyed' it is gone forever
Connections to Prior Units	**Connections to Future Units**
Math- solving equations 7th grade energy transfer	High school chemistry High School Physical Science

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	Give pairs a plastic syringe (no needle) capped with a piece of clay or a finger. Challenge them to push the plunger all the way down. When it bounces back or resists, ask: *"If the tube is completely*	Provide multiple ways to "see" the unseen. Use macro-to-micro animations (like zooming into a balloon filled with gas) and provide a structured CER (Claim, Evidence,	Provide choices for constructing their first argument. Students can complete a simple C-E-R (Claim, Evidence, Reasoning) writing template with sentence starters: "Even though I can't

	empty, what is fighting against your hand?" Place a blown-up balloon over the mouth of an empty glass bottle. Submerge the bottom of the bottle in a bowl of ice water, and watch the balloon suddenly deflate and get sucked *inside* the bottle. Ask: *"What just happened here? Write a rumor, a guess, or a bold statement explaining the trick."*	Reasoning) graphic organizer. Offer sentence stems for the initial claim (e.g., "Even though I cannot see the air, I argue it exists because...").	see air, it is matter because..."
LT2	The "Lego Deconstruction" Challenge: Dump a pile of mismatched Lego bricks on a table. Challenge students to sort them. Explain that individual bricks are atoms, connected bricks of the *same* color are elements (like oxygen gas), and structures built from *different* colors are compounds. Ask: *"How many unique structures can we make out of just three basic colors?"*	Create an explicit, color-coded visual key for atoms (e.g., Red = Oxygen, White = Hydrogen). Provide clear, side-by-side visual examples distinguishing an element (pure substance of one atom type) from a compound (different atoms chemically bonded).	The Sticky Note Brainstorm: Instead of making students write a formal paragraph right away, allow them to write their initial claim on a digital Padlet wall or a physical sticky note to post on the whiteboard.
LT3	The "Glow Stick vs. Hand Warmer" Sensory Lab: Crack open a glow stick (chemical reaction releasing energy/light) and open a disposable hand warmer (chemical reaction releasing heat). Have students physically hold them. Introduce the terms *exothermic* and *endothermic* through what their fingers feel, not a textbook slide. The "Alka-Seltzer Time Bomb": Drop an Alka-Seltzer tablet into a film canister filled with water, snap the lid on, and wait for it to pop. Ask: *"What invisible signals did the chemicals send to tell us they were changing into something new?"*	Use a visual checklist or icon-based anchor chart showing the 5 signs of a chemical reaction (color change, gas production, temperature change, light, precipitate). Provide simple, color-coded energy flow diagrams showing energy going in (absorbing) versus energy coming out (releasing).	Use interactive energy graphs that compare exothermic reactions (energy goes down/released) and endothermic reactions (energy goes up/absorbed). Color-code them: use bright red arrows for heat leaving a reaction, and cool blue arrows for heat entering a reaction. Have students explore a station lab. To show what they observed, they can complete a digital photo-journal where they snap pictures of the reactions and label the "signs," write a summary paragraph, or verbally check in with the teacher at each station.
LT4	The Collapsing Soda Can Stunt: Heat a small amount of water inside an aluminum soda can, then quickly invert it into ice water. The can instantly crushes itself with a loud *pop*. Ask: *"Who stepped on the can? How did temperature just manipulate the invisible air pressure inside?"*	Utilize interactive digital simulations like PhET States of Matter. This allows students to physically pump in more gas molecules, crank up the heat, and watch the pressure gauge rise while seeing how the particles behave.	Give choices for explaining the particle behavior. Students can act it out kinesthetically (e.g., standing close and vibrating as a solid, then spreading out and moving fast as a gas), draw a multi-panel comic strip, or complete a structured matching matrix.
LT5	Draw a giant T-chart on the classroom floor using painter's tape, with a balance beam/see-saw triangle drawn right in the middle under the yield arrow (-->).Give students giant whiteboards or large heavy blocks representing different molecules. If the left side has 4 Hydrogen blocks and the right side only has 2, have the students on the left side dramatically pretend to tip over because their side is "too heavy." The students must physically shout out what blocks need to be added to the lighter side to make the human see-saw perfectly level.	Provide a physical or digital Reactant vs. Product T-Chart to help students keep inventory of their atoms. Use physical tokens or colored chips to physically build the molecules on both sides of a "balance beam" graphic organizer so they can visually see when the scale is level.	Offer a "Choose Your Adventure" tier system. Level 1: Draw the molecules to show they are even. Level 2: Solve the equations using math coefficients. Level 3: Fix an incorrectly balanced equation and write a note explaining the mistake.
LT6	Frame a scenario where students are stranded on a freezing, rainy island. They have to choose between a heavy, natural	Provide alternating media types: a podcast episode discussing plastic synthesis, an infographic showing the	Students take on the role of a "Product Designer." They select an item (like a shoe or a piece of furniture) and choose

	wool blanket (absorbs water, gets heavy, but stays warm) or a lightweight, synthetic nylon jacket (waterproof, windproof, but can melt if it gets too close to the campfire). This addresses the misconceptions that "natural is always perfect" and "synthetic is always bad." It reframes the topic around human problem-solving, engineering, and real-world trade-offs.	lifecycle of a natural wood product vs. plastic, and texts with simplified definitions of "natural" and "synthetic."	how to present their material choices: pitch a design to the class arguing why they chose synthetic vs. natural materials, design a labeled poster, or write a comparative summary essay.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can point to and label physical evidence that shows invisible air exists (e.g., a scale tipping, a balloon expanding) using simple vocabulary words. I can choose the correct claim to explain a phenomenon from a 3-choice visual menu bank.	I can state a claim about unseen matter and point to evidence using sentence frames (e.g., "I claim that air exists because when I...").	I can write an initial argument to prove that matter exists even when it cannot be seen.
LT2	I can match the vocabulary words (*atom, element, compound*) to their corresponding color-coded physical models or Lego analogies.	I can build and describe models of atoms, elements, and compounds using a visual key and simple sentences.	I can create a clear, testable claim that gives a scientific explanation for an observed phenomenon.
LT3	I can identify if a reaction feels hot or cold and circle icons representing visible clues of a chemical change (e.g., bubbles, color changes).	I can describe the characteristics of a reaction and note if energy goes in or out using a graphic organizer.	I can explain how energy moves into or out of a chemical reaction, causing temperature changes. I can analyze a chemical change and explain the specific characteristics that prove a new substance was created.
LT4	I can label images of a solid, liquid, and gas and point to what happens to particle speed when heat is added.	I can describe how temperature and pressure change states of matter using cause-and-effect sentence frames.	I can explain the relationship between temperature, pressure, and particle movement during changes in states of matter using unit specific vocab.
LT5	I can draw lines to match and tally identical atoms on the reactant side and product side of a visual equation to see if they are equal.	I can balance a simple chemical equation using a reactant/product T-chart scaffold.	I can balance a chemical equation using math and explain how it proves that mass cannot be created or destroyed.
LT6	I can sort everyday items into categories of "From Nature" or "Man-Made / Lab" using a visual T-chart.	I can compare a natural substance to a synthetic one using a Venn diagram and simple comparative words.	I can evaluate and write a paragraph comparing why society needs both natural and synthetic materials despite their environmental impacts.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences See: Grade 8 - MS Science Instructional Guide
Learning Sequence 1: Introduction to Phenomenon (~4 Days) Why does a candle go out when a glass is put over it?			
1-3	**Learning Target 1** I can construct an initial argument that matter exists even if I can't see it. I can create an initial claim to explain a phenomenon	• I can explain that solids, liquids and gases contain atoms that have unique properties. • I can make observations and ask questions about the phenomenon • I can make an initial claim to explain the outcome of the phenomenon	
Learning Sequence 2: Atoms, Elements, and Compounds (~6 Days)			
4-8	**Learning Target 2** I can chemically model the ingredients of atoms, elements, and compounds.	• I can describe the structure of an atom • I can use the periodic table to find information about various elements	

		• I can compare and contrast atoms, compounds and molecules. • I can explain the difference between substance and mixtures, including how to separate them.
9	**Atoms, Molecules, Compounds Quiz**	
Learning Sequence 3: Chemical Reactions (~20 Days)		
10-18	**Learning Target 3** I can explain the relationship between energy and a chemical reaction. I can describe the characteristics of a chemical reaction.	• I can define energy. • I can define the law of conservation of energy. • I can describe the difference between chemical and physical properties. • I can use chemical and physical properties to identify a substance. • I can model the conservation of atoms in a simple chemical reaction used to break down sugar.
19-28	**Learning Target 4** I can explain the relationship between temperature, pressure, and states of matter.	• I can model the impact of temperature on the different states of matter. • I can investigate how a change in temperature impacts matter (atoms and compounds). • I can explain the relationship between temperature and pressure.
29	**Flex Day**	
30	**Chemical Physical Changes Quiz**	
Learning Sequence 4: Balancing Chemical Equations (~5 Days)		
31-34	**Learning Target 5** I can balance a chemical equation	• I can identify and define the products and reactants of a chemical reaction. • I can count the amount of atoms that are present in the reactants and products. • I can balance a chemical reaction so that the products and reactants are equal. • I can use the law of conservation of matter to prove that a chemical equation is balanced.
35	**Balancing Chemical Equations Quiz**	
Learning Sequence 5: Natural vs. Synthetic Materials (~10 Days)		
36-43	**Learning Target 6** I can compare the importance of natural vs synthetic substances.	• I can define what a natural substance is • I can define what a synthetic substance is • I can explain advantages and disadvantages of natural and synthetic substances • I can explain why synthetic substances are more popular than natural substances in today's society
44	**Flex Day**	
45	**End of Unit Test**	

Unit Title	
Unit 4: Patterns in the Sky	
Relevant Standards	
MS-PS2-4 Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects MS-PS2-5 Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact MS-ESS1-1 Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and the seasons. MS-ESS1-2 Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system MS ESS1-3 Analyze and interpret data to determine scale properties of objects in the solar system MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic timescale is used to organize Earth's 4.6-billion-year-old history. MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.	
Essential Question(s)	**Enduring Understanding(s)**
What patterns can be used to make predictions about phenomena in the night sky?	Patterns control everything in the natural universe. These patterns can be used to reliably make predictions about almost all the phenomena in the night sky.
Demonstration of Learning	**Pacing for Unit**
Various models, quizzes, labs, tests, projects (see Lesson Sequence and Grade 8 - MS Science Instructional Guide)	~53 days
Family Overview (link below)	**Integration of Technology:**
Grade 8 Science - Family Overview	OpenSci Ed Virtual Labs Gizmos Demonstration PhEt Simulators
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Orbit, magnitude, galaxy, solar system, ellipse, proportional, period, gravity, eclipse, tide, force, day, night, vacuum, satellite, terrestrial planet, gas giant, planetary rings, dwarf planet, sun, inner planet, outer planet, comet, Inertia, force, mass, weight, orbit, names of planets	Flashlights, protractors, lightbulbs, lamps, styrofoam balls, batteries, pencil compasses, gravity table, solar eclipse goggles, globe, heat lamp, graph paper, poster paper, coloring supplies, trundle wheel, large tape measure, scientific calculators
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
• Graphing sunlight (length of the day and intensity of the sun) based on latitude position on Earth. • Graphing tide data based on the moon's position in orbit around the Earth. • Creating models of orbital motion (moon phases, eclipses, planetary motion).	• The moon is only visible at night. • The Northern and Southern hemispheres have opposite seasons due to the temperature variations created by changing sun intensity and length of a day. • There is no gravity in space based on astronauts experiencing microgravity. • There is no dark side of the moon. The moon has a day and night side. Due to the moon's rotation period, the same side of the moon always faces the Earth.
Connections to Prior Units	**Connections to Future Units**
Unit 2- law of superposition 7th grade plate tectonics 7th grade forces and motion 7th grade geologic timelines	High school physical science
Differentiation through *Universal Design for Learning*	

	Engagement	Representation	Action & Expression
LT1	Project an image or show a video clip of Stonehenge, an Egyptian pyramid alignment, or a Mayan temple during an equinox (where the sun creates a snake-like shadow moving down the stairs). Tell students that ancient civilizations didn't have iPhones, Google, or watches, yet they built billion-pound stone structures that perfectly predict the exact day the seasons change. Ask, how did they hack the sky? What repeating patterns did they notice that we are missing today because we look at screens instead of the horizon?"	Use time-lapse videos showing the apparent motion of stars, the sun, and the moon across the sky over 24 hours.	Students can choose how to show a cosmic pattern (like day/night or star paths): write a traditional myth explaining a constellation pattern, map a pattern out digitally on Google Slides, or use a physical flashlight and globe to verbally demonstrate the pattern to a partner.
LT2	Project an image of a famous skyscraper (like the Empire State Building or the Burj Khalifa). Tell students that the height of the building represents Earth's timeline from the bottom floor (Earth's birth) to the very top antenna (today). Ask students to guess where on the building humans first show up. Drop a digital marker down the building. Reveal that all of human history fits into a thin layer of paint on the very roof of the building, and the dinosaurs are down around the 95th floor.	Provide physical or visual timeline models (e.g., a 5-meter long cash register tape or a roll of toilet paper representing geologic time). Use side-by-side infographic size comparisons—such as showing Earth as a marble next to the Sun as a basketball.	Give choices for representing the massive scale: students can design an infographic "History of Earth" brochure, write a script for a time-travel movie, or complete a digital drag-and-drop sequencing activity. Utilize interactive zoom tools (like Scale of the Universe 2) that allow students to scroll from the size of a human all the way out to galaxies. Provide a clear, visual matrix chart that categorizes objects by size, composition (rocky vs. gas), and atmosphere.
LT3	Use a digital weight simulator where students type in their current weight to see how heavy they would be on different celestial bodies. Students can also calculate this instead of using a simulator.	Use interactive digital simulations (like PhET or Gizmos) where students can manipulate different masses to show gravity's impact.	Give choices for explaining gravity's role: write a "What If?" sci-fi survival entry describing what happens if gravity drops by half, create a step by step diagram of an orbit, or complete a structured fill in the blank concept map.
LT4	Students use a "Ball on a Stick" Lab to make observations about moon phases. Turn off the classroom lights and give each student a styrofoam ball. (The Moon) Shine a bright projector lamp from the front of the room (The Sun). As students move their own bodies (Earth) in a circle, the styrofoam ball naturally displays every single moon phase right in front of their eyes.	Provide interactive 3D models that show a split-screen view: one side showing the Sun-Earth-Moon system from space, and the other side showing how it looks from an observer standing on Earth. Use clear, aligned diagrams mapping high/low tides to specific lunar phases.	The Moon Phase Comic Strip: Students choose how to model the cycles: draw a 8-panel comic strip starring the Moon changing shapes, build a 3D stop motion video using clay models, or complete a digital labeling assessment on a platform like Canvas or Google Drawings.
LT5	Read a letter from a fictional student in Australia celebrating Christmas on a hot beach while it's snowing in Connecticut. Ask: *"If we are all on the same planet revolving around the same sun, how is this weather chaos possible?"* Give pairs a flashlight and a sheet of grid paper. Have them shine the light directly straight down (90 degree angle) and count how many grid squares are lit up (highly concentrated, bright light). Then, tilt the flashlight at a sharp angle and watch the same amount of light spread out and weaken across the paper. Ask: "How does this explain why direct summer sunlight burns your skin, while slanted winter sunlight leaves you freezing?"	Use the Seasons and Daylight Interactive (or similar interactive widgets like those on EarthFix or PBS LearningMedia) where students can drag Earth around its orbit and watch a live graph track the hours of daylight changing in real time.	Have students act as a "Meteorologist." They choose how to explain why it's winter in New York but summer in Australia: write a weather report transcript, record a video forecast using a globe as a prop, or fill out a structured cause and effect graphic organizer.
Supporting Multilingual/English Learners (*CELP standards*)			

	Emerging	Expanding	Bridging
LT1	I can point to and label visual patterns in the sky (e.g., day/night, changing constellations) using simple words and visual stamps.	I can describe how objects in the sky move in predictable patterns over time using a sentence frame.	I can explain the connections between moving objects in space and the predictable patterns we see from Earth.
LT2	I can sort celestial objects by size from smallest to largest and identify where humans belong on a visual geologic timeline.	I can compare the sizes of different space objects and describe human existence on a timeline using scale words.	I can explain the massive scale of Earth's history and write a summary showing how small human existence is compared to geologic time. I can analyze a scale chart of the solar system to explain how different space objects compare to each other in size and distance.
LT3	I can circle variables (e.g., larger mass, closer distance) that make a gravity vector arrow grow stronger in a visual simulation.	I can describe how gravity keeps planets in motion using a cause-and-effect graphic organizer.	I can explain how gravity acts as the structural glue that controls the orbits and movements of objects across the universe.
LT4	I can sequence cards of the 8 moon phases in order and match an eclipse to its matching 3-body visual alignment.	I can sequence moon phases and describe the alignment of the Sun, Earth, and Moon during eclipses.	I can explain the relationship between the moving positions of the sun, Earth, and moon, and how they create phases, tides, and eclipses.
LT5	I can point to and select which picture shows summer vs. winter based on the length of a shadow and the number of daylight hours on a chart and/or graph.	I can describe how Earth's tilt causes different seasons using a diagram and sentence starters.	I can explain how the constant angle of Earth's tilt creates opposite seasons in the Northern and Southern hemispheres as we orbit the sun.

Lesson Sequence	Learning Target	Success Criteria	Resources/Assessments/ Assured Learning Experiences See: Grade 8 - MS Science Instructional Guide (rev. 2026)
Learning Sequence 1: Introduction to the Phenomena (~2 Days)			
1-2	**Learning Target 1** I can make connections between objects in the sky and patterns in the universe.	• I can make observations and ask questions about phenomena seen in the sky	
Learning Sequence 2: Objects in the Night Sky (~11 Days)			
3-12	**Learning Target 2** I can explain human existence relative (scale) to Earth's geologic time. I can analyze the differences in scale properties for different celestial objects (planets, stars, sun, moons, asteroids, comets) in Space.	• I can identify simple patterns in the night sky. • I can differentiate between stars, planets and other objects seen in the night sky. • I can estimate and calculate relative size and distance of objects in space. • I can analyze, interpret, and illustrate scale properties of objects in space.	
13	**Scale of the Solar System Quiz**		
Learning Sequence 3: Gravity and Orbital Motion (~11 Days)			
14-22	**Learning Target 3** I can explain how gravity impacts patterns and motion in the universe and on Earth.	• I can model the motion of the Earth, Sun, and Moon. • I can define gravity. • I can develop a model to describe the role of gravity in the patterns and motions within the universe. • I can relate orbital periods of different planets to the strength/magnitude of the Sun's gravity. • I can comprehend and illustrate that gravity is the force that keeps the solar system, the Milky Way Galaxy, and the universe together and in motion.	
23	**Flex Day**		

24	**Gravity Quiz**	
Learning Sequence 4: Moon Phases, Eclipses, Tides (~11 Days)		
25-34	**Learning Target 4** I can explain how moon phases, tides, and eclipses are related to the movements of the sun, Earth and moon.	• I can model the motion of the moon around the Earth • I can use evidence to explain how the motion of the Earth, Sun and Moon causes moon phases • I can identify and model moon phases • I can identify the location of the Sun, Earth and moon in a lunar eclipse • I can identify the location of the Sun, Earth, and Moon in a solar eclipse • I can describe the frequency of solar and lunar eclipses throughout the year • I can explain how the position of the moon impacts the Earth's tides
35	**Moon Quiz**	
Learning Sequence 5: Seasons (~18 Days)		
36-50	**Learning Target 5** I can explain how seasons are affected by Earth's position around the sun and the angle of Earth's tilt on its axis.	• I can define and identify key vocabulary (longitude, latitude, northern hemisphere, southern hemisphere, equator) about the Earth • I can create a graph to organize and analyze data on day lengths for each month. • I can identify the length of a day fluctuates more at locations closer to the poles. • I can describe how daylight hour patterns change at different geographic locations (latitudes) on Earth throughout the year • I can identify the sun's intensity is higher the closer a location is to the equator. • I can use evidence to explain why the Earth is tilted • I can make the conclusion that although the length of the day is longer at the poles in the summer than near the equator, the angle of the sun is more intense, leading to a warmer climate near the equator.
51	**Seasons Quiz**	
52	**Flex Day**	
53	**End of Unit Test**	

Business/Non-Instructional Operations

Medical Reimbursement for Special Education Students

~~The Board of Education will seek Medicaid reimbursement for eligible medically related services provided to Medicaid eligible special education students in accordance with federal and state law.~~

The District as required shall determine a child's Medicaid enrollment status of each student who requires special education. Not later than December 1, 2017, the Board shall enroll as a provider in the state medical assistance program, participate in the Medicaid School Based Child Health Program administered by the Department of Social Services, and submit billable service information electronically to the Department of Social Services, or its billing agent.

If any child is eligible for Medicaid, but not a current Medicaid recipient, the District shall request that the parent or guardian of that child apply for Medicaid.

If any child is eligible for Medicaid, the District shall request that the parent or guardian of that child give written permission to allow the district to request Medicaid reimbursements for eligible health-related special education costs.

The Board shall provide written notification to the parent/guardian of the student before accessing the student's or parent's or guardian's public benefits or insurance for the first time and prior to the one-time parental or guardian consent and annually thereafter.

The Board shall provide written notification to all parents and guardians of children who are Medicaid eligible and currently receiving School Based Child Health (SBCH) services under an individualized education plan (IEP) prior to obtaining parental consent and prior to the continuation of billing Medicaid for the services. The Board shall obtain parental consent from all parents and guardians who are Medicaid eligible and receiving SBCH services under an IEP, in order to access their public benefits or insurance to pay for services under the IDEA.

If permission described above is received, the district will submit claims to the State Department of Administrative Services for reimbursement of any eligible health-related cost.

If permission described above is denied, the district will terminate its efforts to secure Medicaid reimbursements otherwise applicable to the child.

It is understood that in order to be eligible to receive Medicaid reimbursements, the district must, with prior written parental or guardian permission, bill all financially liable third parties for school-based child health services provided to children. This requirement pertains to all special education students, including, but not limited to Medicaid-eligible students.

If parental or guardian permission described above is denied, the district will terminate its efforts to secure third party insurer reimbursements, including Medicaid.

Business/Non-Instructional Operations

Medical Reimbursement for Special Education Students

Note: *Districts can bill for health-related services that are outlined in the student's IEP. In general, services for which a school district may bill Medicaid are: audiologist services, evaluation and testing, nursing services, occupational therapy, physical therapy, speech therapy, psychological services and social work services.*

Legal Reference: Connecticut General Statutes

10-76d Duties and powers of boards of education to provide special education programs and services. State agency placements; apportionment of costs. (as amended by June 2017 Special Session PA 17-2, Sec. 51)

42 CFR Parts 431, 433 and 440, Medicaid Program; Elimination of Reimbursement Under Medicaid for School Administration Expenditures and Costs Related to Transportation of School-Age Children Between Home and School

5.299, The Medicare, Medicaid & SCHIP Extension Act of 2007

34 C.F.R. §300.154(d) – Individuals with Disabilities Act (IDEA) Part B, related to parental consent to access public benefits or insurance

Policy Adopted: October 6, 1999
Policy Revised:

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

Business/Non-Instructional Operations

Medical Reimbursement for Special Education Students

~~The Board of Education will seek Medicaid reimbursement for eligible special education and medically related services provided to Medicaid eligible special education students in accordance with federal and state law utilizing the following procedures:~~

~~1. The planning and placement team will determine, for each student who requires special education services and for each student who is referred to special education, if that child is enrolled in or eligible for Medicaid.~~
~~2. If any child is eligible for Medicaid, but not a current Medicaid recipient, the Board will request and assist the parent or guardian of that child with applying for Medicaid.~~
~~3. If any child is eligible for Medicaid, the Board will request that the parent or guardian of the child give written permission to allow the Board to request Medicaid reimbursements for eligible special education and health related special education costs.~~
~~A. If written permission described is received, the Board will submit claims to Medicaid through the regional education resource center (RESC), for reimbursement of any health related costs.~~
~~B. If written permission is denied, the Board will terminate its efforts to secure Medicaid reimbursements otherwise applicable to the child.~~
~~4. Whether the parent or guardian refuses or gives consent to the Board to access Medicaid, reimbursement is strictly optional.~~
~~5. Whether the parent or guardian refuses or gives consent to the Board to access Medicaid reimbursement, the child will receive all special education services to which he/she is entitled without delay, at no cost to the parent or guardian.~~

The Board of Education (Board) authorizes the superintendent or designee to seek Medicaid reimbursement for eligible medically related services provided to Medicaid-eligible special education students in accordance with federal and state law. The services for which the Board may bill Medicaid include audiologist services, evaluation and testing, nursing services, occupational therapy, physical therapy, speech therapy, psychological services, and social work services.

The Board will utilize the following procedures:

1. **Eligibility Determination:** The superintendent/designee shall determine, for each student who requires special education services and for each student who is referred to special education, if that child is eligible for Medicaid.

2. **One-Time Written Consent:** The superintendent/designee shall obtain a one-time written consent from the parent or guardian, after providing the written notification described below, before accessing the student's, the parent's, or the guardian's public benefits or insurance for the first time. This consent must specify:

   - The personal identifiable information (PII) that may be disclosed (records or service information);
   - The purpose of the disclosure (billing for services);
   - The agency to which the disclosure may be made (e.g., Department of Social Services/Medicaid); and
   - That the parent or guardian understands and agrees that the District may access their public benefits or insurance to pay for services.

3. **Written Notification:** The superintendent/designee shall provide written notification to parents or guardians before accessing public benefits for the first time and annually thereafter. The notification must explain all protections available under Part B of the Individuals with Disabilities Act (IDEA). The notice must be in understandable language and in the native language of the parent or guardian unless clearly not feasible.
4. **Application Assistance:** If a child is eligible for Medicaid but not a current recipient, the superintendent/designee shall request and assist the parent or guardian with the application process.
5. **Reimbursement Requests:** For Medicaid-eligible children, the superintendent/designee will request written permission to seek reimbursement for health-related special education costs.
    - If permission is granted, claims will be submitted through the State Department of Administrative Services (DAS).
    - If permission is denied, the Board will terminate efforts to secure Medicaid reimbursements for that child.

Business/Non-Instructional Operations

Medical Reimbursement for Special Education Students (continued)

6. **Voluntary Participation:** Parental consent to access Medicaid is strictly optional. Refusal to provide consent does not relieve the Board of its responsibility to provide all required special education services at no cost to the parent or guardian.
7. **Exemption for Districts with Fewer Than 1,000 Students*:** Per C.G.S. 10-76d(a), a Board with a student population of less than one thousand may elect not to participate in the Medicaid reimbursement program if a cost-benefit analysis determines that administrative costs exceed potential revenue.
    - **Submission Process:** This analysis must be performed on the form prescribed by the Commissioner of Social Services.
    - **Three-Year Re-verification:** To maintain an exempt status, the Board must re-conduct and submit this cost-benefit analysis to the Commissioner of Social Services every three years.
    - **Documentation:** The District shall maintain a record of the most recent submission and approval of exemption to ensure compliance during state audits.

Legal Reference: Connecticut General Statutes

10-76d Duties and powers of boards of education to provide special education programs and services. State agency placements; apportionment of costs. (as amended by P.A. 99-279 An Act Concerning Programs and Modifications Necessary to Implement the Budget Relative to the Department of Social Services and PA 18-182.)

1-266 to 1-286**:** Uniform Electronic Transactions Act (permitting electronic filing and signatures).

42 CFR Parts 431, 433 and 440, Medicaid Program; Elimination of Reimbursement Under Medicaid for School Administration Expenditures and Costs Related to Transportation of School-Age Children Between Home and School

34 C.F.R. §300.154(d) – Individuals with Disabilities Act (IDEA) Part B, related to parental consent to access public benefits or insurance

3231
Form

Consent Form for Accessing Parent(s) /Guardian(s) or Student's Public Benefits or Insurance for Health-Related Services in Student's Individualized Education Program (IEP)

This consent form allows the _____ (*School District*) to bill your or your child's public benefits or insurance for covered health-related services (such as physical therapy or speech therapy) in your child's Individualized Education Program (IEP). The funds received from your or your child's public benefits or insurance help pay for the cost of providing these services.

Student's Rights to Special Education*

- ✓ Your child's right to receive the services listed in his or her IEP will continue, without interruption and at no cost to you, whether or not you sign this form.
- ✓ Giving consent will not impact your or your child's public benefits or insurance coverage.
- ✓ You have the right to refuse consent or withdraw your consent at any time.

This consent form allows the _____ (School District) to Access Parent(s)/Guardian(s) or Student's Public Benefits or Insurance for Student's Health-Related Educational Services

Student's Name: _____ _____ _____
Last Name *Middle Name* *First Name*

Student's Date of Birth: _____ **Student's SASID#** _____

The school district is seeking permission to access your or your child's public benefits or insurance and to release the following personally identifiable information in order to do so. ***(to be filled out by the school district)***

What records are being disclosed? (such as, records or information about the services that may be provided to a particular child	**What is the purpose of the disclosure of the records? (such as, eligibility determination, billing for services and auditing)**	**To what agency are the records being disclosed? (such as Medicaid)**

☐ I have reviewed my child's IEP dated: _____ I understand and agree to give my consent for _____ (School District) to bill my or my child's public benefits or insurance, in accordance with state and federal laws, for health-related educational services in my child's IEP. By signing this consent I authorize the _____ (School District) to release my child's records (as indicated above) to my or my child's public benefits or insurance as necessary for the purposes indicated above. I understand that, upon request, I may receive copies of records disclosed pursuant to this authorization.

☐ I do not give my consent or am withdrawing my consent to the accessing of my or my child's public benefits or insurance and I do not consent or am withdrawing consent to the disclosure of the previously described personal data. I understand that my refusal does not affect my child's access to any service(S) to which he/she is entitled under the Individuals with Disabilities Education Act.*

Parent/Guardian Name and Signature:

_____ _____ _____
Print Name *Signature* *Date*

Parent/Child's Public Insurance Carrier: _____
Parent/Child's Benefit Identification Number: _____
Parent(s) Address: _____
Parent(s) Phone Number(s) _____

Note:

*Under the Individuals with Disabilities Education Act (IDEA), a school district may ask a parent for consent to access the parent's or their child's public benefits or insurance to pay for health-related services (such as physical therapy or speech therapy) set forth in their child's IEP (Individualized Education Program). Before accessing these benefits for the first time, the school district must provide written notification of information about the consent as well as obtain the parent's written permission to use these benefits. In addition, the school district must provide the parent with the written notification each year. You have the right to refuse such consent; should you refuse consent, your child will still receive all services set forth in their IEP at no cost to you.

***This form must be maintained and made available for audit purposes**

cps 6/26

5114
APPENDIX A
LETTER

[BOE LETTERHEAD]

(*Date)*

CERTIFIED MAIL - RETURN RECEIPT REQUESTED & U.S. MAIL

(***Parent)***
(Parent's Address)

(Non-custodial Parent, if applicable)
(Parent's Address)

Re: Expulsion Hearing Concerning Student Name; d.o.b.

Dear ***(Parent/Guardian)***:

In accordance with the ***(name of district)*** Board of Education Policy ***(policy # & title)***, I am writing to advise you that the ***(name of district)*** Board of Education (the "Board") will hold a formal hearing concerning your ***(child), (Name of Student)*** to consider the recommendation of ***(name of administrator)*** that ***(he/she)*** be expelled from school. [***In cases where the district uses a hearing officer, add the following: Please be advised that the Board has appointed Attorney [Name], Shipman & Goodwin LLP, to serve as an impartial hearing officer in this matter.]*** This hearing is being held pursuant to Section 10-233d and Sections 4-176e to 4-180a, inclusive, and Section 4-181a of the Connecticut General Statutes and the ***(name of district)*** Board of Education Policy ***(policy # & title)***, a copy of which is enclosed. The Board ***(OR the hearing officer)*** intends to conduct the hearing in executive session, due to the confidential nature of this hearing.

The hearing will address the allegations that your (***child)*** violated Board Policy (***cite Student Discipline Policy number and any other specific policy number*** on ***date)***, by engaging in the following conduct:

(The law governing these hearings requires a short, plain statement of the facts to be included within this notice letter, and should be inserted here.

Example: carrying a knife on the school bus on a specified date and brandishing it at other students on the bus).

(State whether you considered such conduct to endanger persons or to be seriously disruptive of the educational process).

(If the student has admitted to this conduct, note the admission here).

The hearing has been scheduled for (***date, time, place).*** (this notice must be given to the students/parents/guardian at least five (5) business days before the hearing.) You and your (***son/daughter)*** are asked to attend this hearing. Your (***child)*** has the right to be represented by an attorney or other advocate at your expense, has the right to cross-examine administration witnesses, and may present relevant evidence, both documentary and testimonial, concerning the allegations. The hearing will be the parties' sole opportunity to present such evidence. The Board ***(OR the hearing officer)*** may also question witnesses. An opportunity will also be given for the administration and your (***child)*** or his/her representatives to present argument concerning the evidence presented at the hearing. If you need the services of a translator or an interpreter for this hearing, please let me know as soon as possible.

(If a manifest determination must be held prior to the expulsion hearing, add the following language: "Prior to the expulsion hearing, your son's/daughter's PPT team or Section 504 Team will determine if your child's conduct constitutes a manifestation of his/her disability." The expulsion hearing will be cancelled if the PPT or Section 504 Team determines that the conduct was a manifestation of your child's disability, otherwise, the hearings will proceed as scheduled.

You have the right to have the hearing postponed for up to one week to allow time to obtain representation except that if an emergency exists, such hearing shall be held as soon after the expulsion as possible.

The administration may recommend expulsion from school for up to one calendar year. The Board ***(OR the hearing officer)*** has discretion to adopt any period of expulsion up to one calendar year.

As mentioned above, your **(*child*)** has a right to be represented, at your own expense, by legal counsel or other advocate at the expulsion hearing, has the right to cross-examine administration witnesses and may present relevant evidence, both documentary and testimonial, concerning the allegations. Obtaining an attorney or other representative is the responsibility of the family. Very low income families may be able to obtain free advice or legal representation through Statewide Legal Services, Inc. ("SLS"). To apply for such assistance, those families should contact SLS immediately at 1-800-453-3320.

In the event your (***child)*** is expelled as a result of the scheduled hearing, and your (***child)*** is between the ages of sixteen (16) and eighteen (18) ~~and has not been expelled before~~ and this is their first or second time being expelled, the Board shall offer to your (***child)*** an alternative educational opportunity if she/he wishes to continue her/his education. Please be aware that the Board is not required to offer an alternate educational opportunity to any student between sixteen (16) and eighteen (18) years of age who have been previously expelled or to students eighteen (18) years of age or older.

If you have any questions, please call my office at (***number)***.

Sincerely,
(Name of Superintendent)
(Name of District) Public Schools

cc: ***(Name of District)***, Chairman, ***(Name of District)*** Board of Education
(Name of Special Education director)
(Name of Principal at school that student attends)
(Name of Board of Education Attorney, where applicable)
(Name of Administration's Attorney, where applicable)

Provision of an Alternative Educational Opportunity for Eligible Expelled Students

The following procedures shall be followed, in concert with policy #5114 by District personnel pertaining to the required provision of an alternative educational opportunity for expelled students eligible for such program.

Options for Alternative Educational Opportunity

The District shall provide an alternative educational opportunity for eligible expelled students by exercising one of the following two permissible options.

1. Enroll the student in an alternative education program which is compliant with requirements for such programs, including the length of school year and number of hours, with an individualized learning plan IF the district provides such alternative education, (*use of this option requires the alternative education program to comply with C.G.S. 10-74j which requires adherence to C.G.S. 10-15 and 10-6 requiring a minimum of 180 days and 900 hours of actual school work per year*) and the program is appropriate for the student. **OR**
2. Provide the student with an alternative educational opportunity in accordance with the State Board of Education (SBOE) adopted standards, including through an alternative education program offered by another school district or operator. (*A standard program for its alternative educational opportunity providing such program meets the other requirements of the Standards, including the individualized learning plan.)*

State Department of Education (SDE) Positions to Consider

1. In order to properly implement the provision of an alternative educational opportunity to expelled students, whether the District implements option #1 or #2 above, the District must comply with the SBOE adopted (1/3/18) Standards.
2. SDE "expects that, in most cases, school districts will determine that enrollment in an alternative education program…is the appropriate alternative educational opportunity" for an expelled student. Such an alternative education program could be operated by the local district or another provider.
3. There may be "unusual cases" where placement in an alternative education program may not be appropriate or available.
4. The alternative educational opportunity must be "full-time" and "comprehensive," and such opportunity for learning is comparable to a regular school setting. *(This provides the district that does not provide placement for the expelled student in alternative educational program some flexibility in developing an alternative educational opportunity that provides comparable learning opportunities for the expelled student without dictating a certain number of minimum instructional hours, but, per the Standards, must be "full-time" and "comprehensive.")*
5. Assignment to homebound instruction will not satisfy the "Guiding Principles" of the Standards.

Requirements of Standards for Alternative Educational Opportunities for Students Who Have Been Expelled

Guiding Principles

Consistent with the *Guidelines for Alternative Education Settings*, these standards are grounded in the conviction that alternative educational opportunities for students who have been expelled should exhibit the following characteristics:

- whole student approach that addresses the personal, social, emotional, intellectual, work skills, safety, and security needs of all students in addition to academic content (including the Connecticut Core Standards);
- full time, comprehensive experience, where the learning is comparable to what the student would experience in a regular school environment;
- instruction that is based on a curriculum aligned to the Connecticut Core Standards unless modified as indicated by goals and objectives of an Individualized Education Program (IEP);
- high expectations that are consistent with LEA goals and Connecticut state standards including the belief that all students are capable and can be successful regardless of their discipline history; and
- research/evidence-based practices with student success in mind including the engagement of parents/guardians and families as well as community partners, as appropriate.

These principles are unlikely to be satisfied by assignment to homebound instruction.

Requirements of Standards for Alternative Educational Opportunities for Students Who Have Been Expelled

The SBOE adopted Standards for Alternative Educational Opportunities require the District to:

1. Provide a full time, comprehensive alternative educational opportunity, with a focus on an opportunity for learning that is comparable to those in a regular school setting.
2. Notify parents/students at the time of expulsion of the right to apply for early readmission, which can be granted at the discretion of the Board of Education or the Superintendent, if the Board delegates this authority to the Superintendent (C.G.S. 10-233(j)). *(The criteria for early readmission should be recorded in the individualized learning plan (ILP)).*
3. Meet with parents/guardians prior to placement to provide information about potential alternative educational opportunities and a placement meeting to finalize such placement. *(Such meeting can take place directly after the expulsion hearing.)*
4. Consult with relevant school personnel knowledgeable about the student's academic, social and behavioral history to help in the determination of an appropriate alternative educational opportunity.

5. Involve the PPT for expelled special education students who are determined to have educational programming and placement during the period of expulsion in accordance with the Individuals with Disabilities Act (IDEA).
6. Develop an Individualized Learning Plan (ILP) to address:
   - Information pertaining to the student's academic and behavioral needs and appropriate academic and behavioral goals and interventions including the core classes and current placement or progress in the curriculum of those classes at the time of expulsion.
   - Benchmarks to measure progress towards the goals and progress towards graduation. *(This will include monitoring attendance, work completion, and progress toward meeting the coursework's academic standards.)*
   - Reviewing the student's progress and communicating that progress to parent/guardian or student. (*What would be done for students generally.)*
   - Transfer of records to/from the alternative educational provider and the school from which the student was expelled.
   - Language pertaining to the possibility of early readmission to the school from which the student was expelled.
7. Monitor progress of student performance and placement. *(This must be done and documented at least once per marking period, review of the student's ILP and make any needed adjustments.)*
8. Adopt procedures to address a student's transition from an alternate educational opportunity to the student's regular school. *(The criterion for readmission is the completion of the expulsion period.)*

Procedural Steps to be taken by District following the Expulsion of a Student to Provide the Required Alternative Educational Opportunity

The Superintendent or his/her designee is responsible for the fulfillment of the following:

1. Determine the eligibility of the expelled student for an alternative education opportunity.

   a. The student is under the age of sixteen (16) and must be offered an alternative educational opportunity.

   b. The student is between the ages of sixteen (16) and eighteen (18), ~~and has not been previously expelled~~ has been expelled for the first or second time and wishes to continue his or her education shall be offered such an alternative educational opportunity. *(The District is not obligated to provide an alternative educational opportunity to students in this age bracket who have been previously expelled, even if the prior expulsion occurred before the student was sixteen years of age.)*

   c. The student is eighteen years of age or older and the Board of Education is not obligated to provide an alternative educational opportunity.

d. Other considerations:

i. Any parent/guardian of an expelled student who does not choose to have his or her child enrolled in an alternative educational opportunity shall not be subject to the provision of Section 10-184 of the Connecticut General Statutes regarding school attendance.

ii. A student seventeen (17) years of age or older may be assigned to an adult education program and not be required to withdraw from school per C.G.S. 10-184.

iii. The student may be placed in a regular classroom program of a school other than the one from which the student has been excluded.

iv. A student expelled for the sale or distribution of a controlled substance, shall be referred to an appropriate state or local agency for rehabilitation, intervention or job training, or any combination thereof.

v. A student expelled for possession of a firearm, deadly weapon, dangerous instruments (those that can be used to cause death or serious injury) or martial arts weapons shall be reported to the local police department.

vi. An expelled special education student's alternative educational opportunity shall be established by the IEP team (PPT).

2. Determine the appropriate option for the alternative educational opportunity option to be offered to the expelled student.

a. Enroll the student in an alternative education program operated by the District which is compliant with requirements for such programs, (hours, length of school year and number of hours) with an individualized learning plan IF the district provides such alternative education.

b. Provide the student with an alternative educational opportunity in accordance with the SBOE adopted standards, including through an alternative education program offered by another school district or operator. (A standard program for its alternative educational opportunity providing such program meets the other requirements of the Standards, including the individualized learning plan.)

3. Consult with relevant school personnel knowledgeable about the student to obtain information regarding the student's academic, social and behavioral history that will help inform the decision concerning an appropriate alternative educational opportunity. The input shared by school personnel may be gathered via written reports.

4. Meet with the student's parent(s)/guardian(s) prior to placement to provide information concerning the potentially appropriate alternative educational opportunities for the student.

5. Hold a placement meeting after parents/guardians have been informed and the appropriate school personnel have shared information regarding the student.

    a. Explore all alternative educational opportunities at this meeting.

    b. The placement decision should be made at this meeting.

    c. Other considerations:

        i. Parents/students, at the time of expulsion, should be informed of the right to apply for early readmission, which can be granted at the discretion of the Board of Education or Superintendent (*if the BOE delegates this authority to the Superintendent under C.G.S. Section 10-233d(j*)).

        ii. Any criteria for early readmission to the school from which the student has been expelled should be recorded in the Individualized Learning Plan (ILP).

6. Development of an Individualized Learning Plan (ILP) to inform and direct the student's learning goals and activities for the duration of the expulsion.

    a. After placement in the alternative education opportunity, an ILP must be developed to govern the student's programming during period of the expulsion.

    b. Develop the ILP through collaboration among school personnel, the student and the parent/guardian.

    c. Reference student records with information relevant to the alternative educational opportunity. *(student success plan, Individualized Education Program (IEP) under special education, Section 504 Plan, Individualized Health Plan, and/or other academic and behavioral data.)*

    d. The student's ILP is to contain:

        i. The student's academic and behavioral needs and appropriate academic and behavioral goals and interventions;

        ii. The student's core classes at the time of expulsion;

        iii. The student's current placement or progress in the curriculum of those classes so that the student has an opportunity to continue to progress in the LEA's academic program and earn graduation credits, if applicable;

        iv. Benchmarks to measure progress towards the goals and ultimately, progress towards graduation;

        v. Timing and method for reviewing the student's progress and for communicating that progress to the parent/guardian or student; *(For most students, monitoring and reviewing the student's progress will include monitoring the student's attendance, work completion and progress toward meeting the relevant academic standards for particular coursework, and thus progressing toward graduation, if applicable.*)

            - The progress monitoring of student performance and placement must be done and documented at least once per marking period, including a review of the ILP and the making of any necessary adjustments.

vi. Such progress to be communicated to the parent/guardian and/or student with the same frequency as similar progress for students in the regular school environment is reported and communicated to parents/guardians or students;

vii. Provision for the timely transfer of the student's records both from the student's school to the alternative educational opportunity provider, and also from the alternative educational opportunity provider to the student's school; and

viii. The possibility of early readmission to the school from which the student was expelled and the early readmission criteria.

ix. A process for transition planning based upon the following considerations:

- Efforts to readmit students at semester start points at the high school level to facilitate re-entry;
- A plan to transfer the student's credits and record back to the school from which the student was expelled;
- The student's needs for academic and other supports upon return to the home school environment; and
- Efforts to connect returning students with opportunities to participate in extracurricular activities to support student engagement and general health and development.

7. If a determination is made that placement in the current alternative educational opportunity is no longer beneficial to an expelled student but it is also inappropriate to have the student return to the school from which the student was expelled, a plan for different alternative educational opportunities should be developed, following the procedure outlined above.

8. Students who have a student success plan as mandated by state law, such plan may inform the ILP but does not replace the ILP.

Students

Suspension and Expulsion/Due Process

The Bristol Board of Education is committed to creating a safe, orderly, and supportive learning environment for all students, staff, and visitors. This policy aims to balance the necessity of maintaining safety and order within our schools while adhering to progressive discipline and restorative practices, which seeks to address and correct inappropriate behavior while promoting accountability, personal growth, and the repair of harm.

Students are expected to comply with school rules and Board policies and may be disciplined for conduct on school grounds or at any school-sponsored activity that endangers persons or property, is seriously disruptive of the educational process, or that violates a publicized policy of the Board. Students may be disciplined for conduct off school grounds if such conduct is seriously disruptive to the educational process and violates Board policy.

Policy Objectives

1) **Ensure Safety and Order**: Maintain a secure and disciplined school environment conducive to learning and free from violence, threats, and disruptive behaviors.
2) **Promote Equity and Fairness**: Apply disciplinary measures in an equitable, consistent, and unbiased manner, ensuring that all students are treated with dignity and respect.
3) **Support Progressive Discipline**: Implement a progressive discipline model that focuses on intervention and prevention strategies to address and correct student behavior before it escalates.
4) **Implement Restorative Practices**: Incorporate restorative practices that emphasize accountability, reparation of harm, and the restoration of relationships within the school community.
5) **Encourage Personal Responsibility**: Foster a sense of personal responsibility and self-discipline in students, helping them to understand the consequences of their actions and to make better choices in the future.
6) **Engage Families and Communities**: Involve parents, guardians, and community members in the disciplinary process to support students in their behavioral and academic growth.

Policy Guidelines

1. **Clear Expectations and Communication**:
    - Establish and communicate clear behavioral expectations and the consequences of violating them.
    - Ensure that all students, staff, and parents/guardians are aware of the discipline policy and procedures.

Students

Suspension and Expulsion/Due Process

Policy Guidelines (continued)

2. **Progressive Discipline Framework**:
    - Utilize a tiered approach to discipline that escalates in response to the severity and frequency of the behavior.
    - Implement early intervention strategies such as counseling, mentoring, and behavior modification plans to address minor infractions.
3. **Restorative Practices**:
    - Employ restorative practices such as mediation, peer counseling, and restorative circles to address conflicts and repair harm.
    - Encourage students to take responsibility for their actions and to actively participate in the resolution process.
4. **Consistent and Fair Application**:
    - Ensure that disciplinary measures are applied consistently and fairly across all student populations.
    - Monitor and address any disparities in the application of disciplinary actions to prevent discrimination or bias.
5. **Supportive Interventions**:
    - Provide support services such as counseling, social work, and mental health resources to help students address underlying issues contributing to behavioral problems.
    - Develop individualized behavior plans for students with recurring or severe behavioral issues.
6. **Engagement and Collaboration**:
    - Engage families in the disciplinary process through regular communication and involvement in restorative practices.
    - Collaborate with community organizations and resources to support students and families in addressing behavioral and social-emotional needs.
7. **Training and Professional Development**:
    - Provide ongoing training for staff on progressive discipline, restorative practices, and culturally responsive approaches to student behavior.
    - Encourage staff to develop skills in conflict resolution, de-escalation techniques, and positive behavior support.

Students

Suspension and Expulsion/Due Process

Policy Guidelines (continued)

Review and Accountability

The Bristol Board of Education will regularly review the effectiveness of its discipline policy, incorporating feedback from students, staff, parents, and the community. Data on disciplinary actions and their outcomes will be collected and analyzed to ensure continuous improvement and the achievement of policy objectives.

By adopting this balanced approach to discipline, the Bristol Public School District aims to create a school environment where all students can learn, grow, and succeed while feeling safe and supported.

A. Definitions

1. **"Exclusion"** shall be defined as any denial of public school privileges to a student for disciplinary purposes.

2. **"Removal"** shall be defined as an exclusion from a classroom for all or a part of single class period, provided such exclusion shall not extend beyond ninety (90) minutes.

3. **"In-School Suspension"** means an exclusion from regular classroom activity for no more than five consecutive days, but not exclusion from school, provided such exclusion shall not extend beyond the end of the school year in which such in-school suspension was imposed. Such suspensions shall be served in any school building under the jurisdiction of the Board of Education.

4. **Forced Pick-Ups** means a practice requiring parents and guardians to pick up their students from school when behavioral issues occur. It is important to note that when a district asks a parent or guardian to pick up a student under such circumstances, it is considered an out-of-school suspension (OSS) and as such is subject to the provisions of Connecticut General Statutes (CGS) Section 10-233c. This classification means the student is not only being removed from the school environment for the day but may also need interventions or support to address the underlying behavioral issues. Schools are required to document these cases to comply with the statute, ensure proper communication and collaboration with families about the students' needs, and employ any resources that could help manage the behavior more effectively by the school.

Students

Suspension and Expulsion/Due Process

A. Definitions (continued)

5. **"Suspension"** means an exclusion from school privileges or from transportation services, provided such exclusion shall not extend beyond the end of the school year in which suspension was imposed. An out-of-school suspension for students in grades 3-12 shall not exceed ten days. An out-of-school suspension imposed for children in preschool to second grade shall not exceed five days.

   All suspensions shall be in-school unless the administration determines for any student in grades three through twelve that (1) the student being suspended poses such a danger to persons or property or such a disruption of the educational process that the student (grades three to twelve) shall be excluded from school during the period of the suspension, or (2) that an out-of-school suspension is appropriate based on evidence pf previous disciplinary issues that have led to suspensions or expulsion of the student and efforts by the administration to address such disciplinary issues through means other than out-of-school suspension or expulsion, including positive support strategies A student in grades preschool to two, inclusive, may be given an out-of-school suspension if it is determined by the administration that such suspension is appropriate based on evidence that the student's conduct on school grounds is of a violent or sexual nature that endangers persons. In addition, a person's duty as a mandated reporter to report suspected child abuse or neglect is not limited by this provision.

6. **"Expulsion"** shall be defined as an exclusion from school privileges for any student in grades three to twelve, inclusive, for more than ten (10) consecutive school days and shall be deemed to include but not be limited to, exclusion from the school to which such student was assigned at the time such disciplinary action was taken, provided that assignment to a regular classroom program in a different school in the district shall not constitute a suspension or an expulsion. Such period of exclusion may extend to the school year following the school year in which the exclusion was imposed, up to one calendar year. To be expelled, the student's conduct must be found to be both violative of a Board policy and either seriously disruptive of the educational process or endangering persons or property.

   Unless an emergency exists, no student shall be expelled without a formal hearing provided whenever such student is a minor, the notice shall also be given to the parents or guardians of the student at least five business days before such hearing, not including the day of such hearing. If an emergency exists, such hearing shall be held as soon after the expulsion as possible. The notice shall include information concerning the parent's or guardian's and the student's legal rights and concerning legal services provided free of charge or at a reduced rate that are available locally and how to access such services. An attorney or other advocate may represent any student subject to expulsion proceedings. The parent or guardian of the student shall have the right to have the expulsion hearing postponed for up to one week to allow time to obtain representation, except that if an emergency exists, such hearing shall be held as soon after the expulsion as possible.

Students

Suspension and Expulsion/Due Process

A. Definitions (continued)

7. **"Emergency"** shall be defined as a situation under which the continued presence of the student in the school imposes such a danger to persons or property or such a disruption of the educational process that a hearing may be delayed until a time as soon after the exclusion of such student as possible.

8. **"Days"** is defined as days when school is in session.

9. **"School-sponsored activity"** is defined as any activity sponsored, recognized or authorized by the Board of Education and includes activities conducted on or off school property.

10. **"Possess"** means to have physical possession or otherwise to exercise dominion or control over tangible property.

11. **"Deadly weapon"** means any weapon, whether loaded or unloaded, from which a shot may be discharged, or a switchblade knife, gravity knife, billy, blackjack, bludgeon, or metal knuckles. A weapon such as a pellet gun and/or airsoft pistol may constitute a deadly weapon if such weapon is designed for violence and is capable of inflicting death or serious bodily harm.

12. **"Firearm"** as defined in 18 U.S.C.§921, means 1) any weapon (including a starter gun) which will or is designed to or readily be converted to expel a projectile by the action of an explosive; 2) the frame or receiver of any such weapon; 3) any firearm muffler or firearm silencer; or 4) any destructive device. Firearm does not include any antique firearm. For purposes of this definition "destructive device" means any explosive, incendiary, or poison gas, bomb, grenade, rocket having a propellant charge of more than 4 ounces, missile having an explosive or incendiary charge of more than ¼ ounce, mine, or device similar to any of the weapons described herein. A "destructive device" does not include an antique firearm; a rifle intended to be used by the owner solely for sporting, recreational, or cultural purposes; or any device which is neither designed nor redesigned for use as a weapon.

13. **"Vehicle"** means a **"motor vehicle"** as defined in Section 14-1 of the Connecticut General Statutes, snow mobile, any aircraft, or any vessel equipped for propulsion by mechanical means or sail.

14. **"Martial arts weapon"** means a nunchaku kama, Kesari-fundo, octagon sai, tonfa, or Chinese star.

15. **"Dangerous Drugs and Narcotics"** is defined as any controlled drug in accordance with Connecticut General Statutes §219-240.

16. **"Alternate education"** means a school or program maintained and operated by the Board of Education that is offered to students in a nontraditional setting and addresses their social, emotional, behavioral and academic needs. Such program must conform to SBE guidelines and conform to C.G.S. 10-15 and 16 (180 days/900 hours).

Students

Suspension and Expulsion/Due Process

A. Definitions (continued)

17. **"Dangerous Instrument"** means any instrument, article, or substance which, under the circumstances in which it is used or attempted or threatened to be used, is capable of causing death or serious physical injury, and includes a "vehicle" or a dog that has been commanded to attack.

18. **"Seriously disruptive of the educational process"** means, as applied to off-campus conduct, any conduct that markedly interrupts or severely impedes the day-to-day operation of a school.

B. Removal from Class

1. All teachers are hereby authorized to remove a student from class when such student causes a serious disruption of the educational process within the classroom.

2. Such teacher shall send the student to a designated area and shall immediately inform the building Principal or his/her designee as to the name of the student and the reason for removal.

3. No student shall be removed from class more than six (6) times in any year nor more than twice in one week, unless such student is referred to the Building Principal or his/her designee and granted an informal hearing in accordance with the provisions of this policy.

4. A school principal or other school administrator shall notify a parent or guardian of a student whose behavior has caused a serious disruption to the instruction of other students, caused self-harm or caused physical harm to a teacher, another student or other school employee not later than twenty-four hours after such behavior occurs. Such notice shall include, but not be limited to, informing such parent or guardian that the teacher of record in the classroom in which such behavior occurred may request a behavior intervention meeting.

   Any teacher of record in a classroom may request a behavior intervention meeting with the crisis intervention team for the school, for any student whose behavior has caused a serious disruption to the instruction of other students, or caused self-harm or physical harm to such teacher or another student or staff member in such teacher's classroom. The crisis intervention team shall, upon the request of such teacher and notifying such student's parent or guardian, convene a behavior intervention meeting regarding such student. The participants of such behavior intervention meeting shall identify resources and support to address such student's social, emotional and instructional needs. Not later than seven days after the behavior intervention meeting, the crisis intervention team shall submit to the parent or guardian of such student, in the dominant language of such parent or guardian, a written summary of such meeting, including, but not limited to, the resources and supports identified.

Students

Suspension and Expulsion/Due Process

C. Exclusion from Co-Curricular and Extra-Curricular Activities

Participation in co-curricular and extra-curricular activities is a privilege and not an entitlement. Students involved in such programs are expected to follow all school rules and demonstrate good citizenship. Failure to do so may result in partial or complete exclusion from said activities and programs. Activities include, but are not limited to, athletic programs, musical or drama productions, clubs, field trips, and school trips out-of-state and abroad.

D. Actions Leading to Disciplinary Action, including Removal from Class, Suspension and/or Expulsion

Conduct which may lead to disciplinary action (including, but not limited to, removal from class, suspension and/or expulsion in accordance with this policy) includes conduct on school grounds or at a school-sponsored activity (including on a school bus), and conduct off school grounds, as set forth above. Such conduct includes, but is not limited to, the following:

1. Striking or assaulting a student, members of the school staff or other persons.
2. Theft.
3. The use of obscene or profane language or gestures, the possession and/or display of obscenity or pornographic images or the unauthorized or inappropriate possession and/or display of images, pictures or photographs depicting nudity.
4. Violation of smoking, dress, transportation regulations, or other regulations and/or policies governing student conduct.
5. Refusal to obey a member of the school staff, law enforcement authorities, or school volunteers, or disruptive classroom behavior.
6. Any act of harassment based on an individual's sex, sexual orientation, race, color, religion, disability, national origin or ancestry.
7. Refusal by a student to identify himself/herself to a staff member when asked, misidentification of oneself to such person(s), lying to school officials or otherwise engaging in dishonest behavior.
8. Inappropriate displays of public affection of a sexual nature and/or sexual activity on school grounds or at a school-sponsored activity.
9. A walk-out from or sit-in within a classroom or school building or school grounds.
10. Blackmailing, threatening or intimidating school staff or students (or acting in a manner that could be construed to constitute blackmail, a threat, or intimidation, regardless of whether intended as a joke).
11. Possession of any weapon, weapon facsimile, deadly weapon, martial arts weapon, electronic defense weapon, pistol, knife, blackjack, bludgeon, box cutter, metal knuckles, pellet gun, air pistol, explosive device, firearm, whether loaded or unloaded, whether functional or not, or any other dangerous object or instrument. The possession and/or use of any object or device that has been converted or

Students

Suspension and Expulsion/Due Process

D. Actions Leading to Disciplinary Action, including Removal from Class, Suspension and/or Expulsion (continued)

12. modified for use as a weapon.

13. Possession of any ammunition for any weapon described above in paragraph 11.

14. Unauthorized entrance into any school facility or portion of a school facility or aiding or abetting an unauthorized entrance.

15. Possession or ignition of any fireworks, combustible or other explosive materials, or ignition of any material causing a fire. Possession of any materials designed to be used in the ignition of combustible materials, including matches and lighters.

16. Unlawful possession, sale, distribution, use, or consumption of tobacco, electronic nicotine delivery systems (e.g. e-cigarettes), vapor products, drugs, narcotics or alcoholic beverages (or any facsimile of tobacco, drugs, narcotics or alcoholic beverages, or any item represented to be tobacco, drugs or alcoholic beverages), including being under the influence of any such substances or aiding in the procurement of any such substances. For the purposes of this Paragraph 15, the term "electronic nicotine delivery system" shall mean an electronic device that may be used to simulate smoking in the delivery of nicotine or other substance to a person inhaling from the device and includes, but is not limited to, an electronic cigarette, electronic cigar, electronic cigarillo, electronic pipe or electronic hookah and any related device and any cartridge or other component of such device. For the purposes of Paragraph 15, the term "vapor product" shall mean any product that employs a heating element, power source, electronic circuit or other electronic, chemical or mechanical means, regardless of shape or size, to produce a vapor that may or may not include nicotine that is inhaled by the user of such product. For the purposes of this Paragraph 15, the term "drugs" shall include, but shall not be limited to, any medicinal preparation (prescription and non-prescription) and any controlled substance whose possession, sale, distribution, use or consumption is illegal under state and/or federal law.

17. Sale, distribution, or consumption of substances contained in household items; including, but not limited to glue, paint, accelerants/propellants for aerosol canisters, and/or items such as the aerators for whipped cream; if sold, distributed or consumed for the purpose of inducing a stimulant, depressant, hallucinogenic or mind-altering effect.

18. Unlawful possession of paraphernalia used or designed to be used in the consumption, sale or distribution of drugs, alcohol or tobacco, as described in subparagraph (15) above. For purposes of this policy, drug paraphernalia includes any equipment, products and materials of any kind which are used, intended for use or designed for use in growing, harvesting, manufacturing, producing, preparing, packaging, storing, containing or concealing, or injecting, ingesting, inhaling or otherwise introducing controlled drugs or controlled substances into the human body, including but not limited to items such as "bongs," pipes, "roach clips," vials, tobacco rolling papers, and any object or container used, intended or designed for use in storing, concealing, possessing, distributing or selling controlled drugs or controlled substances.

Students

Suspension and Expulsion/Due Process

D. Actions Leading to Disciplinary Action, including Removal from Class, Suspension and/or Expulsion (continued)

19. The destruction of real, personal or school property, such as, cutting, defacing or otherwise damaging property in any way.
20. Accumulation of offenses such as school and class tardiness, class or study hail cutting, or failure to attend detention.
21. Trespassing on school grounds while on out-of-school suspension or expulsion.
22. Making false bomb threats or other threats to the safety of students, staff members, and/or other persons.
23. Defiance of school rules and the valid authority of teachers, supervisors, administrators, other staff members and/or law enforcement authorities.
24. Throwing snowballs, rocks, sticks and/or similar objects, except as specifically authorized by school staff.
25. Unauthorized and/or reckless and/or improper operation of a motor vehicle on school grounds or at any school-sponsored activity.
26. Leaving school grounds, school transportation or a school- sponsored activity without authorization.
27. Use of or copying of the academic work of another individual and presenting it as the student's own work, without proper attribution; or any other form of academic dishonesty, cheating or plagiarism.
28. Possession and/or use of a personal electronic device—including but not limited to cellular phones, smartphones, smartwatches, tablets, headphones/earbuds, portable media players, wearable or concealed recording devices, or any similar communication or digital device—on school grounds or at school-sponsored activities
29. Unauthorized use of any school computer, computer system, computer software, Internet connection or similar school property or system, or the use of such property or system for inappropriate purposes.
30. Possession and/or use of a laser pointer, unless the student possesses the laser pointer temporarily for an educational purpose while under the direct supervision of a responsible adult.
31. Hazing.
32. **"Bullying"** is defined as unwanted and aggressive behavior among children in grades kindergarten to twelve, inclusive, that involves a real or perceived power imbalance.
33. Cyberbullying, defined as any act of bullying through the use of the Internet, interactive and digital technologies, cellular mobile telephone or other mobile electronic devices or any electronic communications.

Students

Suspension and Expulsion/Due Process

D. Actions Leading to Disciplinary Action, including Removal from Class, Suspension and/or Expulsion (continued)

34. Acting in any manner that creates a health and/or safety hazard for staff members, students, or the public, regardless of whether the conduct is intended as a joke.
35. Engaging in a plan to stage or create a violent situation for the purposes of recording it by electronic means; or recording by electronic means acts of violence for purposes of later publication.
36. Engaging in a plan to stage sexual activity for the purposes of recording it by electronic means; or recording by electronic means sexual acts for purposes of later publication.
37. Using computer systems, including email, instant messaging, text messaging, blogging or the use of social networking websites, or other forms of electronic communications, to engage in any conduct prohibited by this policy.
38. Use of a privately owned electronic or technological device in violation of school rules, including the unauthorized recording (photographic or audio) of another individual without permission of the individual or a school staff member.

E. Scope of the Student Discipline Policy

a. Conduct on School Grounds or at a School-Sponsored Activity

Students may be disciplined for conduct on school grounds or at any school-sponsored activity that endangers persons or property, is seriously disruptive of the educational process, or violates a publicized policy of the Board.

b. Conduct off School Grounds

Students may be disciplined for conduct off school grounds if such conduct is seriously disruptive of the educational process and violates a publicized policy of the Board.

In determining whether such conduct is seriously disruptive of the educational process, the Administration and the Board of Education may consider, but such consideration shall not be limited to, the following factors:

1. whether the incident occurred within close proximity of a school;
2. whether other students from the school were involved or whether there was any gang involvement;
3. whether the conduct involved violence, threats of violence, or the unlawful use of a weapon, as defined in section Conn. Gen. Stat. § 29-38, and whether any injuries occurred; and
4. whether the conduct involved the use of alcohol.
5. In making a determination as to whether such conduct is seriously disruptive of the educational process, the Administration and/or the Board of Education may also consider whether such off-campus conduct involved the illegal use of drugs.

Students

Suspension and Expulsion/Due Process (continued)

F. Mandatory Expulsion

It shall be the policy of the Board to expel a student, grades preschool, and kindergarten to twelve, inclusive, for one full calendar year if:

1. The student, on grounds or at a school-sponsored activity, was in possession of a firearm, as defined in 18 U.S.C. 921*, as amended from time to time, or deadly weapon, dangerous instrument or martial arts weapon, as defined in C.G.S. 53A-3; or the student, off school grounds, did possess such firearm in violation of C.G.S. 29-35 or did possess and use such a firearm, instrument or weapon in the commission of a crime; or the student, on or off school grounds offered for sale or distribution a controlled substance, as defined in subdivision (9) of C.G.S. 21a-240, whose manufacture, distribution, sale, prescription, dispensing, transporting or possessing with intent to sell or dispense, offering or administering is subject to criminal penalties under C.G.S. 21-277 and 21a-278.
2. Such a student shall be expelled for one calendar year if the Board of Education or impartial hearing officer finds that the student did so possess or so possess and use, as appropriate, such a weapon or firearm, instrument or weapon or did so offer for sale or distribution such a controlled substance.
3. The Board may modify the period of a mandatory expulsion on a case-by-case basis.
4. A firearm, as defined by C.G.S. 53a-3 includes any sawed-off shotgun, machine gun, rifle, shotgun, pistol, revolver, or other weapon, whether loaded or unloaded from which a shot may be discharged, or a switchblade knife, a gravity knife, billy, black jack, bludgeon or metal knuckles.
5. A student enrolled in a preschool program provided by the Board of Education, state or local charter school or interdistrict magnet school shall not be expelled from such school except that a student shall be expelled for one calendar year from such preschool program pursuant to the mandatory expulsion requirement in compliance with the Gun-Free School Act, as described in this section.

G. Suspension Procedure

Unless an emergency exists, as that term is defined in paragraph A, no student shall be suspended without an informal hearing by the administration, at which such student shall be informed of the reasons for the disciplinary action and given an opportunity to explain the situation, provided nothing herein shall be construed to prevent a more formal hearing from being held if the circumstances surrounding the incident so require. The administration shall then determine whether or not suspension or in-school suspension is warranted.

If an emergency situation exists, the hearing outlined above shall be held as soon as possible after the exclusion of the student.

Prior to conducting any hearing regarding the suspension of a student, an administrator, school counselor or school social worker at the school in which the student is enrolled, shall contact the local homeless education liaison designated by the local or regional board of education for the school district, pursuant to Subtitle B of Title VII of the McKinney-

Students

Suspension and Expulsion/Due Process

G. Suspension Procedure(continued)

Vento Homeless Assistance Act, 42 USC 11431 et seq., as amended from time to time, to make a determination whether such student is a homeless child or youth, as defined in 42 USC 11343a, as amended from time to time. If it is determined that such student is a homeless child or youth, the administration shall consider the impact of homelessness on the behavior of the student during the hearing.

In the case of suspension, the administration shall notify the student's parents and the Superintendent of Schools not later than twenty-four (24) hours of the suspension as to the name of the student who has been suspended and the reason therefore. Any student who is suspended shall be given an opportunity to complete any class work including, but not limited to, examinations which such student missed during the period of his/her suspension.

The administration shall also have the authority to suspend a student from transportation services whose conduct while awaiting or receiving transportation violates the standards set forth in paragraph D, above. The administration shall have the authority to immediately suspend from school any student when an emergency exists as that term is defined in paragraph A, above.

Out-of-School Suspensions

All suspensions shall be in-school suspensions, except the Board of Education may authorize the administration of schools under its direction to impose an out-of-school suspension on any student ~~in~~:

1. Grades preschool to two, if during the informal hearing outlined above, the administration:
    a. Determines that an out-of-school suspension is appropriate for such student based on evidence that such student's conduct on school grounds is behavior that causes serious physical harm;
    b. Requires that such student receives services that are trauma-informed and developmentally appropriate and align with any behavioral intervention plan, individualized education program, or plan pursuant to Section 504 of the Rehabilitation Act of 1973, as amended from time to time, for such student upon such student's return to school immediately following the out-of-school suspension; and
    c. Considers whether to convene a planning and placement team meeting for the purposes of conducting an evaluation to determine whether such student may require special education or related services.
2. Grades three to twelve, inclusive, if, resulting from a due process hearing:
    a. The administration determines that the student being suspended poses such a danger to persons or property or such a disruption of the educational process (as defined above in section E) that the student shall be excluded from school during the period of suspension.

Students

Suspension and Expulsion/Due Process

G. Suspension Procedure

Out-of-School Suspensions (continued)

b. The administration determines that an out-of-school suspension is appropriate for such student based on evidence of:

i. previous disciplinary problems that have led to suspensions or expulsion of such student; and

ii. efforts by the administration to address such disciplinary problems through means other than out-of-school suspension or expulsion, including positive behavioral support strategies. An in-school suspension may be served in the student's school or any school building under the jurisdiction of the local or regional board of education, as determined by such board.

Length of Suspension Period:

In determining the length of a suspension period, the administration may receive and consider evidence of past disciplinary problems which have led to removal from a classroom, in-school suspension, or expulsion.

An out-of-school suspension shall not exceed ten school days for students in grades 3-12.

An out-of-school suspension shall not exceed five school days for children in preschool through 2 grade.

For any student who is suspended for the first time and who has never been expelled, the school administration may shorten the length of or waive the suspension period if the student successfully completes an administration-specified program and meets any other administration-required conditions. Such program shall be at no expense to the student or his/her parents/guardians.

General provisions:

No student shall be suspended more than ten times or a total of fifty (50) days in one school year, whichever results in fewer days of exclusion, unless such student is granted a formal hearing pursuant to sub sections 4-176e to 4-180a, inclusive, section 4-181a, and as outlined in in section I below is first granted.

No student shall be placed on in-school suspension more than fifteen times or a total of fifty (50) days in one school year, whichever results in fewer days of exclusion, unless such student is granted a formal hearing pursuant to sub sections 4-176e to 4-180a, inclusive, section 4-181a, and as outlined in in section I below is first granted.

H. Expulsion Procedures

The Board of Education may, upon recommendation of the Superintendent of Schools, expel any student for one or more of the reasons stated in this policy if, after holding a formal hearing, it is in the judgment of the Board of Education that such disciplinary action is in the best interest of the school system.

A special education student's handicapping conditions shall be considered before making a decision to expel. A Planning and Placement Team (PPT) meeting must be held to determine whether the behavior or student actions violative of Board of Education standards set forth in policy governing suspension and expulsion are the result of the student's handicapping condition.

Students

Suspension and Expulsion/Due Process

H. Expulsion Procedures (continued)

For any student expelled for the first time and who has never been suspended, except for a student who has been expelled based on possession of a firearm or deadly weapon, the Board of Education may shorten the length of or waive the expulsion period if the student successfully completes a Board specified program and meets any other conditions required by the Board. Such a Board specified program shall not require the student or the parent/guardian of such student to pay for participation in the program.

Prior to conducting formal hearing, as required by PA 25-93 Section 38 subsection 3, an administrator, school counselor or school social worker at the school in which the student is enrolled shall contact the local homeless education liaison designated by the local or regional board of education for the school district, pursuant to Subtitle B of Title VII of the McKinney-Vento Homeless Assistance Act, 42 USC 11431 et seq., as amended from time to time, to make a determination whether such student is a homeless child or youth, as defined in 42 USC 11343a, as amended from time to time.

If it is determined that such student is a homeless child or youth:

a. The local or regional board of education, or the impartial hearing board established pursuant to subsection (b) of this section, shall consider the impact of homelessness on the behavior of the student during the hearing.

b. No such student may be expelled without a plan of interventions and supports to mitigate the impact of homelessness on the behavior of the student.

c. If such child or youth and has been expelled for a second time shall be provided a meeting with the local homeless education liaison by the local or regional board of education.

Upon receipt of a recommendation for expulsion from the Superintendent of Schools the Board shall, after giving written notice as detailed below in section K Notification, conduct a hearing prior to taking any action on the expulsion of said student, provided however, that in the event of an emergency as defined in this policy, the student may be expelled prior to the hearing but in such case even a hearing shall be held as soon after the expulsion as possible.

An attorney or other advocate may represent any student subject to expulsion proceedings. The parent/guardian of the student has the right to have the expulsion hearing postponed for up to one week to allow time to obtain representation, except that if an emergency exists, such hearing shall be held as soon after the expulsion as possible.

Expulsion hearings (formal hearings) conducted by the Board will be heard by any three or more Board members. A decision to expel a student must be supported by a majority of the Board members present, provided that no less than three (3) affirmative votes to expel are cast.

Alternatively, the Board may appoint an impartial hearing officer composed of one (1) or more persons to hear and decide the expulsion matter, provided that no member of the Board may serve on such panel.

An attorney or other advocate may represent any student subject to expulsion proceedings. The parent/guardian of the student has the right to have the expulsion hearing postponed for up to one week to allow time to obtain representation, except that if an emergency exists, such hearing shall be held as soon after the expulsion as possible.

Students

Suspension and Expulsion/Due Process

I. Formal Hearings/Due Process

1. Any hearing conducted under this paragraph shall at least include the right to:

   a. Notice prior to the date of the proposed hearing which shall include a statement of the time, place and nature of the hearing and a statement of the legal jurisdiction under which the hearing is to be held and a statement that students under sixteen years old who are expelled and students between sixteen and eighteen who have been expelled for the first or second time and who comply with conditions set by the Board of Education, must be offered an alternative educational opportunity;

   b. A short and plain statement of the matters asserted, if such matters have not already been provided in a statement of reasons requested by the student;

   c. The opportunity to be heard in the student's own defense;

   d. The opportunity to present witnesses and evidence in the student's defense;

   e. The opportunity to cross-examine adverse witnesses;

   f. The opportunity to be represented by counsel at the parents'/student's own expense; and

   g. Information concerning legal services provided free of charge or at a reduced rate that are available locally and how to access such services;

   h. The opportunity to have the services of a translator, to be provided by the Board of Education whenever the student or his/her parent or legal guardian do not speak the English language;

   i. The prompt notification of the decision of the Board of Education, which decision shall be in writing if adverse to the student concerned.

2. Record keeping:

The record of the hearing held in any expulsion case shall include the following:

a. All evidence received and considered by the Board of Education;

b. Questions and offers of proof, objections and ruling on such objections;

c. The decision of the Board of Education rendered after such hearing; and

d. A copy of the initial letter of notice of proposed expulsion, a copy of any statement of reasons provided upon request, a statement of the notice of hearing and the official transcript, if any or if not transcribed, any recording or stenographic record of the hearing.

3. Rules of evidence at hearings:

Rules of evidence at expulsion hearings shall assure fairness, but shall not be controlled by the formal rules of evidence, and shall include the following:

a. Any oral or documentary evidence may be received by the Board of Education but, as a matter of policy, irrelevant, immaterial or unduly repetitious evidence may be excluded. In addition, other evidence of past disciplinary problems which have led to removal from a classroom, in-school suspension, suspension, or expulsion may be received for considering the length of an expulsion and the nature of the alternative educational opportunity, if any, to be offered;

Students

Suspension and Expulsion/Due Process

I. Formal Hearings/Due Process (continued)

3. **Rules of evidence at hearings:** (continued)

   b. The Board of Education shall give effect to the rules of privilege by law;

   c. In order to expedite a hearing, evidence may be received in written form, provided the interest of any party is not substantially prejudiced thereby;

   d. Documentary evidence may be received in the form of copies or excerpts;

   e. A party to an expulsion hearing may conduct cross-examination of witnesses where examination is required for a full and accurate disclosure of the facts;

   f. The Board of Education may take notice of judicially cognizable facts in addition to facts within the Board's specialized knowledge provided, however, the parties shall be notified either before or during the hearing of the material noticed, including any staff memoranda or data, and an opportunity shall be afforded to any party to contest the material so noticed;

   g. A stenographic record or tape-recording of any oral proceedings before the Board of Education at an expulsion hearing shall be made provided, however, that a transcript of such proceedings shall be furnished upon request of a party with the cost of such transcript to be paid by the requesting party. Findings of fact made by the Board after an expulsion hearing shall be based exclusively upon the evidence adduced at the hearing.

J. Expunging Records

Suspension:

Whenever a student is suspended pursuant to the provisions of this section, notice of the suspension and the conduct for which the student was suspended shall be included on the student's cumulative educational record.

Such notice shall be expunged from the cumulative educational record by the local or regional board of education if a student graduates from high school, or in the case of a suspension of a student for which the length of the suspension period is shortened or the suspension period is waived pursuant to subsection (e) of this section, such notice shall be expunged from the cumulative educational record by the local or regional board of education (1) if the student graduates from high school, or (2) if the administration so chooses, at the time the student completes the administration-specified program and meets any other conditions required by the administration pursuant to subsection (e) of Sec. 10-233d., whichever is earlier.

Students

Suspension and Expulsion/Due Process

J. Expunging Records (continued)

Expulsion:

Whenever a student is expelled, notice of the expulsion and the conduct for which the student was expelled shall be included on the student's cumulative educational record. Such notice, except for notice of an expulsion of a student in grades nine to twelve, inclusive, based on possession of a firearm or deadly weapon as described in Sec. 29-38 of the general statutes.

1. shall be expunged from the cumulative educational record by the board of education if a student graduates from high school, or
2. may be expunged from the cumulative educational record by the board of education before a student graduates from high school if:
   a. in the case of a student for which the length of the expulsion period is shortened or the expulsion period is waived pursuant to subdivision (2) of subsection (c) Sec. 10-233d., such board determines that an expungement is warranted at the time such student completes the board-specified program and meets any other conditions required by such board pursuant to subdivision (2) of subsection (c) of Sec. 10-233d. , or
   b. such student has demonstrated to such board that the conduct and behavior of such student in the years following such expulsion warrants an expungement. The board of education, in determining whether to expunge such notice, may receive and consider evidence of any subsequent disciplinary problems that have led to removal from a classroom, suspension or expulsion of such student.

K. Notification

1. All students and parents within the jurisdiction of the Board of Education shall be informed, annually, of Board Policy governing student conduct by the delivery to each said student of a written copy of said Board Policy.
2. The parents or guardian of any minor student either expelled or suspended shall be given notice of such disciplinary action no later than 24 hours of the time of the institution of the period of expulsion or suspension.
3. The notice of an expulsion hearing shall be given at least five (5) business days before such hearing to the student and his/her parents or guardians, if said student is less than 18 years of age shall include information concerning the parent's/guardian's and the student's legal rights and concerning legal services that are provided free of charge or at a reduced rate that are available (CT legal services as a source of such services) and how to access such services. The notification shall reference the maximum number of suspension days before the expulsion days proceed. 5 consecutive days for students in pre-school to second grade, 10 consecutive days for students in grades 3-12, a statement that an attorney or other advocate may represent any student subject to expulsion proceedings. The parent/guardian of the student shall be notified of the right to have the expulsion hearing postponed for up to one week to allow time to obtain representation, except that if an emergency exists, such hearing shall be held as soon after the expulsion as possible.

Students

Suspension and Expulsion/Due Process (continued)

L. Stipulated Agreements

In lieu of the procedures used in this section, the Administration and the parents (or legal guardians) of a student facing expulsion may choose to enter into a Joint Stipulation of the Facts and a Joint Recommendation to the Board concerning the length and conditions of expulsion. Such Joint Stipulation and Recommendation shall include language indicating that the parents (or legal guardians) understand their right to have an expulsion hearing held pursuant to these procedures, and language indicating that the Board, in its discretion, has the right to accept or reject the Joint Stipulation of Facts and Recommendation.

If the Board rejects either the Joint Stipulation of Facts or the Recommendation, an expulsion hearing shall be held pursuant to the procedures outlined herein. If the Student is eighteen years of age or older, the student shall have the authority to enter into a Joint Stipulation and Recommendation on his or her own behalf.

If the parties agree on the facts, but not on the disciplinary recommendation, the Administration and the parents (or legal guardians) of a student facing expulsion may also choose to enter into a Joint Stipulation of the Facts and submit only the Stipulation of the Facts to the Board in lieu of holding the first part of the hearing, as described above. Such Joint Stipulation shall include language indicating that the parents understand their right to have a hearing to determine whether the student engaged in the alleged misconduct and that the Board, in its discretion, has the right to accept or reject the Joint Stipulation of Facts. If the Board rejects the Joint Stipulation of Facts, a full expulsion hearing shall be held pursuant to the procedures outlined herein.

M. Students identified as eligible for services under the Individuals with Disabilities Education Act ("IDEA")

If the Board of Education expels a student who has been identified as eligible for services under the Individuals with Disabilities Education Act ("IDEA"), it shall off an alternative educational opportunity to such student in accordance with the requirements of IDEA, as it may be amended from time to time.

N. Procedures Governing Suspension and Expulsion of Students Identified as Eligible for Services under the Individuals with Disabilities Education Act ("IDEA")

A. Suspension of IDEA students

Notwithstanding the foregoing, if the Administration suspends a student identified as eligible for services under the IDEA (an "IDEA student") who has violated any rule or code of conduct of the school district that applies to all students, the following procedures shall apply:

1. The administration shall make reasonable attempts to immediately notify the parents of the student of the decision to suspend on the date on which the decision to suspend was made, and a copy of the special education procedural safeguards must either be hand-delivered or sent by mall to the parents on the date that the decision to suspend was made.
2. During the period of suspension, the school district is not required to provide any educational services to the IDEA student beyond that which is provided to all students suspended by the school district.

Students

Suspension and Expulsion/Due Process (continued)

N. Procedures Governing Suspension and Expulsion of Students Identified as Eligible for Services under the Individuals with Disabilities Education Act ("IDEA") (cont.)

B. Expulsion and Suspensions that Constitute Changes in Placement for IDEA Students

Notwithstanding any provision to the contrary, if the administration recommends for expulsion an IDEA student who has violated any rule or code of conduct of the school district that applies to all students, the procedures described in this section shall apply. The procedures described in this section shall also apply for students whom the administration has suspended in a manner that is considered under the IDEA, as it may be amended from time to time, to be a change in placement:

1. The parents of the student must be notified of the decision to recommend for expulsion (or to suspend if a change in placement) on the date on which the decision to suspend was made, and a copy of the special education procedural safeguards must either be hand-delivered or sent by mail to the parents on the date that the decision to recommend for expulsion (or to suspend if a change in placement) was made.

2. The school district shall immediately convene the student's planning and placement team ("PPT"), but in no case later than ten (10) school days after the recommendation for expulsion or the suspension that constitutes a change in placement was made.

   The student's PPT shall consider the relationship between the student's disability and the behavior that led to the recommendation for expulsion or the suspension which constitutes a change in placement, in order to determine whether the student's behavior was a manifestation of his/her disability.

3. If the student's PPT finds that the behavior was a manifestation of the student's disability, the Administration shall not proceed with the recommendation for expulsion or the suspension that constitutes a change in placement.

4. If the student's PPT finds that the behavior was not a manifestation of the student's disability, the Administration may proceed with the recommended expulsion or suspension that constitutes a change in placement.

5. During any period of expulsion, or suspension of greater than ten (10) days per school year, the Administration shall provide the student with an alternative education program in accordance with the provisions of the IDEA.

6. When determining whether to recommend an expulsion or a suspension that constitutes a change in placement, the building administrator (or his or her designee) should consider the nature of the misconduct and any relevant educational records of the student.

Students

Suspension and Expulsion/Due Process

N. Procedures Governing Suspension and Expulsion of Students Identified as Eligible for Services under the Individuals with Disabilities Education Act ("IDEA") (continued)

C. Transfer of IDEA Students for Certain Offenses:

School personnel may transfer an IDEA student to an appropriate interim alternative educational setting for not more than forty-five (45) school days if the student:

1. Was in possession of a dangerous weapon, as defined in 18 U.S.C. 930(g)(2), as amended from time to time, on school grounds or at a school-sponsored activity, or
2. Knowingly possessed or used illegal drugs or sold or solicited the sale of a controlled substance while at school or at a school-sponsored activity; or
3. Has inflicted serious bodily injury upon another person while at school, on school premises, or at a school function.

The following definitions shall be used for this subsection XII. C.

1. **Dangerous weapon** means a weapon, device, instrument, material, or substance, animate or inanimate, that is used for, or is readily capable of, causing death or serious bodily injury, except that such term does not include a pocket knife with a blade of less than 2.5 inches in length.

2. **Controlled substance** means a drug or other substance identified under schedules I, II, III, IV, or V in section 202(c) of the Controlled Substances Act, 21 U.S.C. 812(c).

3. **Illegal drug** means a controlled substance but does not include a substance that is legally possessed or used under the supervision of a licensed health-care professional or that is legally possessed or used under any other authority under the Controlled Substances Act or under any other provision of federal law.

4. **Serious bodily injury** means a bodily injury which involves: (A) a substantial risk of death; (B) extreme physical pain; (C) protracted and obvious disfigurement; or (D) protracted loss or impairment of the function of a bodily member, organ, or mental faculty.

O. Procedures Governing Expulsions for Students Identified as Eligible under Section 504 of the Rehabilitation Act of 1973 ("Section 504")

A. Except as provided in subsection B below, notwithstanding any provision to the contrary, if the Administration recommends for expulsion a student identified as eligible for educational accommodations under Section 504 who has violated any rule or code of conduct of the school district that applies to all students, the following procedures shall apply:

1. The parents of the student must be notified of the decision to recommend the student for expulsion.

Students

Suspension and Expulsion/Due Process

O. Procedures Governing Expulsions for Students Identified as Eligible under Section 504 of the Rehabilitation Act of 1973 ("Section 504") (continued)

2. The district shall immediately convene the student's Section 504 team ("504 team") for the purpose of reviewing the relationship between the student's disability and the behavior that led to the recommendation for expulsion. The 504 team will determine whether the student's behavior was a manifestation of his/her disability.
3. If the 504 team finds that the behavior was a manifestation of the student's disability, the Administration shall not proceed with the recommended expulsion.
4. If the 504 team finds that the behavior was not a manifestation of the student's disability, the Administration may proceed with the recommended expulsion.

B. The Board may take disciplinary action for violations pertaining to the use or possession of illegal drugs or alcohol against any student with a disability who currently is engaging in the illegal use of drugs or alcohol to the same extent that such disciplinary action is taken against nondisabled students. Thus, when a student with a disability is recommended for expulsion based solely on the illegal use or possession of drugs or alcohol, the 504 team shall not be required to meet to review the relationship between the student's disability and the behavior that led to the recommendation for expulsion.

P. Procedures Governing Expulsions for Students Committed to a Juvenile Detention Center

A. Any student who commits an expellable offense and is subsequently committed to a juvenile detention center, the Connecticut Juvenile Training School or any other residential placement for such offense may be expelled by the Board in accordance with the provisions of this section. The period of expulsion shall run concurrently with the period of commitment to a juvenile detention center, the Connecticut Juvenile Training School or any other residential placement.

B. If a student who committed an expellable offense seeks to return to a school district after participating in a diversionary program or having been detained in a juvenile detention center, the Connecticut Juvenile Training School or any other residential placement and such student has not been expelled by the board of education for such offense under subdivision (A) of this subsection, the Board shall allow such student to return and may not expel the student for additional time for such offense.

Students

Suspension and Expulsion/Due Process (continued)

Q. Alternative Educational Opportunity

The Board of Education recognizes its obligation to offer any student under the age of sixteen (16) who is expelled, an alternative educational opportunity which shall be equivalent to alternative education, as defined, by C.G.S. 10-74j with an individualized learning plan, (1) if the Board provides such alternative education, or (2) in accordance with the standards adopted by the State Board of Education (by 8/15/17), which includes the kind of instruction to be provided and the number of hours to be provided, during the period of expulsion.

Any parent or guardian of such student who does not choose to have his or her child enrolled in an alternative educational opportunity shall not be subject to the provision of Section 10-184 of the Connecticut General Statutes. Any expelled student who is between the ages of sixteen (16) and eighteen (18) not previously expelled and who wishes to continue his or her education shall be offered such an alternative educational opportunity if he or she complies with conditions established by the Board of Education. other than the one from which the student has been excluded.

Such alternative educational opportunity may include, but shall not be limited to, the assignment of a student (who is seventeen (17) years of age or older) to any such adult education program or placement of such student in a regular classroom program of a school

Any student participating in an adult education program during a period of expulsion shall not be required to withdraw from school under C.G.S. 10-184. In determining the nature of the alternative education opportunity to be offered under this Section, the Board of Education may receive and consider evidence of past disciplinary issues which have led to removal from a classroom, suspension, or expulsion.

The Board of Education is not obligated to provide such alternative educational opportunity to any student eighteen years of age or older. The Board of Education is also required to offer such alternative educational opportunity, as defined, to any student between the ages of sixteen and eighteen who is expelled because of conduct which endangers persons, and involved the following, on school grounds or at a school-sponsored event:

1. Possession of a firearm, deadly weapon, dangerous instrument or martial arts weapon, or
2. Offering an illegal drug for sale or distribution.
3. If the Board expels a student for the sale or distribution of a controlled substance, the Board shall refer the student to an appropriate state or local agency for rehabilitation, intervention or job training, or any combination thereof, and inform the agency of its action. If a student is expelled for possession of a firearm, deadly weapon, dangerous instruments (those that can be used to cause death or serious injury) or martial arts weapons the Board shall report the violation to the local police department.
4. This provision shall not apply to students requiring special education who are described in subdivision (1) of sub-section (e) of C.G.S. 10-76a. The alternative educational opportunity for any such student shall be established by the IEP team (PPT) in accordance with the procedures described above.

Students

Suspension and Expulsion/Due Process

R. Other Considerations

1. If a student is expelled, notice of the expulsion and the conduct for which the student was expelled shall be included on the student's cumulative educational record. Such notice, except for the notice of an expulsion of a student in grades nine through twelve, inclusive, based on possession of a firearm or deadly weapon, shall be expunged from the cumulative educational record by the Board if the Board determines that the student's conduct and behavior in the years following such expulsion warrants an expungement or if the student graduates from high school.
2. If a student's expulsion is shortened or the expulsion period waived based upon the fact that the student was expelled for the first time, had never been suspended, and successfully completed a Board specified program and/or met other conditions required by the Board, the notice of expulsion shall be expunged from the cumulative educational record if the student graduates from high school or, if the Board so chooses, at the time the student completes the Board specified program and meets any other conditions required by the Board.
3. If a student in grades preschool to eight, is expelled based on possession of a firearm or deadly weapon, the Board may expunge from the students' cumulative education record the notice of the expulsion and the conduct for which the student was expelled if the Board determines that the conduct and behavior of the student in the years following such expulsion warrants an expungement.
4. The Board may adopt the decision of a student expulsion hearing conducted by another school district provided such Board of Education held a hearing pursuant to C.G.S.10-233d(a). Adoption of such a decision shall be limited to a determination of whether the conduct which was the basis for the expulsion would also warrant expulsion under the policies of this Board. The student shall be excluded from school pending such hearing. The excluded student shall be offered an alternative education opportunity in accordance with item K above.
5. Whenever a student against whom an expulsion hearing is pending withdraws from school and after notification of such hearing but before the hearing is completed and a decision rendered, (1) notice of the pending expulsion hearing shall be included on the student's cumulative educational record and (2) the Board shall complete the expulsion hearing and render a decision.
6. A student expelled for possession of a firearm, deadly weapon, dangerous instrument or martial arts weapon shall have the violation reported to the local police department.
7. The period of expulsion shall not extend beyond a period of one calendar year. A period of exclusion may extend into the next school year.
8. An expelled student may apply for early readmission to school. Such readmission shall be at the discretion of the Board of Education/Superintendent of Schools (choose which). Readmission decisions shall not be subject to appeal to Superior Court. The Board or Superintendent, as appropriate, may condition such readmission on specified criteria.

Students

Suspension and Expulsion/Due Process

R. Other Considerations (continued)

9. Any student who commits an expellable offense and is subsequently committed to a juvenile detention center, The Connecticut Juvenile Training School or any other residential placement for such offense may be expelled by the local Board of Education. The period of expulsion shall run concurrently with the period of commitment to a juvenile detention center, the Connecticut Juvenile Training School or any other residential placement.

10. Prior to placing any student in an out-of-district placement due to the challenging behavior of such student, the board of education shall conduct a functional behavior assessment of such student and develop or update a behavioral intervention plan for such student.

    A functional behavior assessment and a behavioral intervention plan shall not be required if the time required to conduct such assessment or develop or update such plan would put the safety of such student, any other student or any staff at such student's school at risk.

    Not later than two business days following the decision to not conduct such assessment or develop or update such plan for such student, the local or regional board of education shall file a notice with the Department of Education of the reasons that such assessment was not conducted or such plan was not developed or updated.

S. Change of Residence During Expulsion Proceedings

A. Student moving into the school district

1. If a student enrolls in the district while an expulsion hearing is pending in another district, such student shall not be excluded from school pending completion of the expulsion hearing unless an emergency exists, as defined above. The Board shall retain the authority to suspend the student or to conduct its own expulsion hearing.

2. Where a student enrolls in the district during the period of expulsion from another public school district, the Board may adopt the decision of the student expulsion hearing conducted by such other school district. The student shall be excluded from school pending such hearing. The excluded student shall be offered an alternative educational opportunity in accordance with statutory requirements. The Board shall make its determination based upon a hearing held by the Board, which hearing shall be limited to a determination of whether the conduct which was the basis of the previous public school district's expulsion would also warrant expulsion by the Board.

Students

Suspension and Expulsion/Due Process

S. Change of Residence During Expulsion Proceedings (continued)

B. Student moving out of the school district:

Where a student withdraws from school after having been notified that an expulsion hearing is pending, but before a decision has been rendered by the Board, the notice of the pending expulsion hearing shall be included on the student's cumulative record and the Board shall complete the expulsion hearing and render a decision. If the Board subsequently renders a decision to expel the student, a notice of the expulsion shall be included on the student's cumulative record.

T. Compliance with Documentation and Reporting Requirements

A. The Board of Education shall include on all disciplinary reports the individual student's state-assigned student identifier (SASID).

B. The Board of Education shall report all suspensions and expulsions to the State Department of Education.

C. If the Board of Education expels a student for sale or distribution of a controlled substance, the Board shall refer such student to an appropriate state or local agency for rehabilitation, intervention or job training and inform the agency of its action.

D. If the Board of Education expels a student for possession of a deadly weapon or firearm, as defined in Conn. Gen. Stat. §53a-3, the violation shall be reported to the local police.

Readmission of Student from a Residential Placement

A District student who has committed an expellable offense who seeks to return to a District school, after participating in a diversionary program or having been detained in a juvenile detention center, the Connecticut Juvenile Training School or any other residential placement, for one year or more, in lieu of expulsion from the District, shall be permitted to return to the appropriate school setting within the District. Further, the District shall not expel the student for any additional time for the offense(s).

Students and parents shall be notified of this policy annually.

Legal Reference: Connecticut General Statutes

4-176e through 4-180a. Contested Cases. Notice. Record, as amended

10-74j Alternative education (PA 15-133)

10-222d Safe school climate plans. Definitions. Safe school climate assessments.

10-233a through 10-233f Suspension, removal and expulsion of students, as amended by PA 95-304, PA 96-244, PA 98-139, PA 07-66, PA 07-122, PA 08-160, PA 09-82, PA 09-6 (September Special Session), PA 10-111, PA 11-126, PA 14-229, PA 15-96, PA 16-147, PA 17-220, PA 19-91 and PA 25-67 and PA 25-93.

Students

Suspension and Expulsion/Due Process

Legal Reference: Connecticut General Statutes
10-233l Expulsion and suspension of children in preschool programs
19a-342a Use of electronic nicotine delivery system or vapor product prohibited.
29-38 Weapons in vehicles
53a-3 Definitions.
53a-217b Possession of Firearms and Deadly Weapons on School Grounds.
53-344b Sale and delivery of electronic nicotine delivery system or vapor products to minors.
53-206 Carrying of dangerous weapons prohibited.
PA 15-96 An Act Prohibiting Out-of-School Suspensions and Expulsions for Students in Preschool and Grades Kindergarten to Two.
GOALS 2000: Educate America Act, Pub. L. 103-227.
Title III - Amendments to the Individuals with Disabilities Education Act. Sec. 314 (Local Control Over Violence)
Elementary and Secondary Act of 1965 as amended by the Gun Free Schools Act of 1994
P.L. 105-17 The Individuals with Disabilities Act, Amendments of 1997.
Kyle P. Packer PPA Jane Packer v. Thomaston Board of Education.
P.L. 108-446 The Individuals with Disabilities Education Improvement Act of 2004, 20 U.S.C. 1400 et seq.
18 U.S.C. §921 – Definitions of "firearms"
18 U.S.C. §930(g)(2) – Definition of "dangerous weapon"
18 U.S.C. §1365(h)(3) – Identifying "serious bodily injury"
21 U.S.C. §812(c) – Identifying "controlled substances"
Public Act 24-45 An Act Concerning Education Mandate Relief, School Discipline and Disconnected Youth, Sections 13-14
Public Act 24-93 An Act Concerning Various and Assorted Revisions to the Education Statutes, Section 11 and Section 12
Public Act 25-67 An Act Concerning the Quality and Delivery of Special Education Services in Connecticut (Section 13)
Public Act 25-93 An Act Increasing Resources for Students, Schools and Special Education (Sections 38 & 39)
Public Act 26-1 An Act Concerning the Reallocation of Certain State Funds and Various Provisions Relating to Education, Public Safety, General Government, Elections, Intermediate Care Facilities and Warehouse Distribution Centers

Policy Adopted: January 3, 2007
Policy Revised: July 8, 2009
Policy Revised: February 3, 2010
Policy Revised: March 4, 2015
Policy Revised: September 13, 2017
Policy Revised: June 5, 2019
Policy Revised : May 20, 2026

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

Students

Suspension and Expulsion/Due Process

Suspension

When the Principal or designee has determined that there is cause for suspension of a student, the following procedures shall be observed:

1. The student shall be given a hearing before the Principal or designee, at which time the charges against the student will be stated and the student will be given an opportunity to respond to the charge. This hearing must be granted except when an emergency situation exists, in which case the hearing must be held as soon after the suspension as possible. Nothing in the informal hearing shall be taken to prevent a more formal hearing from being held if the circumstances warrant. An out-of-school suspension shall not exceed ten days for students in grades 3-12 and not exceed five days for children in pre-school to 2nd grade.

2. The Principal or designee may receive and consider evidence of past disciplinary problems which have led to removal from a classroom, suspension or expulsion of the student.

3. The Principal or designee shall make every possible attempt to reach the parent or guardian of the student stating the charges against the student and the terms and conditions of the suspension.

4. Whether the telephone contact is made or not the Principal or designee shall forward a letter to the parent or guardian at the last known address according to school records (unless a newer address is determined) not later than twenty-four hours of the suspension, and offering the parent or guardian the opportunity for a conference to discuss the suspension.

5. Notice of the suspension shall be transmitted by the Principal to the Superintendent of Schools by the close of the school day following the commencement of the suspension, but no later than twenty-four hours of the commencement of the suspension.

6. Following a conference with the Principal or designee the parent or guardian may request the Superintendent to review the Principal's decision. Such review shall be completed and a written report issued to the student and parent or guardian, and to the Board of Education, within three (3) days of the receipt of such request. In examining the Principal's decision to suspend, the Superintendent shall obtain oral or written statements from the Principal or designee, the student, and the person(s) who witnessed and reported the incident(s) which resulted in the suspension. The Superintendent may call all concerned parties together for a conference, and take whatever other action is needed to determine the true facts of the matter.

7. If a student is eighteen or older, any notice required by Board policy and this regulation shall be given to the student.

Students

Suspension and Expulsion/Due Process (continued)

Suspension (continued)

8. Textbooks and homework are to be provided each student for the duration of the suspension period and the student shall be allowed to complete any classwork, including examinations, without penalty, which was missed during suspension.

9. The Superintendent shall report any unusually serious cases of student suspension to the Board of Education at the first meeting following such action.

10. Notice of a suspension for conduct endangering persons or property or seriously disruptive of the educational process and a description of the conduct leading to such suspension shall be included on the student's cumulative educational record. Such notice shall be expunged from the cumulative record by the Board if the student graduates from high school, except if such notice of expulsion is based on possession of a firearm or deadly weapon.

11. All suspensions shall be in-school suspensions unless the administration (1) determines that the student, in grades three through twelve, inclusive, being suspended poses such a danger to persons or property or such a disruption of the educational process that the student shall be excluded from school during the period of suspension or (2) that an out-of-school suspension is appropriate based on evidence of previous disciplinary problems that have led to suspensions or expulsion of the student and efforts by the administration to address such disciplinary problems through means other than out-of-school suspension or expulsion, including positive support strategies.

    A student in grades preschool through grade two, inclusive, may be given an out-of-school suspension if it is determined by the administration that such suspension is appropriate based on evidence that the student's conduct on school grounds is of a violent or sexual nature that endangers persons.

12. The administration will use the guidelines developed and promulgated by the Commissioner of Education to help determine whether a student should receive an in-school or out-of-school suspension.

13. In-school suspension will be served in the school attended by the student. (or: In-school suspensions will be served by assigning the suspended student to one of the following schools: _____.)

14. For any student who is suspended for the first time and who has never been expelled, the school administration may shorten the length of or waive the suspension period if the student successfully completes an administration-specified program and meets any other administration-required conditions. Such program shall be at no expense to the student or his/her parents/guardians.

Students

Suspension and Expulsion/Due Process (continued)

Suspension (continued)

The foregoing procedure will be followed unless the student has had a total of ten (10) suspensions during the current school year, or has been suspended for a total of fifty (50) days during the current school year. If the student's proposed suspension would exceed either figure the suspension shall not take effect until so ordered by the Board of Education after a formal hearing such as that required for expulsion. If the Principal has reason to believe that the student's conduct endangers persons or property, is seriously disruptive of the educational process or is in violation of a Board policy, expulsion may be recommended.

Expulsion

The Board of Education or an impartial hearing officer, as defined in C.G.S. 10-233d, may expel any student in grades three through twelve, inclusive, whose conduct on school grounds or at a school sponsored activity has been found to be both violative of a Board policy and either seriously disruptive of the educational process or endangers persons or property.

In making a determination as to whether conduct is "seriously disruptive of the educational process," the administration, Board of Education or impartial hearing officer may consider, but such consideration shall not be limited to: (1) whether the incident occurred within close proximity of a school; (2) whether other students from the school were involved or whether there was any gang involvement; (3) whether the conduct involved violence, threats of violence or the unlawful use of a weapon as defined in Section 29-38 and whether any injuries occurred, and (4) whether the conduct involved the use of alcohol.

The procedures leading to expulsion are as follows:

1. Requests for expulsion are to be directed to the Board of Education through the Superintendent of Schools.

2. Upon receipt of an expulsion request the Superintendent will conduct an inquiry within two (2) school days.

3. If after the inquiry the Superintendent or designee determines the student should be expelled, the Superintendent shall forward such request to the Board of Education within five days, (for pre-school – grade 2), after receipt of the request to expel.

4. Except in an emergency situation requiring the student's immediate removal, the Board shall conduct a hearing to be governed by the following procedures:

    A. The student and parent or legal guardian must be given notice at least five business days prior to the date of the hearing.

Students

Suspension and Expulsion/Due Process (continued)

Expulsion (continued)

B. The notice shall contain:

The date, time and place of the scheduled hearing.

The details of the grounds for the expulsion, including a narrative of the events leading to the expulsion, the names of any witnesses against the student, copies of any statements or affidavits of those witnesses, a detailed summary of any other information to be used in support of expulsion, including any record of past offenses or misbehavior, and whether any prior warnings or suspensions have been given, and the proposed penalty.

A statement of the student's, parent's/guardian's rights.

A statement that the Board is not required to offer an alternative educational opportunity to any student between 16 and 18 who has been expelled three or more times ~~was previously expelled~~. A student between the ages of 16 and 18 who is expelled for the first or second time and who complies with conditions set by the Board will be offered an alternative educational opportunity that is equivalent to "Alternative Education" as defined in Section 10-74, with an individualized learning plan.

C. At the hearing the student shall have the right to testify and produce witnesses and other evidence in his/her defense and shall have the right to demand that any witnesses against him/her appear in person to answer questions.

In exceptional circumstances the Board or the impartial hearing panel may refuse to allow a witness against the accused student to appear, when the Board or panel believes that fear on the part of the witness would prevent the giving of accurate testimony. In such cases a verbatim statement of the witness's testimony must be given to the student.

A witness's unsubstantiated desire to remain anonymous is not such an exceptional circumstance as to justify dispensing with confrontation and questioning by the student.

D. A student may be represented by any third party of his/her choice, including an attorney. The parent/guardian of the student have the right to have the expulsion hearing postponed for up to one week to allow time to obtain representation, except that if an emergency exists, such hearing shall be held as soon after the expulsion as possible.

E. A student is entitled to the services of a translator, to be provided by the Board of Education, whenever the student or his/her parent or legal guardian do not speak the English language.

Students

Suspension and Expulsion/Due Process (continued)

Expulsion (continued)

F. The Board or impartial hearing officer shall keep verbatim record of the hearing and the student or his/her parent or legal guardian shall be entitled to a copy of that record at his/her own expense.

G. The Board or impartial hearing officer shall report its final decision in writing to the student, stating the reasons on which the decision is based, and the penalty to be imposed. Said decision shall be based on evidence produced and derived at the hearing.

H. Except under unusual circumstances the parent or a minor student shall be notified of the Board action within twenty-four hours.

I. Whenever an emergency exists, the hearing provided for the above procedure shall be held as soon as possible after the expulsion.

5. Whenever the Board of Education or impartial hearing officer expels a student it shall offer an alternative education opportunity to students under the age of sixteen which shall be (1) alternative education* as defined by C.G.S. 10-74j with an individualized learning plan if the Board provides such alternative education or in accordance with State Board of Education standards indicating the kind of instruction and number of hours to be provided by a student enrolled in an alternative educational opportunity. The parent or guardian of such student has the legal right to reject such a program without being subject to the truancy law. The Board of Education shall make provisions for an alternative educational opportunity to expelled students between the ages of sixteen and eighteen, conditional upon the desire of the student to continue his/her education and compliance with conditions established by the Board. A student age 17 or older may be placed in an adult education program as an alternative educational opportunity. Any student participating in an adult education program during a period of expulsion shall not be required to withdraw from school under C.G.S. 10-184. Any special education student expelled for a misconduct not caused by the student's disability must be offered an alternative educational opportunity consistent with the student's needs during the period of expulsion.

6. If the Board expels a student for the sale or distribution of a controlled substance, the Board shall refer the student to an appropriate state or local agency for rehabilitation, intervention or job training, or any combination thereof, and shall inform the agency of its action.

**Alternative education is a school or program maintained and operated by a school board that is offered to students in a non-traditional setting and addresses their social, emotional, and behavioral and academic needs. (C.G.S. 10-74j)*

Students

Suspension and Expulsion/Due Process (continued)

Expulsion (continued)

7. Notice of the expulsion and the conduct for which the student was expelled shall be included on the student's cumulative educational record. Such notice, except for the notices of an expulsion of a student in grades nine through 12, inclusive, based on possession of a firearm or deadly weapon, shall be expunged from the cumulative educational record by the Board if the Board determines that the student's conduct or behavior in the years following such expulsion warrant an expungement or if the student graduates from high school.

8. If a student in grades kindergarten to eight, is expelled based on possession of a firearm or deadly weapon, the Board may expunge from the students' cumulative education record the notice of the expulsion and the conduct for which the student was expelled if the Board determines that the conduct and behavior of the student in the years following such expulsion warrants an expungement.

9. The Board may adopt the decision of a student expulsion hearing conducted by another school district provided such Board of Education held a hearing pursuant to C.G.S. 10-233d(a). Adoption of such a decision shall be limited to a determination of whether the conduct which was the basis for the expulsion would also warrant expulsion under the policies of this Board. The student shall be excluded from school pending such hearing. The excluded student shall be offered an alternative education opportunity in accordance with the provisions of 5 and 6 above.

10. Whenever a student against whom an expulsion hearing is pending withdraws from school and after notification of such hearing but before the hearing is completed and a decision rendered, (1) notice of the pending expulsion hearing shall be included on the student's cumulative educational record and (2) the Board shall complete the expulsion hearing and render a decision.

11. The Superintendent shall recommend an expulsion hearing if there is reason to believe a student possessed a firearm or other dangerous instrument in or on real property, comprising any public school or at any school activity as defined in C.G.S. 10-233a or in conduct displayed off school grounds.

12. If a student enrolled in grades preschool through grade twelve, inclusive, is found to have possessed a firearm, dangerous instrument, dangerous weapon or martial arts weapon in or on the real property or a school or at any school function as defined in Section 10-233a, or on or off school property offered for sale of distribution a dangerous drug, he or she must be expelled for one calendar year. The expulsion period may be modified on a case by case basis by the Board of Education or hearing officer.

13. A student expelled for possession of a firearm, deadly weapon, dangerous instrument or martial arts weapon shall have the violation reported to the local police department or State Police if the student is enrolled in a regional vocational-technical school.

Students

Suspension and Expulsion/Due Process (continued)

Expulsion (continued)

14. The Board will report annually to the Commission of Education, as prescribed, information pertaining to expulsions for weapons and/or dangerous instruments.

15. An expelled student may apply for early readmission to school. Such readmission shall be at the discretion of the Board of Education ***(alternative language - "at the discretion of the Superintendent of Schools")*** Readmission decisions shall not be subject to appeal to Superior Court. The Board or Superintendent, as appropriate, may condition such readmission on specified criteria.

16. For any student expelled for the first time and who has never been suspended, the Board of Education may shorten the length of or waive the expulsion period if the student successfully completes a Board specified program and meets any other conditions required by the Board. Such a Board specified program shall not require the student or the parent/guardian of such student to pay for participation in the program.

17. If a student's expulsion is shortened or the expulsion period waived based upon the fact that the student was expelled for the first time, had never been suspended, and successfully completed a Board specified program and/or met other conditions required by the Board, the notice of expulsion shall be expunged from the cumulative educational record if the student graduates from high school or, if the Board so chooses, at the time the student completes the Board specified program and meets any other conditions required by the Board.

18. The record of a student, grades 9 to 12 inclusive, expelled for possession of a firearm or deadly weapon, shall not be expunged.

19. The Board may expunge an expulsion in the years following the expulsion if the student has demonstrated conduct warranting an expungement.

20. A student in grades K-8 inclusive, shall have any expulsion, including for possession of a firearm or deadly weapon expunged from the record upon graduation.

Prior Notice

The Superintendent shall provide for an effective means of informing all students and their parents or guardians of the Board's policy and this regulation at the beginning of each school year, or when the student enrolls or transfers during the school year.

Students

Suspension and Expulsion/Due Process

Legal Reference: Connecticut General Statutes

4-176e through 4-185 Uniform Administrative Procedure Act, as amended.

10-74j Alternative education (PA 15-133)

10-233a through 10-233f Suspension, removal and expulsion of students, as amended by PA 95-304, PA 96-244, PA 98-139, PA 07-66, PA 07-122, PA 08-160, PA 09-82, PA 09-6 (September Special Session), PA 10-111, PA 11-126, PA 14-229, PA 15-96n, PA 16-147, PA 17-220 and PA 19-91.

53a-3 Firearm and deadly weapons

53a - 217b Possession of firearm and deadly weapons on school grounds.

PA 94-221 An Act Concerning School Discipline and Security.

PA 15-96 An Act Concerning Out-of-School Suspensions and Expulsions for Students in Preschool and Grades Kindergarten to Two

GOALS 2000: Educate America Act Pub. L. 103-227.

18 U.S.C. 921 Definitions.

Title III - Amendments to the Individuals with Disabilities Education Act Sec. 314 (Local Control Over Violence)

Elementary and Secondary, Education Act of 1965 as amended by the Gun Free Schools Act of 1994.

Kyle P. Packer PPA Jane Packer v. Thomaston Board of Education.

Public Act 24-45 An Act Concerning Education Mandate Relief, School Discipline and Disconnected Youth, (Sections 13-14)
Public Act 26-1 An Act Concerning the Reallocation of Certain State Funds and Various Provisions Relating to Education, Public Safety, General Government, Elections, Intermediate Care Facilities and Warehouse Distribution Centers (Section 35)

Regulation Approved: January 7, 2007
Revised: December 5, 2007
Revised: February 3, 2010
Revised: March 4, 2015
Revised: May 20, 2026

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

5131.913

Policy

Students

Bullying

Cyberbullying

The Bristol Board of Education provides computers as tools to enhance our students' education. The District's computer network and the Internet, whether accessed on campus or off campus, during or after school hours, may not be used for the purpose of harassment of any kind. All forms of harassment over the Internet, commonly referred to as cyberbullying, are unacceptable and viewed as a violation of this policy and the District's acceptable computer use policy and procedures.

Definitions

"Cyberbullying" means any act of harassment through the use of the Internet, interactive and digital technologies, cellular mobile telephone or other mobile electronic devices or any electronic communications.

"Mobile electronic device" means any hand-held or other portable electronic equipment capable of providing data communication between two or more individuals, including, but not limited to, a text messaging device, a paging device, a laptop computer, equipment that is capable of playing a video game or equipment on which digital images are taken or transmitted.

Malicious use of the District's computer system ~~is prohibited~~ to develop programs or to institute practices that harass other users or gain unauthorized access to any entity on the system and/or damage the components of an entity on the network is prohibited. Users are responsible for the appropriateness of the material they transmit over the system. Hate mail, harassment, discriminatory remarks, or other antisocial behaviors are expressly prohibited. Cyberbullying includes, but is not limited to the following misuses of technology: harassing, teasing, intimidating, threatening, or terrorizing another person by sending or posting inappropriate and hurtful e-mail messages, instant messages, text messages, digital pictures or images, or Website postings.~~, including blogs.~~ It is also recognized that the identity of the creator of the inappropriate material is often obscured or disguised. ~~author (poster or sender) of the inappropriate material is often disguised (logged on) as someone else.~~

Students and community members who believe they have been the victims of such misuses of technology, as described in this policy, should not erase the offending material from the system. A copy of the material ~~should be printed and brought to the attention of the school administrator.~~

unless it contains pornographic images or "sexting images", should be printed and brought to the attention of the Principal. In the case of pornographic or "sexting" images, the image on the electronic device should be shown to a school administrator on the electronic device, and local law enforcement officials are to be contacted.

All reports of cyberbullying will be investigated promptly in compliance with the District's "School Climate Policy."

~~The administration shall fully investigate all reports of cyberbullying.~~

In situations in which the cyberbullying originated from a non-school computer, but brought to the attention of school employees, ~~officials,~~ any disciplinary action shall be based upon whether the conduct is determined to be severely disruptive of the educational process so that it markedly interrupts or severely impedes the day-to-day operations of a school. In addition, such identified associated challenging behaviors ~~conduct~~ must also be violative of a publicized school policy. ~~another District policy.~~ Such conduct includes, but is not limited to threats ~~made on or off school grounds, to kill or hurt a staff member or student.~~ or making a threat off school grounds, to kill or hurt a teacher or student. A student who redistributes inappropriate content, as previously described, is also subject to disciplinary action.

Disciplinary action may include but are not limited to, the loss of computer privileges, detention, suspension, or expulsion for verified perpetrators of cyberbullying. In addition, when any kind of threat is communicated or when a hate crime is committed, the administration will report such crimes to local law enforcement officials.

(cf. 0521 – Nondiscrimination)

(cf. 5114 – Suspension and Expulsion/Due Process)

(cf. 5131 – Conduct)

(cf. 5131.21 – Threats or Acts of Violence)

(cf. 5131.8 – Off School Grounds Misconduct)

(cf. 5131.912 – Aggressive Behavior)

(cf. 5131.911 – ~~Bullying~~ Connecticut School Climate Policy)

(cf. 5144 – Discipline/Punishment)

(cf. 5145.4 – Nondiscrimination)

(cf. 5145.5 – Sexual Harassment)

(cf. 5145.51 – Peer Sexual Harassment)

Legal Reference: Connecticut General Statutes

PA 02-119, An Act Concerning Bullying Behavior in Schools and Concerning the Pledge of Allegiance

Kyle P. Packer PPA Jane Packer v. Thomaston Board of Education. (SC 15862)

Public Law 110-385 Broadband Data Improvement Act/Protecting Children in the 21 st Century Act

Wisniewski v. Bd. Of Educ., 494 F.3d 34 (2 nd Cir. 2007)

Doninger v. Niehoff, 257 F. 3d 41 (2 nd Cir. 2008)

P.A. 11-232 An Act Concerning The Strengthening of Bullying Laws

10-222d Policy on bullying behavior as amended by PA 08-160, P.A. 11-232, P.A. 14-172 and PA 18-15 and PA 19-166.

10-222g Prevention and intervention strategy re bullying and teen dating violence

10-222h Analysis of school districts' efforts re prevention of and response to bullying in schools. School climate assessment instruments

10-222i State-wide safe school climate resource network. [Repealed, Effective 7/1/2025 State-wide safe school climate resource network]

10-222k District safe school climate coordinator. Safe school climate specialist. Safe school climate committee (as amended by PA 21-95, Section 14)

10-222p Review of safe school climate plans by Department of Education. Approval or rejection.

PA 23-167 An Act Concerning Transparency in Education

Policy Adopted: September 15, 2010 **BRISTOL PUBLIC SCHOOLS**

Policy Revised: **Bristol, Connecticut**

Personnel Certified/Non-Certified

Recruitment and Selection

The Board ~~desires~~ directs the Superintendent to develop and maintain a recruitment program designed to attract and ~~hold the best possible personnel who are "effective teachers"~~ retain the most effective personnel as defined by federal law in the District's schools. All District teachers must meet applicable state certification and licensure requirements, including any requirements for certification obtained through alternate routes to certification.

Increasing Educator Diversity

The Board of Education believes it is especially important to ensure that recruitment, hiring, and retention efforts increase educator diversity. The administration is directed to make a determined and substantial effort to ensure that the district's recruitment procedures increase diversity, consistent with C.G.S. §10-56ee and Public Act 23-167.

Fair Employment Practices and Public Notices

The schools shall engage in fair and sound personnel practices in the appointment of all district employees. The administration shall be responsible for establishing recruitment, selection, and appointment procedures.

The Superintendent shall ensure that the District is in compliance with provisions of Title I and the Every Student Succeeds Act (ESSA). Handbooks and recruitment materials shall comply with federal law regarding the qualifications of instructional personnel. Parent/guardians of students in Title I schools shall be informed annually of their right to request information regarding teacher and paraprofessional qualifications.

Job Posting Transparency (P.A. 26-12)

Effective October 1, 2026, the Superintendent or designee shall ensure that all public, external, internal, promotional, and transfer job postings published or distributed by the District include:

1. The wage rate or a good-faith estimate of the wage/salary range for the position; and
2. A general description of the position's benefits, including health insurance, retirement options, fringe benefits, and paid leave provisions.

(Districts with 100 or more employees shall also post on the District website a plain-language guide explaining all pay codes used for overtime and wage differentials, available in English, Spanish, and any common language spoken by members of the workforce.)

Automated Employment Decision Technology

If the District utilizes automated or AI-driven technology to screen job applications or evaluate employees, advance written notice shall be provided to candidates detailing the technology's purpose and the nature of the decision-making process.

Personnel -- Certified/Non-Certified

Recruitment and Selection (continued)

Hiring of Retired Teachers

A retired teacher receiving benefits from the Teachers' Retirement Board (TRB) may be reemployed by the Board for up to one full school year in a position:

1. Designated by the Commissioner of Education as a subject shortage area, or
2. At a school located in a priority school district for the school year in which the teacher is being employed.

Such reemployment may be extended for an additional school year, provided the Board:

1. Submits a written request for approval to the Teachers' Retirement Board,
2. Certifies that no qualified candidates are available prior to the reemployment of such teacher, and
3. Indicates the type of assignment to be performed, the anticipated date of rehire, and the expected duration of the assignment.

The forty-five percent (45%) limitation applies if the retired teacher has worked for more than two years in either a subject shortage area or a priority school district.

The salary of such teacher shall be fixed at an amount at least equal to that paid other teachers in the District with similar training and experience for the same type of service.

Except as indicated above, a certified educator receiving retirement benefits from the TRB may not be employed in a certified position receiving compensation paid out of public money appropriated for school purposes, except that such educator may be employed in such a position and receive no more than forty-five (45%) of the maximum salary level for the assigned position. Any certified educator who receives in excess of such amount shall reimburse the Board for the amount of such excess. Fringe benefits offered by the District, if taken by the employed retired individuals, are included in the maximum compensation calculation.

Applicant Disclosure Requirements

On the application form, an applicant for any position in the school district shall disclose whether they are a relative of, or reside in the same household as, the Superintendent, any Board member, or any district administrator involved in the hiring process. Applicants shall also disclose any current business or financial relationship with such individuals (e.g., co-ownership, employment, or partnership).

For purposes of this policy, "relative" means spouse, civil union partner, parent, child, sibling, grandparent, grandchild, and in-law or step-relations of the same degree.

A disclosure does not disqualify an applicant. The affected individual shall recuse themselves from any evaluation, recommendation, or vote concerning the applicant.

The Superintendent shall provide the Board with full disclosure of any prior knowledge of or relationship with any candidate recommended for employment.

Personnel -- Certified/Non-Certified

Recruitment and Selection

~~The school district recognizes the heterogeneity of the people who live in the school district and believes that this characteristic should have an important bearing on all aspects of the school district's activities.~~

~~The Board of Education believes it is especially important that this heterogeneity of population be recognized in the recruitment and assignment of personnel.~~

~~To this end, the Board of Education shall develop and implement a written plan for minority staff recruitment. The administration is directed to make a serious effort to see that the recruitment procedures of the district produce a total staff representative of the total population of the district and that the assignment procedures of the district bring to each school staff members representative of the population represented by the student membership in each local school.~~

~~The schools shall engage in fair and sound personnel practices in the appointment of all district employees. The administration shall be responsible for establishing recruitment, selection and appointment procedures.~~

~~The Superintendent shall insure that the District is in compliance with the provisions of Title I and the Every Student Succeeds Act. Manuals and handbooks shall comply with federal law as to the qualifications for instructional personnel. Parents/guardians of students in Title I schools shall be informed annually, at the beginning of each school year, of their right to request information about whether their child's teacher has met state qualifications and licensing criteria for the grade levels and subject areas in which the teacher provides instruction; is teaching under emergency or other provisional status through which state qualifications or licensing criteria have been waived; and is teaching in the field of discipline of the certification of the teacher. The qualifications of services provided by paraprofessionals shall also be provided. Timely notices shall also be provided to parents/guardians that the student has been assigned, or has been taught in a Title I school for 4 or more consecutive weeks by a teacher who does not meet applicable state certification or licensure requirements at the grade level and subject area in which the teacher has been assigned.~~

~~Hiring of Retired Teachers~~

~~A retired teacher receiving benefits from the Teachers Retirement System (TRS) may be reemployed by the Board for up to one full school year in a position (1) designated by the Commissioner of Education as a subject shortage area, or (2) at a school located in a priority school district for the school year in which the teacher is being employed. Such employment may be for up to one full school year. Such reemployment may be extended for an additional school year, provided the Board (a) submits a written request for approval to the Teachers' Retirement Board, (b) certifies that no qualified candidates are available prior to the reemployment of such teacher and (c) indicates the type of assignment to be performed, the anticipated date of rehire and the expected duration of the assignment.~~

Personnel -- Certified/Non-Certified

Recruitment and Selection

~~Hiring of Retired Teachers (continued)~~

~~The salary of such teacher shall be fixed at an amount at least equal to that paid other teachers in the District with similar training and experience for the same type of service. Upon Board approval of such employment, the retired teacher shall be eligible for the same health insurance benefits provided to active teachers employed by the District. No retirement benefits shall be paid during this period of reemployment.~~

~~Except as indicated below, and in the first paragraph in this section, a certified educator receiving retirement benefits from the Teachers Retirement System (TRS) may not be employed in a certified position receiving compensation paid out of public money appropriated for school purposes except that such educator may be employed in such a position and receive no more than forty-five percent of the maximum salary level for the assigned position. Any certified educator who receives in excess of such amount shall reimburse the Board for the amount of such excess.~~

~~Commencing July 1, 2016, to June 30, 2018, the exemption from the limitation on the compensation of a reemployed certified educator apply to an educator who (A) is receiving retirement benefits from TRS based on thirty-four or more years of credited service, (B) is reemployed in a district designated as an alliance district (pursuant to C.G.S. 10-262u), and (C) was serving in the district on July 1, 2015.~~

~~On and after July 1, 2016, a certified educator receiving retirement benefits from the system may be employed and receive compensation, health insurance benefits, and other employment benefits provided to active teachers employed by such school system provided such teacher does not receive a retirement income during such employment. Payment of such teacher's retirement income shall resume on the first day of the month following the termination of such employment.~~

(cf. 4111.3 – Increasing Educator Diversity)

(cf. 4115 - Evaluation)

Legal Reference: Connecticut General Statutes

10-151 Employment of teachers. Notice and hearing on termination of contract (as amended by P.A. 12-116 An Act Concerning Educational Reform)

10-153 Discrimination on account of marital status.

10-183v Reemployment of teachers, as amended by P.A. 10-111, An Act Concerning Education Reform in Connecticut, ~~and~~ P.A. 16-91, An Act Making Changes to the Teachers' Retirement System. and PA 17-173 An Act Concerning Minor Revisions and Additions to the Education Statutes and PA 18-42 An Act Concerning a Provision Concerning Reemployment of Certain Teachers.

Personnel -- Certified/Non-Certified

Recruitment and Selection

Legal Reference: Connecticut General Statutes (continued)

10-220 Duties of Boards of Education.

31-126 Unfair Employment Practices.

46a-60 Discriminatory employment practices prohibited.

Title IV Equal Employment Opportunities.

~~20 U.S.C. Section 1119 No Child Left Behind Act.~~

34 C.F.R. 200.55 Federal Regulations.

P.L. 114-95 Every Student Succeeds Act, S.1177-55, 56
PA 23-167 An Act Concerning Transparency in Education Section 10.

PA 26-12 An Act Concerning Pay Transparency, Employee Benefits Disclosure, and Workplace Accommodations.

Policy Adopted: July 6, 1994

Policy Revised: December 7, 2016

BRISTOL PUBLIC SCHOOLS

Bristol, Connecticut

Personnel – Certified/Non-Certified

Recruitment and Selection

Recommended Process Overview – Certified/Non-Certified Staff

1. Identify the need for the position and establish the job specification.
2. Draft job posting ensuring compliance with P.A. 26-12 (must include good-faith salary range and general description of benefits).
3. Internally post the position (including notification of promotion or transfer opportunities).
4. Externally post the position.
5. Applications are collected in the District Office or the electronic portal until closing date.
6. Applications are screened by the building Principal and/or department supervisor.
7. Initial screening interview performed by committee:
    a. K-6 District Committee: Principal and designees, including grade-level representatives.
    b. 7-12 District Committee: Assistant Principal, department supervisor, content area teacher, team leader.
8. Candidates are asked to teach a sample lesson (where applicable).
9. Finalist (s) interview with building Principal and/or Superintendent.
10. Superintendent notifies the Board of Education or executes hiring pursuant to Board authorization.

Job Posting Disclosure Specifications (P.A. 26-12):

All internal and external job postings generated by the District must contain the following language:

1. **Compensation:** "The salary/wage range set in good faith for this position is ($X to $Y per hour/year), depending on experience and collective bargaining placement."
2. **Benefits Summary:** "This position includes a comprehensive benefits package featuring (health/dental/vision insurance options, CT Teachers' Retirement System (TRB)/MERS eligibility, paid sick and personal leave, life insurance, and professional development opportunities)."

Initial Application Screening

Initial application screening should be conducted by the building Principal ~~(and other~~ relevant administrators~~)~~. Screening criteria shall be job-related, objective, and compliant with equal opportunity standards. If automated screen systems (AI) are utilized, candidates must be provided advance notice of the system's role in the evaluation process.

Personnel – Certified/Non-Certified

Recruitment and Selection

TRB Reemployment Verification

Prior to executing a contract with a retired certified educator under C.G.S. §10-183v:

1. Central Office shall verify whether the position is in a state-designated shortage area or the District is listed as a priority school district.

2. If not, Central Office shall ensure total annual earnings (including district-provided health benefits if accepted) do not exceed 45% of the maximum salary level for the assigned position.

3. Central Office shall submit required reemployment forms to the Teachers' Retirement Board (TRB).

Regulation approved:

Students

School Attendance Areas

The Board of Education shall establish attendance zones to facilitate educational programs and to use existing facilities with optimum effectiveness. The Superintendent of Schools shall recommend school attendance areas in accordance with the following criteria:

1. Safety of students;
2. Student educational needs;
3. Educational programs to be housed;
4. Optimum use of existing facilities;
5. Student residential patterns;
6. Ages of students served; and
7. Racial/ethnic/economic balance.

~~Although students in an attendance area may have first choice of schools in that area, the Board of Education also accepts out-of-area requests within the following guidelines:~~
All students are required to attend the school designated for their home address based on established attendance area boundaries. The Bristol Board of Education has created these boundaries to ensure educational programming, equity, balance, and optimal use of school facilities. The granting of the out of area request will be the exception and reserved for extreme cases. Families can request students to attend out-of-attendance-area schools utilizing the outline below:

~~1. Where space exists, students from other attendance areas may apply for out-of-area status.~~
~~2. Parents of students choosing out of area attendance shall provide transportation to and from school.~~
~~3. Out-of-area students must maintain good attendance, citizenship and academics to remain in a school outside of their attendance area.~~
~~4. Students entering their area school with capped enrollment may attend another district school with transportation provided.~~

Reasons That Do Not Qualify for an Out-of-Area Transfer

The following reasons do not constitute a valid basis for an out-of-area transfer and will not, on their own or in combination, warrant approval:

- Previous attendance at the requested school

- A sibling, relative, or friend attending the requested school
- Parent/guardian work location, work hours, or childcare arrangements
- Student employment or extracurricular commitments
- Transportation or family scheduling convenience
- Athletic participation or team preference
- Preference for a particular school, program
- Preference for a change of teacher, administrator, or staff member
- Availability of space at the requested school
- A desire to remain at a school following a move or boundary change
- General preference for one school over the student's assigned school

Out-of-area transfers are intended to address documented, exceptional circumstances—not personal preference, convenience, or familiarity with a particular school**.** Students are expected to attend the school assigned to their residence unless the request meets the district's established criteria for an exception.

Reasons That May Be Considered

- Special Education PPT decision
- A move during second half of the year or in 5th, 8th or senior year that would cause a change in school within the district
- If a student was placed in a different school due to a capped class in their home school, the district will provide transportation to the OOA until the CAPP is lifted, parents will be allowed to apply for an out of area to remain in the school, however the student must adhere to all of the guidelines and the parents must begin transporting.
- Special circumstances to be reviewed by the Superintendent.

Requirements for OOAA Students

Good Standing Criteria

Students must maintain ALL of the following to keep their OOA privilege:

- Acceptable behavior
- Good academic standing
- Regular attendance (no excessive absences- guideline 15 or more)
- Punctual arrival (not habitually tardy)

All students who have maintained these guidelines and are currently participating in the OOA program are grandfathered in and do not need to reapply each year. However, students will automatically return to their assigned home school when transitioning between school levels, as outlined below. *Note: Failure to maintain good standing may result in the revocation of OOA status.*

School Level Transitions

Students participating in the OOA program are automatically returned to their assigned home school when transitioning between school levels:

- Elementary to Middle School: 5th-grade OOAA students return to their assigned middle school
- Middle School to High School: 8th-grade OOAA students return to their assigned high school

Transportation

Important: Parents/guardians are responsible for ALL transportation to out-of-attendance area schools. The district does not provide bus service except when required by Special Education services.

Legal Reference: Connecticut General Statutes

10-55 Students to attend regional school.

10-226a Students of racial minorities.

10-226b Existence of racial imbalance.

10-226c Plan to correct imbalance.

10-226d Approval of plan by state board.

Policy Adopted: March 1, 1995

Policy Revised: June 6, 2001

Policy Revised: January 3, 2007

Community Relations

Public Participation at Board of Education Meetings

The regular and special meetings of the Bristol Board of Education are open to the public and representatives of the press except that a part of any meeting may be designated for an executive session as provided by law. (See 9324 for details)

The Board of Education welcomes participation of interested organizations and individuals. ~~Agendas of all regular and special meetings of the Board of Education are posted in accordance with rules of the Town Charter.~~ Advance announcement of all regular and special meetings of the Board of Education is made through posting the agenda on the district website, through notices to newspapers, and directly to citizens and community and professional organizations who specifically request such notification. A reasonable charge may be made for those persons or organizations requesting advance announcements of meetings and agenda backup materials.

~~Participation by the general public in debate at regular meetings of matters before the Board of Education shall be permitted. Public participation shall be subject to the provision enumerated below. On issues that appear to arouse strong public interest, the Board should, whenever possible, schedule a special meeting limited to that subject. In order to limit or close debate on any subject, a majority vote of those Board members in attendance will be required.~~

Board meetings are meetings held in public and are not open hearings. Once the Board moves into the regular agenda, the public may participate as allowed by the Chairperson and with the following restrictions:

1. Everyone is requested to address the Chair for recognition.

2. Each speaker must state his/her name ~~and~~ address and the topic.

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,~~ Each speaker shall limit ~~his/her~~ their remarks to ~~three (3)~~ four (4) minutes. A speaker will not be recognized for a second time.

4. ~~A speaker will not be recognized for a second time on the same topic.~~ Each speaker is to confine their remarks to matters within the Board's jurisdiction or the specific topic for which the speaker signed up. The Chairperson may remind speakers to direct their remarks to matters within the Board's jurisdiction but shall not restrict or terminate a speaker's time solely on the basis of the viewpoint expressed or the specific subject matter addressed, consistent with Paragraphs 5 and 6 of this policy. Speakers whose remarks do not pertain to matters within the Board's jurisdiction will be so advised by the Chairperson and their comments will be noted for the record.

5. ~~Each speaker must concern himself/herself with the topic under discussion. Anyone digressing from the topic will be ruled out of order.~~ The Board shall not restrict speech based on viewpoint, opinion, or disagreement with Board actions or policies.

6. ~~Written statements and materials may be made available, in advance of comments, for distribution to Board members.~~ To ensure the orderly conduct of meetings, the Board shall have the authority to adopt and enforce reasonable regulations governing the time, place, and manner of participation and proceedings, provided that such regulations are content-neutral and are applied uniformly to all participants.

7. ~~Speakers shall state their positions on the subject being discussed.~~ Comments involving confidential student information protected by law (FERPA) are strictly prohibited. The Board strongly encourages members of the public to route complaints regarding individual district personnel through the proper administrative chain of command rather than airing them publicly.

8. ~~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.~~ Written statements and supporting materials may be made available, in to the Board.

9. Board members will not respond directly to public comments during the Board meeting. The Superintendent or Chairperson may briefly provide factual clarification or route the inquiry to the appropriate staff member for follow up. The Board will consider such comments in its policy deliberations and, where appropriate, will refer comments to school department personnel for the review as part of their administrative function.
10. Speakers cannot donate their allotted time to other individuals or speak on behalf of an organized group to extend their time.
11. Intentionally disruptive behavior, harassment, vulgarity, obscene language, or physical threats are strictly prohibited. The Chairperson maintains the legal authority to warn a disruptive speaker , terminate their time, or order the room cleared if order cannot be restored.

(cf. 1312 - Public Complaints)

Legal Reference: ~~Connecticut General Statutes~~

~~Public Participation at Board Meetings~~

~~1-225 Meetings of government agencies to be public.~~

~~1-226 Broadcasting or photographing meetings.~~

~~1-230 Regular meetings to be held pursuant to regulation, ordinance or resolution.~~

~~1-232 Conduct of meetings.~~

~~(cf. 1312 - Public Complaints)~~

~~(cf. 9323 - Construction of the Agenda)~~

~~(cf. 9325 - Meeting Conduct)~~

Legal Reference: Connecticut General Statutes

1-225 Meetings of government agencies to be public. Recording of votes. Schedule and agenda of meetings to be filed. Notice of special meetings. Executive sessions.

1-226 Broadcasting or photographing meetings.

~~19a-342 Smoking in public meetings in rooms of public building prohibited.~~

~~1-227 Mailing of notice of meetings to persons filing written request. Fees.~~

~~1-230 Regular meetings to be held pursuant to regulation, ordinance or resolution.~~

~~1-232 Conduct of meetings.~~

~~1-206 Denial of access to public records or meetings.~~

~~10-238 Petition for hearing by board of education.~~

Policy Adopted: July 7, 1993

Revised: March 1, 2017

BRISTOL PUBLIC SCHOOLS

Bristol, Connecticut

Bylaws of the Board

Meeting Conduct

Meetings of the Bristol Board of Education shall be conducted by the Chairperson in a manner consistent with the bylaws of the Board.

All Board meetings shall commence at the stated time and shall be guided by an agenda which has been prepared and delivered in advance to all Board members and other designated persons.

The conduct of meetings shall, to the fullest possible extent, enable members of the Board to (1) consider problems to be solved, weigh evidence related thereto, and make wise decisions intended to solve the problems, and (2) receive, consider and take any needed action with respect to reports of accomplishments both as to students and to school system operations.

All regular and special meetings of the Board shall be open to the public. Because the Board desires to hear the viewpoints of citizens throughout the district, and also needs to conduct its business in an orderly and efficient manner, it may schedule one or more periods in each meeting for public comment. It may set a time limit on the length of this period and/or a time limit for individual speakers.

Comments and questions at a regular meeting may deal with any topic related to the posted agenda or other items of concern to the public. Comments at special meetings must be related to the call of the meeting.

The Board Chairperson shall be responsible for recognizing any individual or group interested in addressing the Board concerning any subject that lays within its jurisdiction. All speakers addressing the Board are subject to the follow procedures:

1. Everyone is requested to address the Chair for recognition.

2. Each speaker must state his/her name ~~and~~ address and the topic.

3. Each speaker shall limit ~~his/her~~ their remarks to ~~three (3)~~ four (4) minutes. A speaker will not be recognized for a second time.

4. Each speaker is to confine their remarks to matters within the Board's jurisdiction or the specific topic for which the speaker signed up. The Chairperson may remind speakers to direct their remarks to matters within the Board's jurisdiction but shall not restrict or terminate a speaker's time solely on the basis of the viewpoint expressed or the specific subject matter addressed, consistent with Paragraphs 5 and 6 of this policy. Speakers

whose remarks do not pertain to matters within the Board's jurisdiction will be so advised by the Chairperson and their comments will be noted for the record.

5. The Board shall not restrict speech based on viewpoint, opinion, or disagreement with Board actions or policies.
6. To ensure the orderly conduct of meetings, the Board shall have the authority to adopt and enforce reasonable regulations governing the time, place, and manner of participation and proceedings, provided that such regulations are content-neutral and are applied uniformly to all participants.
7. Comments involving confidential student information protected by law (FERPA) are strictly prohibited. The Board strongly encourages members of the public to route complaints regarding individual district personnel through the proper administrative chain of command rather than airing them publicly.
8. Written statements and supporting materials may be made available, in to the Board.
9. Board members will not respond directly to public comments during the Board meeting. The Superintendent or Chairperson may briefly provide factual clarification or route the inquiry to the appropriate staff member for follow up. The Board will consider such comments in its policy deliberations and, where appropriate, will refer comments to school department personnel for the review as part of their administrative function.
10. Speakers cannot donate their allotted time to other individuals or speak on behalf of an organized group to extend their time.
11. Intentionally disruptive behavior, harassment, vulgarity, obscene language, or physical threats are strictly prohibited. The Chairperson maintains the legal authority to warn a disruptive speaker, terminate their time, or order the room cleared if order cannot be restored.

~~1. A sign-in sheet will be available for anyone desiring to address the Board. Speakers will be called in order.~~

~~2. Speakers shall properly identify themselves.~~

~~3. Shall adhere to any time limits set.~~

~~4. Shall maintain proper order. No boisterous conduct shall be permitted at any Board of Education meeting. Persistence in boisterous conduct shall be grounds for summary termination, by the Chairperson, of that person's privilege of address. If necessary, the Chairperson may clear the room so that the Board members may continue the meeting.~~

~~5. Shall not in an oral presentation include charges or complaints against any employee of the Board of Education, regardless of whether or not the employee is identified in the presentation by name or by another reference which tends to identify an individual. All charges or complaints against employees shall be submitted to the Board of Education under provision of Board of Education policy. (cf. 1312 - Public Complaints)~~

~~Questions asked by the public during public comment shall be referred to staff members for reply; questions requiring investigation shall be referred to the Superintendent for consideration and later response.~~

The Board of Education may cancel any regular or special meeting. A copy of the notice of cancellation shall be conspicuously displayed near the meeting room door within twenty-four hours of cancellation.

Actions by the Board

No action will be taken unless the subject acted upon was listed on the agenda published for that meeting, except that an item of business not included on the agenda of a regular meeting may be considered and acted upon after a two-thirds vote of the members present and voting to add such business to the agenda.

The Board of Education shall not adopt resolutions except where such adoption is required by law, or where the intent of the Board is to publish a status position of the Board, as in advising the General Assembly of the Board's position on a proposed law, or commending staff members or other agencies for work well done.

All actions taken by the Board shall be identified clearly in minutes of the Board meetings as provided in Bylaw 9326, Minutes.

(cf. 1120 – Board of Education Meetings re public participation)
(cf. 1312 - Public Complaints)
(cf. 9321 – Time, Place, Notification of Meetings)
(cf. 9321.2 – Attendance at Meetings via Electronic Communications)
(cf. 9322 – Public and Executive Sessions)
(cf. 9323 – Construction/Posting of Agenda)

Legal Reference: Connecticut General Statutes
1-200 Definitions.
1-206 Denial of access to public records or meetings. Notice. Appeal.
1-210 Access to public records.
1-225 Meetings of government agencies to be public.
1-226 Recording, broadcasting or photographing meetings.
19a-342 Smoking prohibited in certain places. Sign required. Penalty.
~~1-228 Adjournment of meetings.~~
1-~~200~~ 231 Executive Sessions.
1-~~222~~ 232 Conduct of meetings. (re disturbances).
10-224 Duties of the secretary.

Bylaw Adopted: **September 8, 1993** **Bristol Public Schools**
Bylaw Revised: **July 7, 2004** **Bristol, Connecticut**
Bylaw Affirmed: **July 6, 2016**
Bylaw Revised:

Bylaws of the Board

Public and Executive Sessions

Public Meetings

All meetings of the Bristol Board of Education, regular, special and emergency shall be open to the public with the exception of executive sessions. A chance or social meeting, a caucus, a meeting of a personnel search committee for executive level employment candidates, or a discussion of strategy or negotiations with respect to collective bargaining are not defined as "meetings" under the Freedom of Information Act. A meeting is defined as a hearing or other proceeding of the Board, any convening or assembly of a quorum of the Board and any communication by or to a quorum of the Board, whether in person or by means of electronic equipment to discuss or act upon a matter over which the public agency has supervision, control, jurisdiction, or advocacy power. Communications between and among a quorum of members convening on electronically linked personal computers or by telephone conference call are subject to the Freedom of Information Act.~~ (cf. 9320 -Meetings)~~

Executive Sessions

The public may be excluded from meetings of the Board of Education which are declared to be executive sessions. Executive sessions may be held upon a two-thirds vote of the members present and voting taken at a public meeting for only one or more of the following reasons , and may not be held for any other reason:

1. Discussion concerning the appointment, employment, performance, evaluation, health or dismissal of a public officer or employee, provided that such individual may require that the discussion be held at an open meeting.

2. Strategy and negotiations with respect to pending claims and litigation that the Board or a member of the Board, is party.

3. Matters concerning security strategy or the deployment of security personnel, or devices affecting public security.

4. Discussion of the selection of a site or the lease, sale or purchase of real estate by a political subdivision of the state when publicity regarding such site, lease, sale, purchase or construction would cause a likelihood of increased price until such time as all of the property has been acquired or all proceedings or transactions concerning same have been terminated or abandoned.

5. Discussion of any matter which would result in the disclosure of public records or the information contained therein described in Subsection (b) of section 1-210 of the Connecticut General ~~Statutes Freedom Of Information Act (FOIA). The types of records~~

which may be withheld in accordance with FOIA include personnel and health records, student identification records, matters of security, test questions and other specified in FOIA.

Public Participation

In addition to permitting the public to attend meetings, the Bristol Board of Education encourages public participation.

The following members of the public may speak at meetings of the Board:

Bristol residents, parents and guardians, students and employees of the Board; non-resident consultants to the Board and/or administration invited by the Board.

Speakers must use the following guidelines:

- Public may speak as agenda topics come up for discussion or information.
- Speakers must give name and use the microphone.
- Responses to questions may be deferred if answers not immediately available.
- Comments regarding personnel or confidential student information shall not be discussed under public comment.

Public Work Sessions

When meetings or parts of meetings are designated as work sessions the Board does not normally invite discussion or questions from the general public, but brief public comment may be permitted at the end of a work session if time permits.

Freedom of Information

In accordance with the Freedom of Information Act (FOIA), the following are not public meetings and thus not subject to posting and other requirements:

- Meetings of personnel search committees
- Meetings for the purpose of discussion of collective bargaining strategy
- Negotiating sessions
- Chance or social gatherings not intended to relate to official business
- Caucuses of the members of a single party, provided that no persons other than the members attend the caucus.

The motion to go into executive session shall identify the persons, in addition to the Board, who shall be invited to be in attendance in the executive session. The persons invited into executive session shall

be limited to persons needed to present testimony or opinion pertinent to matters before the Board and such persons' attendance shall be limited to the time period for which their presence is necessary.

Smoking

Smoking will not be permitted in any room in which a meeting of the Board of Education is being conducted, nor during the time immediately prior to the meeting. A request that there be no smoking during the meeting will be made by the Chairperson during the opening ceremonies.

Non-Meetings

Not every meeting of the Board of Education constitutes a "meeting" under the Freedom of Information Act (FOIA). A meeting does not include:

- Any meeting of a personnel search committee to executive level employment candidates;
- Any chance meeting, or a social meeting neither planned nor intended for the purpose of discussing matters related to official business;
- Any meeting discussing strategy or negotiations with respect to collective bargaining;
- A caucus of members of a single political party notwithstanding that such members also constitute a quorum of a public agency;
- A quorum of the members of the Board who are present at any event which has been noticed and conducted as a meeting of another public agency, in that case, the event shall not be deemed to be a member of the Board as a result of their presence at such event. (For example, if the Board of Education is invited to attend a meeting of the Board of Finance, such a meeting does not have to be noticed and posted by the Board of Education.)

There is no specific executive session privilege for the discussion of collective bargaining issues. However, discussion of "records, reports of strategy or negotiations with respect to collective bargaining" is permitted in executive session, provided that such documents exist.

Absent such documents, such strategy discussions and/or negotiations themselves must be held as a "non-meeting." Collective bargaining is excluded from the definition of a meeting under the Freedom of Information Act (FOIA). Collective bargaining sessions shall be held outside the scope of the FOIA as a "non-meeting." Such sessions may be held at any time without posting, and related strategy sessions or updates to the Board of Education may be held either before or after the end of a regular or special meeting, without the need to post such meetings.
The motion to go into executive session shall identify the persons, in addition to the Board, who shall be invited to be in attendance in the executive session. The persons invited into executive session shall be limited to persons needed to present testimony or opinion pertinent to matters before the Board and such persons' attendance shall be limited to the time period for which their presence is necessary.

(cf. 1331 - Smoking in School Facilities)

Legal Reference: Connecticut General Statutes

1-200 Definitions. (as amended by PA 02-130)

1-206 Denial of access to public records or meetings.

1-210 Access to public records.

1-225 Meetings of government agencies to be public.

1-226 Recording, broadcasting or photographing meetings.

1-231 Executive sessions.

19a-342 Smoking prohibited in certain places.

Bylaw Adopted: March 10, 1999

Bylaw Revised: July 7, 2004

Bylaw Revised: April 6, 2016

BRISTOL PUBLIC SCHOOLS

Bristol, Connecticut

Draft

2027-2028 District Calendar

Bristol Public Schools

Teach and Learn with Passion and Purpose

AUGUST						4
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	**26**	27	28
29	30	31				

SEPTEMBER						21
S	M	T	W	T	F	S
			1	2	3	4
5	**6**	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

OCTOBER						19
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	**11**	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	**29**	30
31						

NOVEMBER						18
S	M	T	W	T	F	S
	1	**2**	3	4	5	6
7	8	9	10	**11**	12	13
14	15	16	17	18	19	20
21	22	23	**24**	**25**	**26**	27
28	29	30				

DECEMBER						17
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	**23**	**24**	25
26	**27**	**28**	**29**	**30**	**31**	

JANUARY						19
S	M	T	W	T	F	S
						1
2	3	4	5	**6**	7	8
9	10	11	12	13	14	15
16	**17**	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

EXPLANATION OF DATES:

Aug.		New Teacher Academy
Aug.		Teacher Meeting Day
Aug.		Teacher Professional Development Days
Aug.	**26**	**First Day of School**
Sept.	**6**	Labor Day - No School
Oct.	**11**	Indigenous People Day/Yom Kippur - No School
Oct.	**29**	Diwali - No School
Nov.	**2**	Prof Development Day/Election Day - No School
Nov.	**11**	Veterans Day - No School
Nov.	**24**	Thanksgiving Recess - Shortened Day
Nov.	**25 & 26**	Thanksgiving Recess - No School
Dec.	**23**	Holiday Recess - Shortened Day
Dec/Jan	**24-31**	Holiday Recess - No School
Jan.	**6**	Three Kings Day - No School
Jan.	**17**	Martin Luther King Jr. Day - No School
Feb.	**21**	Presidents' Day - No School
Feb.	**22**	Vacation Day - No School
April	**14**	Good Friday - No School
April	**17-21**	Spring Break - No School
May	**29**	Memorial Day - No School
June	**7**	Projected Last Day of School/HS Graduation Date
June	**19**	Juneteenth

Parent Conference Days: Shortened Days

Elem:	October	(afternoon conf.)	(Snow Date: Oct.)
	March	(afternoon conf.)	(Snow Date: April)
MS:	October	(afternoon conf.)	(Snow Date: Oct.)
	March	(afternoon conf.)	(Snow Date: April)
HS and BAIMS:			
	October	(afternoon conf.)	(Snow Date: Oct.)
	March		(Snow Date: April)

Shortened Days Not Listed Above

Elementary and Middle School - Last 3 days of school
High School - Midterms on the 88-91st school days;
Final Exams - Last five days of school

Emergency Days:

Students must attend school 181 days. With no snow days the last day of school will be **June 7th** . Each snow day will advance the last day of school forward to no later than June 30.

FEBRUARY						19
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	**21**	**22**	23	24	25	26
27	28	29				

MARCH						23
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

APRIL						14
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	**14**	15
16	**17**	**18**	**19**	**20**	**21**	22
23	24	25	26	27	28	29
30						

MAY						22
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	**29**	30	31			

JUNE						7
S	M	T	W	T	F	S
				1	2	3
4	5	6	**7**	8	9	10
11	12	13	14	15	16	17
18	**19**	20	21	22	23	24
25	26	27	28	29	30	

Total Days of School: 181	
	No School
	Shortened Day

9/16/2026

Draft

2028-2029 District Calendar

Bristol Public Schools

Teach and Learn with Passion and Purpose

AUGUST						4
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

SEPTEMBER						19
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

OCTOBER						20
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NOVEMBER						18
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

DECEMBER						16
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

JANUARY						21
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

EXPLANATION OF DATES:

Aug.		New Teacher Academy
Aug.		Teacher Meeting Day
Aug.		Teacher Professional Development Days
Aug.	28	**First Day of School**
Sept.	4	Labor Day - No School
Sept.	21	Rosh Hashanah - No School
Oct.	9	Indigenous People/Columbus Day - No School
Oct.	17	Diwali - No School
Nov.	7	Prof Development Day/Election Day - No School
Nov.	10	Veterans Day - No School
Nov.	22	Thanksgiving Recess - Shortened Day
Nov.	23 & 24	Thanksgiving Recess - No School
Dec/Jan	25-1	Holiday Recess - No School
Jan.	1	New Years Day - No School
Jan.	15	Martin Luther King Jr. Day - No School
Feb.	15	Eid al-Fitr - No School
Feb.	19	Presidents' Day - No School
Feb.	20	Vacation Day - No School
March	30	Good Friday - No School
April	9-13	Spring Break - No School
May	28	Memorial Day - No School
June	9	Projected Last Day of School/HS Graduation Date
June	19	Juneteenth

Parent Conference Days: Shortened Days

Elem:	October	(afternoon conf.)	(Snow Date: Oct.)
	March	(afternoon conf.)	(Snow Date: April)
K-8:	October	(afternoon conf.)	(Snow Date: Oct.)
	March	(afternoon conf.)	(Snow Date: April)
MS:	October	(afternoon conf.)	(Snow Date: Oct.)
	March	(afternoon conf.)	(Snow Date: April)
HS and BAIMS:			
	October	(afternoon conf.)	(Snow Date: Oct.)
	March		(Snow Date: April)

Shortened Days Not Listed Above

Elementary and Middle School - Last 3 days of school
High School - Midterms on the 88-91st school days;
Final Exams - Last five days of school

Emergency Days:

Students must attend school 181 days. With no snow days the last day of school will be **June 9th** . Each snow day will advance the last day of school forward to no later than June 30.

FEBRUARY						17
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

MARCH						21
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

APRIL						16
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

MAY						22
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

JUNE						7
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Total Days of School: 181	
	No School
	Shortened Day

9/16/2026

Historical

School Year	First Day of School	Projected Last Day of School	Actual Last Day of School
2005-2006	9/1/2005	6/15/2006	6/20/2006
2006-2007	8/31/2006	6/14/2007	6/19/2007
2007-2008	8/30/2007	6/13/2008	6/17/2008
2008-2009	8/28/2008	6/15/2009	6/19/2009
2009-2010	8/27/2009	6/11/2010	6/16/2010
2010-2011	9/2/2010	6/15/2011	6/25/2011
2011-2012	9/1/2011	6/14/2012	6/21/2012, (6/22/2012 O'Connell only)
2012-2013	8/31/2012	6/14/2013	6/25/2013
2013-2014	8/30/2013	6/10/2014	6/19/2014
2014-2015	8/29/2014	6/10/2015	6/18/0205
2015-2016	8/31/2015	6/7/2016	6/9/2016
2016-2017	9/1/2016	6/12/2017	6/21/2017
2017-2018	8/31/2017	6/11/2018	6/19/2018
2018-2019	8/31/2018	6/11/2019	6/14/2019
2019-2020	9/3/2019	6/12/2020	6/18/2020
2020-2021	9/8/2020	6/11/2021	6/14/2021
2021-2022	8/30/2021	6/8/2022	6/15/2022
2022-2023	8/31/2022	6/8/2023	6/13/2023
2023-2024	8/31/2023	6/12/2024	6/18/2024
2024-2025	8/29/2024	6/13/2025	6/18/2025

Historical

BRISTOL PUBLIC SCHOOLS CALENDAR – 2000-2001

Teacher Meeting Day – August 28; Professional Development Day – August 29
Vacation Weeks: Close December 22 at end of full school day – Reopen January 2
Close February 16 at end of school day – Reopen February 26
Close April 12 at end of school day – Reopen April 23
No School – Labor Day, Sept. 4; Columbus Day, Oct. 9; PDD Nov. 7; Veterans Day, Nov. 10; Thanksgiving Recess, Nov. 23 & 24; Martin Luther King Day, Jan. 15; Lincoln's Day, Feb. 12; PDD March 30; Good Friday, April 13; Memorial Day, May 28.
Shortened Legal Days – November 22 P.M. Thanksgiving recess.

Parent Conference Days – (*indicates afternoon sessions for Elementary schools)

Elementary	October 24, 25* , 26	(Snow: Oct. 31, Nov. 1, Nov. 2
	March 20, 21*, 22	(Snow: March 26, 27, 28
Middle	October 23, 24, 25, 26	(Snow: Nov. 6, Nov. 8
	April 3, 5	(Snow: April 10
High	October 4, 5	(Snow: October 10
	March 14	(Snow: March 15

AUGUST

M	T	W	TH	F	
TMD	PDD	30	31		(2 days)

SEPTEMBER

M	T	W	TH	F	
				1	
LD	5	6	7	8	(20 days)
11	12	13	14	15	
18	19	20	21	22	
25	26	27	28	29	

OCTOBER

M	T	W	TH	F	
2	3	4	5	6	
CD	10	11	12	13	(21 days)
16	17	18	19	20	
23	24	25	26	27	
30	31				

NOVEMBER

M	T	W	TH	F	
		1	2	3	
6	PDD	8	9	VET	(18 days)
13	14	15	16	17	
20	21	22*	..	..	
27	28	29	30		

DECEMBER

M	T	W	TH	F	
				1	
4	5	6	7	8	(16 days)
11	12	13	14	15	
18	19	20	21	22	

JANUARY

M	T	W	TH	F	
	2	3	4	5	
8	9	10	11	12	(21 days)
MLK	16	17	18	19	
22	23	24	25	26	
29	30	31			

FEBRUARY

M	T	W	TH	F	
			1	2	
5	6	7	8	9	
LD	13	14	15	16	(14 days)
19	20	21	22	23	Vacation
26	27	28			

MARCH

M	T	W	TH	F	
			1	2	
5	6	7	8	9	(21 days)
12	13	14	15	16	
19	20	21	22	23	
26	27	28	29	PDD	

APRIL

M	T	W	TH	F	
2	3	4	5	6	
9	10	11	12	GF	(15 days)
16	17	18	19	20	Vacation
23	24	25	26	27	
30					

MAY

M	T	W	TH	F	
	1	2	3	4	
7	8	9	10	11	(22 days)
14	15	16	17	18	
21	22	23	24	25	
MD	29	30	31		

JUNE

M	T	W	TH	F	
				1	
4	5	6	7	8	(17 days)
11	12	13	14	15	
18	19	20	21	22	
25					

First Half 98 Days Second Half 89 Days

Emergency Days – If more than seven (7) emergency days are required prior to the spring vacation, additional days will be deducted from the spring vacation commencing Friday, April 20, and working backward to avoid school from being in session any later than June 25.

NEW WORDING

BRISTOL PUBLIC SCHOOLS -- BRISTOL, CONNECTICUT
SCHOOL CALENDAR -- 1990-91 SCHOOL YEAR

Historical

Teacher Mtg. Day: August 29; Professional Development Days: August 30 and 31

Vacation Weeks: Schools close December 21 at end of school day - Reopen January 2
Schools close March 22 at end of school day - Reopen April 1

No School: Labor Day, September 3; Columbus Day, October 8; Professional Development Day, November 6 (Election Day); Veterans' Day, November 12; Thanksgiving Recess, November 21 p.m., 22, 23; New Year's Day, January 1; Martin Luther King Day, January 21; Vacation Day, February 11; Lincoln's Day, February 12; Professional Development Day, February 18; Good Friday, March 29; Professional Development Days, April 19 and May 24; Memorial Day, May 27.

* Shortened Legal School Session Days: November 21 p.m. -- Thanksgiving Recess

PARENT CONFERENCE DAYS: K-6 Schools: Nov.13,14,15 (Snow Dates--Nov.19,20) March 5,6,7 (Snow Dates--March 11,14,18)

Middle Schools: Nov.19,20 (Snow Dates--Nov.27,28); March 12,13 (Snow Dates--19,20)

High Schools: Oct.16 (evening),Oct.18 (day); March 14 (evening) (Snow Date--March 21 (evening)

M	T	W	Th	F	
AUGUST					
		TMD	PDD	PDD	
SEPTEMBER					
LD	4	5	6	7	
10	11	12	13	14	(19 Days)
17	18	19	20	21	
24	25	26	27	28	
OCTOBER					
1	2	3	4	5	
CD	9	10	11	12	
15	16	17	18	19	(22 Days)
22	23	24	25	26	
29	30	31	..	..	
NOVEMBER					
..	..	..	1	2	
5	PDD	7	8	9	
Vet Day	13	14	15	16	(18 Days)
19	20	21*	Thanksgiving		
26	27	28	29	30	
DECEMBER					
3	4	5	6	7	
10	11	12	13	14	
17	18	19	20	21	(15 Days)
JANUARY					
..	NY	2	3	4	
7	8	9	10	11	
14	15	16	17	18	(21 Days)
MLK	22	23	24	25	
28	29	30	31	..	

M	T	W	Th	F	
FEBRUARY					
..	..	..	..	1	
4	5	6	7	8	
Vac.Day	LD	13	14	15	(17 Days)
PDD	19	20	21	22	
25	26	27	28	..	
MARCH					
..	..	..	..	1	
4	5	6	7	8	
11	12	13	14	15	(16 Days
18	19	20	21	22	
V A C A T I O N			WEEK	GF	
APRIL					
1	2	3	4	5	
8	9	10	11	12	
15	16	17	18	PDD	(21 Days)
22	23	24	25	26	
29	30	..	..	..	
MAY					
..	..	1	2	3	
6	7	8	9	10	
13	14	15	16	17	(21 Days)
20	21	22	23	PDD	
MD	28	29	30	31	
JUNE					
3	4	5	6	7	
10	11	12	13	14	15 Days
17	18	19	20	21	

First Half 95 Days — Second Half 90 Days — Total Days 185

Emergency Days -- If more than five (5) emergency days are required prior to the spring vacation, additional days will be added on to the school year in June.

WEW/sp

BRISTOL PUBLIC SCHOOLS -- BRISTOL, CONNECTICUT
SCHOOL CALENDAR -- 1982-1983 SCHOOL YEAR

Historical

September 1: Teachers' Meeting Day

Vacations: Schools close December 23, after 4 hr. day; reopen January 3; close February 18 at end of school day, reopen February 28; close April 15 at the end of the school day; reopen April 25.

No School: Labor Day, September 6; Columbus Day, October 11; Teachers' Convention Day, October 29; Veterans' Day, November 11; Thanksgiving Recess, November 24 p.m., 25, 26; Good Friday, April 1; Memorial Day, May 30.

*Four-Hour Legal School Session Days: November 24 a.m. ---December 23 a.m.; Parent Conference Days: All K-6 & K-8 Schools: Nov. 16, 17, 18 & Mar. 15, 16, 17; Mem. Blvd.: Nov. 15, 17 & Mar. 14, 16; Central High: Nov. 30, Dec. 1, & Mar. 10; Eastern High: Nov. 30, Dec. 1, & Mar. 9

M	T	W	Th	F	
SEPTEMBER					
..	..	TM	2	3	
LD	7	8	9	10	
13	14	15	16	17	
20	21	22	23	24	
27	28	29	30	..	(20 days)
OCTOBER					
				1	
4	5	6	7	8	
CD	12	13	14	15	
18	19	20	21	22	
25	26	27	28	TC	(19 days)
NOVEMBER					
1	2	3	4	5	
8	9	10	VD	12	
15	16	17	18	19	
22	23	24* Thanksgiving			
29	30	..	..	..	(19 days)
DECEMBER					
..	..	1	2	3	
6	7	8	9	10	
13	14	15	16	17	
20	21	22	23* Vacation		
V A C A T I O N					(17 days)
JANUARY					
3	4	5	6	7	
10	11	12	13	14	
17	18	19	20	21	
24	25	26	27	28	
31	..	..	..	..	(21 days)

M	T	W	Th	F	
FEBRUARY					
..	1	2	3	4	
7	8	9	10	11	
14	15	16	17	18	
WD	V A C A T I O N				
28	..	..	..	..	(15 days)
MARCH					
..	1	2	3	4	
7	8	9	10	11	
14	15	16	17	18	
21	22	23	24	25	
28	29	30	31	..	(23 days)
APRIL					
..	..	..	..	GF	
4	5	6	7	8	
11	12	13	14	15	
V	A C A T I O N				
25	26	27	28	29	(15 days)
MAY					
2	3	4	5	6	
9	10	11	12	13	
16	17	18	19	20	
23	24	25	26	27	
MD	31	..	..	..	(21 days)
JUNE					
..	..	1	2	3	
6	7	8	9	10	
13	14	15	16	17	
20	21	..	..	..	(15 days)

First Half Year -- 96 days
TOTAL SCHOOL DAYS: 185

Second Half Year -- 89 days
TOTAL SCHOOL WEEKS: 40

Emergency Days - if more than seven (7) emergency days are required prior to the Spring vacation, additional days will be deducted from the spring vacation commencing April 22 and working backward.

BRISTOL PUBLIC SCHOOLS -- BRISTOL, CONNECTICUT
SCHOOL CALENDAR -- 1971-1972 SCHOOL YEAR

Historical

September 7: Teachers' Meeting Day.

Vacations: Schools close Dec. 23 at end of four-hour school day, reopen Jan. 3; close Feb. 18 at end of school day, reopen Feb. 28; close Apr. 21 at end of school day, reopen May 1.

No School: Columbus Day, Oct. 11; Veterans' Day, Oct. 25; Teachers' Convention, Oct. 29; Thanksgiving Day Recess, Nov. 24 p.m.*, 25, 26; Good Friday, Mar. 31; Memorial Day, May 29.

*Four-Hour Legal School Session Days: Nov. 25a.m. - Thanksgiving Day Recess; Dec. 23 - Holiday Vacation; Parent-Conference Days: --
All K-6 Schools: Nov. 2, 3, 4 and Mar. 21, 22, 23.
Eastern High and Memorial Boulevard Schools: Nov. 8 and 9.
Central High School: Nov. 8 and 10

M	T	W	Th	F	
SEPTEMBER					
LD	TM	8	9	10	
13	14	15	16	17	
20	21	22	23	24	
27	28	29	30	..	(17 days)
OCTOBER					
..	..	..	..	1	
4	5	6	7	8	
CD	12	13	14	15	
18	19	20	21	22	
VD	26	27	28	TC	(18 days)
NOVEMBER					
1	2*	3*	4*	5	
8*	9*	10*	11	12	
15	16	17	18	19	
22	23	24*	Thanksiving		
29	30	..	..	..	(20 days)
DECEMBER					
..	..	1	2	3	
6	7	8	9	10	
13	14	15	16	17	
20	21	22	23*	VAC.	(17 days)
VACATION WEEK					
JANUARY					
3	4	5	6	7	
10	11	12	13	14	
17	18	19	20	21	
24	25	26	27	28	
31	..	..	..	..	(21 days)

M	T	W	Th	F	
FEBRUARY					
..	1	2	3	4	
7	8	9	10	11	
14	15	16	17	18	
VACATION WEEK					
28	29	..	..	..	(16 days)
MARCH					
..	..	1	2	3	
6	7	8	9	10	
13	14	15	16	17	
20	21*	22*	23*	24	
27	28	29	30	GF	(22 days)
APRIL					
3	4	5	6	7	
10	11	12	13	14	
17	18	19	20	21	(15 days)
VACATION WEEK					
MAY					
1	2	3	4	5	
8	9	10	11	12	
15	16	17	18	19	
22	23	24	25	26	
MD	30	31	..	..	(22 days)
JUNE					
..	..	..	1	2	
5	6	7	8	9	
12	13	14	15	16	
19	20	21	22	23	(17 days)

First Half Year ---------- 93 days Second Half Year ---------- 92 days

TOTAL SCHOOL DAYS: 185
TOTAL SCHOOL WEEKS: 39

vp

Historical

PUBLIC SCHOOL DEPARTMENT—BRISTOL, CONN.

SCHOOL CALENDAR

1945-46

VACATIONS: Schools close December 21, open January 2 (Christmas-New Year's); Schools close February 22; open March 4 (First Spring Vacation); Schools close April 26, open May 6 (Second Spring Vacation).

NO SCHOOL: Teachers' Convention, October 26; Thanksgiving recess, November 21 p. m., 22, 23; Good Friday, April 19; Memorial Day, May 30.

M.	T.	W.	Th.	F.
SEPTEMBER				
		5	6	7
10	11	12	13	14
17	18	19	20	21
24	25	26	27	28
(18 Days)				
OCTOBER				
1	2	3	4	5
8	9	10	11	12
15	16	17	18	19
22	23	24	25	TC
29	30	31		
(22 Days)				
NOVEMBER				
			1	2
5	6	7	8	9
12	13	14	15	16
19	20	21	Thanks.	
26	27	28	29	30
(19½ Days)				
DECEMBER				
3	4	5	6	7
10	11	12	13	14
17	18	19	20	21
Christmas Vacation				
(15 Days)				
JANUARY				
..	NY	2	3	4
7	8	9	10	11
14	15	16	17	18
21	22	23	24	25
28	29	30	31	
(22 Days)				

M.	T.	W.	Th.	F.
FEBRUARY				
				1
4	5	6	7	8
11	12	13	14	15
18	19	20	21	22
First Vacation ..				
(16 Days)				
MARCH				
4	5	6	7	8
11	12	13	14	15
18	19	20	21	22
25	26	27	28	29
(20 Days				
APRIL				
1	2	3	4	5
8	9	10	11	12
15	16	17	18	GF
22	23	24	25	26
Second Vacation				
(19 Days)				
MAY				
(Vacation) ..		..	..	
6	7	8	9	10
13	14	15	16	17
20	21	22	23	24
27	28	29	MD	31
(19 Days)				
JUNE				
3	4	5	6	7
10	11	12	13	14
17	18	19		
(13 Days)				

First Term: 74½ Days
Second Term: 38 Days
Third Term: 39 Days
Fourth Term: 32 Days

TOTAL SCHOOL DAYS: 183½

Historical

6.)

BRISTOL PUBLIC SCHOOLS
Bristol, Connecticut

/ / Information

February 25, 1994
(Date)

/X/ Decision

AGENDA REPORTING FORM

TOPIC: MAKE-UP DAYS FOR 1993-94

BACKGROUND: As of February 24, we have used six (6) snow days this year. The last day of school on the 1993-94 calendar is Thursday, June 23.

The school make-up day procedure calls for the sixth snow day to be made up on Friday of the April vacation. The Board of Education might consider making up that sixth snow day on Friday, June 24 with the understanding that any additional snow days would be made up during the April vacation, beginning on Friday and working backwards.

Vacation days removed due to snow.

ALTERNATIVES:

Board of Education
Bristol, Conn.
Presented at Board Meeting:
3-2-94
Approved 6th snow day to be made up on 4/22/94,
and last day of school year to be 6/23/94.
Referred to

COST: _____ FUNDING SOURCE: _____

RECOMMENDATION/COMMENT:

ATTACHMENTS: 1993-94 school calendar

TOPIC PRESENTER: Dr. Maher

SUPERINTENDENT: _____

Historical

BRISTOL PUBLIC SCHOOLS CALENDAR -- 1993-94 SCHOOL YEAR

Teacher Mtg. Day: August 31
Vacation Weeks: Close December 23 at end of school day - Reopen January 3
Close February 18 at end of school day - Reopen February 28
Close April 15 at end of school day - Reopen April 25
No School: Labor Day Sept. 6; Columbus Day, Oct. 11; PDD, Nov. 2; Veterans' Day, Nov. 11; Thanksgiving Recess, Nov. 25,26; Martin Luther King Day, Jan. 17; PDD Feb. 11 & March 31, Good Friday, April 1; Memorial Day, May 30
* Shortened) November 25 p.m.Thanksgiving Recess & December 23 p.m.,Christmas Recess
Legal Days) PARENT CONFERENCE DAYS(* indicates evening sessions for Elementary Schools):
K-5 Schools: Oct.26*,27,28*(Snow: Nov.9*,3,4*); March 22*,23,24* (Snow:3/29*,30,4/7*)
Middle Schools (Evening Sessions):11/18*,22*,23*(Snow:12/2*,11/29*,30*;3/17*(Snow:3/21*)
High Schools (Evening Sessions):10/19*,10/21*(Snow10/20*,10/25*) March 10*(Snow:3/14*)

M	T	W	Th	F	
August					
..	TMD	..	..	..	
SEPTEMBER					
..	..	1	2	3	
LD	7	8	9	10	
13	14	15	16	17	(21 days)
20	21	22	23	24	
27	28	29	30		
OCTOBER					
..	..	..	..	1	
4	5	6	7	8	
CD	12	13	14	15	(20 days)
18	19	20	21	22	
25	26	27	28	29	
NOVEMBER					
1	PDD	3	4	5	
8	9	10	Vet	12	
15	16	17	18	19	(18 days)
22	23	24*	Thanks.		
29	30	..	..	..	
DECEMBER					
..	..	1	2	3	
6	7	8	9	10	(17 days)
13	14	15	16	17	
20	21	22	23*	..	
JANUARY					
3	(4)	5	6	(7)	
10	11	12	13	14	
MLK	(18)	19	20	21	(20 days)
24	25	(26)	27	(28)	
31	..	..	..	..	

SCHOOL CANCELLATIONS: 1, 4, 7, 18, 26, 28

M	T	W	Th	F	
FEBRUARY					
..	1	2	3	4	
7	8	(9)	10	PDD	
14	15	16	17	18	(14 days)
21	22	23	24	25	VACATION
28					
MARCH					
..	1	2	3	4	
7	8	9	10	11	
14	15	16	17	18	(22 days)
21	22	23	24	25	
28	29	30	PDD	..	
APRIL					
..	..	..	..	GF	
4	5	6	7	8	
11	12	13	14	15	(15 days)
18	19	20	21	22	VACATION
25	26	27	28	29	
MAY					
2	3	4	5	6	
9	10	11	12	13	
16	17	18	19	20	(21 days)
23	24	25	26	27	
MD	31	..	..	..	
JUNE					
..	..	1	2	3	
6	7	8	9	10	(17 days)
13	14	15	16	17	
20	21	22	23	..	
..	..	..			

SCHOOL CANCELLATION: Feb. 9

Vacation days removed due to snow.

First Half 96 Days Second Half 89 Days Total 185

Emergency Days -- if more than five (5) emergency days are required prior to the spring vacation, additional days will be deducted from the spring vacation commencing Friday, April 22 and working back to avoid school from being in session any later than June 23.

Before additional holidays

2023 - 2024 District Calendar

Bristol Public Schools

Teach and Learn with Passion and Purpose

AUGUST						1
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	TMD	PDD	PDD	31		

SEPTEMBER						20
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

OCTOBER						21
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NOVEMBER						18
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

DECEMBER						16
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

JANUARY						20
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

EXPLANATION OF DATES

Aug.	28	Teacher Meeting Day
Aug.	29 & 30	Teacher Professional Development Days
Aug.	31	First Day of School
Sep.	4	Labor Day - No School
Oct.	9	Indigenous People Day/Columbus Day - No School
Oct.		PDD - Shortened Day: 9-12 only PSAT Administration
Nov.	7	Professional Development Day - No School
Nov.	10	Veterans Day - No School
Nov.	22	Thanksgiving Recess - Shortened Day All
Nov.	23 & 24	Thanksgiving Recess - No School
Dec.	22	Holiday Recess - Shortened Day All
Dec./Jan.	25 - 2	Holiday Recess - No School
Jan.	1	New Years Day Observance - No School
Jan.	15	Martin Luther King Jr. Day - No School
Feb.	19	Presidents' Day - No School
Feb.	20	Vacation Day - No School
Mar	29	Good Friday - No School
April	8-12	Spring Break - No School
May	27	Memorial Day - No School
June	11	Projected Last Day of School

Parent Conference Days: Shortened Days

Elem:	October 25, 26, 27	(Snow Date: Nov. 9)
	March 20, 21, 22	(Snow Date: April 4)
K-8:	October 25, 26, 27	(Snow Date: Nov. 9)
	March 20, 21, 22	(Snow Date: April 4)
MS:	October 24, 25, 26, 27	(Snow Date: Nov. 9)
	March 20, 21	(Snow Date: April 4)
HS:	October 10, 11, 12	(Snow Date: Nov. 9)
	March 7	(Snow Date: April 4)

Shortened Days Not Listed Above

Elementary, K-8 and Middle School - Last 3 days of school
High School - Midterms on the 88-91st school days;
Final Exams - Last five days of school

Emergency Days

Students must attend school 181 days. With no snow days the last day of school will be **June 11th**. Each snow day will advance the last day of school forward to no later than June 30.

FEBRUARY						19
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

MARCH						20
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APRIL						17
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

MAY						22
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JUNE						7
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Total Days of School: 181

- No School
- Shortened Day - All
- Shortened Day - 9-12 only

4/25/2023