Student Achievement Committee Meeting

Wednesday, November 18, 2026 7:00 PM
BOE Auditorium and via Zoom Meeting Platform, 129 Church Street, Bristol, CT 06010

1.	**Call to Order/ Pledge of Allegiance**	
2.	**Decision: Approval of Minutes**	
3.	**Public Comment**	
4.	**Decision: Student Achievment and Outcomes Committee Dates for 2027**	**Presenter:** Carly Fortin
5.	**Discussion: Avenues of Opportunity for the District**	**Presenter:** Carly Fortin
6.	**Decision: Latin Historical Poetry, new curriculum**	**Presenter:** Leszek Ward
7.	**Decision: Women's History, new curriculum**	**Presenter:** Leszek Ward
8.	**Decision: Middle School Grade 6-8 Technology Education, curriculum revision**	**Presenter:** Laura Lanza
9.	**Decision: High School Grade 9-12 Geometry and Statistics ACA/ACC, curriculum revision**	**Presenter:** Laura Lanza
10.	**Information: Middle School and High School Grade 6-12 Fine Arts**	**Presenter:** Kenneth Bagley
11.	**Adjournment**	

Student Achievement & Outcomes Committee
October 21, 2026
MINUTES

The minutes presented within this document are a summary of the discussion that took place at the Student Achievement Committee meeting. To view the meeting in its entirety and hear full reports please go to: October 21, 2026 SAC Meeting Recording

PRESENT: Committee members: Kara Ledger, Barbara Tedesco, Robert Parenti

ALSO PRESENT: Ken Bagley, Carly Fortin, Laura Lanza, Melanie Vetrano, Iris White

Call to Order
Commissioner Ledger called the meeting to order at 7:00 p.m.

Decision: Approval of Minutes from September 16, 2026
On a motion made by Commissioner Barbara Tedesco and seconded by Commissioner Robert Parenti, it was unanimously:

VOTED: to approve the September 16, 2026 Student Achievement minutes.

Public Comment: No public comment.

Information: High Dosage Tutoring Grant
Presented by Carly Fortin, Chief of Academics, and Laura Lanza, Secondary STEM Supervisor, the High Dosage Tutoring Grant will support students in Algebra 1. The model front-loads prerequisite skills. Students take Foundations for Algebra 1 daily during quarter one, Algebra 1 daily during quarter two, and Algebra 1 every other day during quarters three and four. Grant-funded tutors will begin providing support in quarter 2 of this school year with a tutor-to-student ratio of no more than 1:4. The grant application was developed close to the $50,000.00 maximum with allocations towards teacher planning, a program coordinator, and instructional resources. The grant will cover one year of tutoring and requires reporting on effectiveness to the state.

Questions and comments followed.

Information: SBA Achievement and Growth
Carly Fortin presented literacy and mathematics results, district progress, and grade level trends. The presentation highlighted point in time achievement from growth across consecutive years. Literacy achievement remained generally stable, with West Bristol Elementary School highlighted for notable achievement and Northeast Middle School exceeding the state literacy performance index.. Mathematics achievement also remained stable with four elementary schools and Northeast Middle School exceeding the state

DRAFT

mathematics performance index.

As a way to strengthen teacher ownership and identify actions unique to each school's needs, an inquiry-based approach with school focus questions was developed to respond to areas of opportunity and investigate underlying causes before selecting interventions.

Questions and comments followed.

Information: Freshman On-Track Rate

Presented by Carly Fortin, freshman on-track results measured first-time ninth graders earning at least six credits, with a state target of 94%. The district rate reached 89.8% with Bristol Central's rate reaching 91.4%. A portion of accountability credit will be sent to sending middle schools, reinforcing the attention to the transition into ninth grade. Carly attributed this upward progression to the regular monitoring of high school administrators, on-track counselors, and revised instructional models such as the Algebra 1 support sequence.

Questions and comments followed.

Information: K-5 Fine Arts Overview

Kenneth Bagley, Supervisor of Fine Arts, presented an overview of elementary visual arts and their connection to the broader fine arts program. The curriculum is grounded in the National Core Arts Standards which include creating, connecting, performing, and responding. Students prekindergarten through grade five receive approximately 45 minutes once weekly. Visual arts instruction highlights elements and principles of art through drawing, painting, and sculpture. Music instruction develops participation and instruction through rhythm, melody, expression, singing, and instrumental techniques. All fifth-grade students participate in chorus, providing an opportunity for a public performance.

Questions and comments followed.

There being no further discussion, Commissioner Ledger adjourned the meeting at 7:56pm.

Respectfully submitted,

Maryann Motta

Maryann Motta

DRAFT

PROCEDURES FOR PUBLIC PARTICIPATION AT BOARD OF EDUCATION MEETINGS

The Bristol Board of Education welcomes public participation in accordance with Policy 1120, Public Participation at Board of Education Meetings. Board meetings are meetings held in public and are not public hearings. Public participation is subject to recognition by the Chairperson and the requirements of Board policy.

A. Public Participation During Meetings

1. **Recognition:** Individuals wishing to speak must address the Chairperson for recognition and state their name, address, and topic.
2. **Speaking Time:** Each speaker is limited to four (4) minutes and may speak only once. Speakers may not transfer their allotted time to another individual or speak on behalf of another person or organized group.
3. **Subject Matter:** Comments should concern matters within the Board's jurisdiction or the topic for which the speaker signed up. The Chairperson may remind speakers of this requirement but shall not restrict or terminate speaking time solely because of the viewpoint expressed or specific subject addressed. Speakers whose comments fall outside the Board's jurisdiction will be advised accordingly, and their comments will be noted for the record.
4. **Public Input:** The Board welcomes and values a variety of perspectives and encourages community members to share their thoughts, questions, and concerns respectfully.
5. **Student Confidentiality and Personnel Matters:** Comments involving confidential student information protected by FERPA are prohibited. Individuals with complaints concerning district personnel are strongly encouraged to use the appropriate administrative chain of command.
6. **Meeting Conduct:** All participants are expected to conduct themselves respectfully and help maintain an orderly meeting. Disruptive behavior, harassment, obscene language, and threats are prohibited. Individuals who disrupt the meeting may be warned and, if the behavior continues, asked to leave.
7. **Board Responses:** Board members do not respond directly to public comments during meetings. The Chairperson or Superintendent may provide brief factual clarification or refer questions and concerns to appropriate district personnel for follow-up.

B. Written Public Comments

Members of the public may submit written comments for distribution to Board members.

1. Email written comments to maryannmotta@bristolk12.org with the subject line **PUBLIC COMMENT- Student Achievement Committee**
2. Include your full name, address, and topic.
3. Comments should concern matters within the Board's jurisdiction.
4. Do not include confidential student information protected by FERPA. Complaints involving individual district personnel should be directed through appropriate administrative channels.

5. Comments received by 4:00 p.m. on the day of the meeting will be distributed to Board members before the meeting. Comments received after that time may be distributed following the meeting.
6. Written comments and supporting materials may be made available to Board members but are not automatically read aloud or included on the meeting agenda.

C. Administration of Procedures

The Chairperson is responsible for maintaining order and administering public participation in accordance with Policy 1120. Public participation during consideration of regular agenda items is permitted at the Chairperson's discretion, consistent with Board policy. These procedures are intended to provide clear, consistent guidance and do not supersede Policy 1120 or applicable law.

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

Course Description:

This semester-long course explores how the Roman poet Vergil used storytelling in the context of epic poetry to reflect on historical origins, national identity and values, and contemporary political events. Students will demonstrate familiarity with metrical forms, literary terms, and specific literary constructions.

Aligned Core Resources:	Connection to the ***BPS Vision of the Graduate***
• A Fateful Journey, by Andrew Olimpi (A tiered Latin reader) • Vergil, Aeneid I 1-11 | Dickinson College Commentaries	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 Poetry 2026 - Curriculum Equity Audit

Unit Links

Standard Matrix
Unit 1: Leaving Troy
Unit 2: Leaving Carthage
Unit 3: Visiting the Underworld

Standard Matrix	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
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	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.					
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	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	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.					
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	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	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	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: Leaving Troy

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 begin Vergil's *Aeneid* and follow the events that drive Aeneas from Troy, from the poem's opening invocation of the Muse to the fall of the city. Students trace Juno's anger (*ira*) and her devotion to Carthage before reading the most detailed account of the Trojan Horse in ancient literature. By comparing Vergil's opening to Homer's, students examine how a Roman poet writing after a civil war adapted a Greek epic to tell a distinctly Roman story. Through the tragedy of Laocoön, students consider how individuals can still act with duty (*pietas*) when fate (*fatum*) limits their control. Ultimately, students investigate how Vergil uses poetic structure to shape how readers understand the past.

Essential Question(s):

1. How does Vergil adopt, transform, and expand the epic tradition?
2. How do individuals maintain agency when confronted by unavoidable fate?

Enduring Understanding(s):

1. Vergil adopts foundational Homeric conventions, such as divine invocations, storm/shipwreck narratives, and mythic monsters, but also actively expands the epic tradition by providing the ancient world's definitive narrative of the Trojan Horse and reframing Greek heroism through a distinctly Roman lens.
2. Through figures like Laocoön and Aeneas, Vergil demonstrates that individual honor in ancient Rome is defined by the concept of pietas. Even when divine fate (fatum) and catastrophe limit personal agency, individuals can still demonstrate a commitment to duty, family, and community over personal desire.

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.
- Homeric Exploration
  - Part 1: Research/Presentation explaining related information from the Homeric world
  - Part 2: TikTok-style presentation contextualizing the research in our Latin text.

Unit Specific Vocabulary

Vocab Lists

- fatum
- pietas
- ira

Key Verbs / Phrases

- *arma virumque cano*
- *fato profugus*
- *memor Saturnia*
- *quidquid id est, timeo Danaos et dona ferentes*

Grammatical Concepts

- unconventional syntax
- participles
- literary devices: epithets, personification, irony, apostrophe

Connections to Prior Units:

- Students will be able to draw on their study of Roman religion in Latin 1 and 2, where they saw divine influence acknowledged in household rituals, funerary traditions, and communal worship.
- Students may have read Livy's account of Aeneas's arrival in Italy in Latin Historical Prose, preparing them to compare a historian's version of the story with a poet's.
- Students may have studied Hannibal, Carthage's greatest general, in Latin Historical Prose, helping them understand why Juno's devotion to Carthage would resonate with a Roman audience.

Connections to Future Units:

- Students will return to the theme of maintaining agency and honor in the face of fate in Units 2 and 3.
- Students will see Carthage resurface as Rome's nemesis in Units 2 and 3, when Aeneas arrives in Dido's city and later meets her again in the Underworld.

Family Overview (link below)

Pacing for Unit

•	• 20 classes, 8 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.	• Vergil's *Aeneid* • *Dickinson Classics Commentaries:* Latin Texts • The Pericles Group: Tiered Readings Collection • The Latin Library • A Fateful Journey, by Andrew Olimpi • The Lover's Curse by Carla Hurt • Vergil's Aeneid: Selected Readings by Barbara Weiden Boyd
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
• Grade 9 ELA: Students might compare the role of fate in Troy's fall to the "star-crossed" lovers in Romeo and Juliet, using Roman fatum and pietas to discuss which parts of each ending are fated and which result from characters' choices.	• Students may assume the Aeneid is simply a copy of Homer's epics, failing to recognize that Roman authors deliberately imitated and competed with Greek models to create something distinctly Roman. • Students may expect the gods to behave like the moral, predictable deities of modern religions, failing to recognize that Vergil's gods act out of anger, favoritism, and self-interest, and that their commands are often unclear or impossible for mortals to satisfy. • Students may read the story as a contest between heroes and villains, failing to see that Vergil gives even Rome's enemies, such as Juno and Carthage, understandable motives, and that heroic choices carry real human costs. • Students may confuse fatus (having spoken) with fata (the fates), failing to recognize that the two words share a root. For Romans, fate was literally what the gods had spoken.
Differentiation through *Universal Design for Learning*	
UDL Indicator • Consideration 2.1: Clarify vocabulary, symbols, and language structures	**Teacher Actions:** • Pair each Aeneid excerpt with its matching chapter in Olimpi's tiered reader, so students meet each scene in simplified Latin before tackling Vergil's poetic version. • Provide color-coded copies of the text that match adjectives with their nouns by case ending, helping students untangle poetic word

	order. • Provide sentence organizers that map the poetic arrangement back to a familiar Subject–Object–Verb order. • Give students a running glossary of epithets and literary devices (apostrophe, personification, irony) with an example from each lesson.

Unit 1: Leaving Troy

Lesson Map

Lesson	Learning Target	Success Criteria	Resources
1-2	• I can compare and contrast Vergil's invocation to the Muses to those of Homer (in translation). • I can use proper nouns to track Aeneas's journey and interactions.	• By analyzing first and second person insertions into the text (pronouns, vocative case, verb endings). • By matching proper nouns to Latin descriptors.	Olimpi Ch 1: Fato Profugus Aeneid 1: 1-7 Aeneid 1.1-33 essay | DCC Why should you read Virgil's "Aeneid"? - Mark Robinson | TED-Ed
3-4	• I can describe the extent of Juno's anger. • I can provide evidence for Juno's attachment to Carthage.	• By analyzing the use of syntactical descriptors, including participles, superlatives, and quantifiers. • By inferring gapped subjects and verbs.	Olimpi Ch 2: Iuno Irata Aeneid 1: 8-18
5-6	• I can contextualize Juno's anger in the past and the future. • I can explain the role the Fates play in Juno's anger.	• By recognizing epithets and their significance. • By analyzing infinitives in indirect statements.	Olimpi Ch 3: Oraculum Aeneid 1: 19-33
7-8	• I can explain why Laocoon fears Greeks bearing gifts.	• By listing Laocoon's three hypotheses of the horse's dangers. • By analyzing the structure of questions.	Olimpi Ch 8: Equus Ligneus I Aeneid 2: 40-49
9-10	• I can explain how Laocoon and the fates were at odds. • I can compare what had happened to what Aeneas imagines could have happened.	• By analyzing Aeneas's apostrophe (figure of speech) to the Trojan citadel. • By contrasting the participle *fatus* (having spoken) and the noun fata *deum* (the fates of	Olimpi Ch 9: Equus Ligneus II Aeneid 2:50-56

		the gods).	
11-12	• I can describe the scene and the serpents and the attack on Laocoon and his children.	• By analyzing participles and adjectives in a poetical syntactical arrangement. • By analyzing word choice for reader impact.	Olimpi 10: Serpentes I Aeneid 2:201-215 Laocoön - Wikipedia
13-14	• I can describe how Laocoon was overcome. • I can explain how the serpents express their divine allegiance.	• By untangling the descriptions of the sounds and images of the attack. • By analyzing characters by epithets and allusions.	Olimpi 11: Serpentes II Aeneid 2: 216-227 Laocoön - Wikipedia The tragedy of the one guy who was right about the Trojan Horse
15-16	• I can describe the crowd's immediate response (emotions and actions).	• By analyzing the personification of pavor (fear). • By noting vocabulary suggestive of the fates and gods (scelus, sacrum, simulacrum, oranda, divae, numina, fatalis).	Olimpi 12: Rumores Aeneid 2: 228-238
17-18	• I can explain the situational irony of the Trojans actions and their fate. • I can debate the role of the Fates in the destruction of Troy.	• By inferring gapped subjects and verbs in dramatic action scenes. • By noting vocabulary suggestive of the fates and gods (divum, immemores, infelix, sacrata, fatis futuris, dei).	Olimpi 13: Monstrum Infelix Aeneid 2:238-249 The tragedy of Cassandra, the princess who predicted the fall of Troy | TED Talk
	FLEX		
	ASSESSMENT		

Unit 2: Leaving Carthage

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 follow Aeneas and Dido from the cave scene to Aeneas's decision to leave Carthage. Students examine how Dido, a capable queen who has built a city for her people, and Aeneas, a leader bound to a divine mission, each struggle to balance their feelings for one another with their duties to their peoples. Students read how Fama (rumor) spreads the news of the couple, then analyze the speeches in which Dido blames Aeneas and Aeneas defends his choice, with the gods and the fates complicating both sides. Ultimately, students investigate how Vergil's portrayal of Dido reflects Roman attitudes toward women in power, and whether Aeneas deserves the blame many modern readers place on him.

Essential Question(s):

1. Should we be angry with Aeneas for leaving Dido?
2. How does leadership work differently for women in the Roman world?

Enduring Understanding(s):

3. Evaluating Aeneas' departure from Carthage reveals a conflict between ancient and modern perspectives. Where an ancient audience likely understood divine commands as absolute cosmic imperatives overriding personal desire, modern readers may interpret the gods as the personification of individual desires, holding Aeneas personally and morally accountable for the human cost of his choice.
4. Dido's dignified civic leadership draws upon Roman familiarity with powerful female figures like Fulvia, Octavia, and Cleopatra, but the tragic arc of her story ultimately reflects Roman anxieties toward autonomous female rulers who govern outside male authority (patria potestas), abandon traditional domestic expectations, and succumb to unbridled passion (furor).

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 literary devices in familiar Latin passages.
- Powerful Women Exploration
  - Part 1: Research/Presentation exploring powerful women from Rome's first century
  - Part 2: Campaign ad for a powerful first century woman

Unit Specific Vocabulary

Vocab Lists

- fama
- spero sperare
- funus funeris
- pudor
- moneo monere

Key Verbs / Phrases

- *Ille diēs prīmus lētī prīmusque malōrum causa fuit*
- *mirabile dictu*
- *fama volat (III:21, VIII: 554)*
- *facta atque infecta*

Grammatical Concepts

- Participles
- Elements of speech: use of pronouns, interrogatives, imperatives
- literary devices: tricolon, rhetorical questions, epithets

Connections to Prior Units:

- Students will be able to draw on what they learned about women in the Roman world (Latin 1 and 2) and on the portraits of women in Sallust's Bellum Catilinae (Historical Prose) as they evaluate Dido as a female leader.
- Students will have explored the role of client kings in Roman Britain in Latin 2; this will help students to understand that regal status was negotiated with neighbors.
- Students will see Aeneas continue to identify as a Trojan, recalling the struggles described in Unit 1.

Connections to Future Units:

- Students will encounter Dido again in the Underworld in Unit 3, revisiting the question of Aeneas's responsibility.
- Students will see Aeneas reconcile his past (represented by his father) with his future (represented by his son and descendants) in Unit 3

• Students will have seen Livy use fama (rumor) to recount mythical events in Historical Prose, preparing them to analyze Vergil's personified Fama.	
Family Overview (link below)	**Pacing for Unit**
•	• 20 classes, 8 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 may assume that Roman marriage resembled a modern American wedding or was primarily a religious commitment, failing to recognize that it was largely a legal and political arrangement • Students may not be familiar with common law marriage, the modern concept closest to Dido's claim, and so may assume that a marriage requires a formal ceremony. • Students may assume that Dido and Cleopatra are the same figure or entirely unrelated, failing to recognize that Vergil's Dido may echo Roman attitudes toward foreign queens without being a portrait of any one of them. • Students may assume that the gods must be literally believed for the story to make sense, failing to recognize that ancient audiences could read divine action as cosmic forces, personified emotions, or political symbols.
Differentiation through *Universal Design for Learning*	
UDL Indicator • Consideration 3.1: Connect prior knowledge to new learning	**Teacher Actions:** • Pre-teach the concept of common law marriage with a short modern example and contrast it with Roman marriage practice, so students can evaluate Dido's claim that the cave scene is a marriage.

	• Reactivate what students learned about women in the Roman world in Latin 1 and 2, and in Sallust's Bellum Catilinae, asking them to list expectations for women's behavior before judging Dido's choices. • Provide a graphic organizer comparing Dido's and Aeneas's priorities (their peoples, the gods, personal desire) that students add to throughout the unit.
UDL Indicator • Consideration 7.1: Optimize individual choice and autonomy	**Teacher Actions:** • For the Powerful Women Exploration, let students choose which powerful woman from Rome's first century to research (for example Fulvia, Octavia, or Cleopatra) and which format to use for the campaign ad (video, poster, audio, or social media mock-up), all graded against the same rubric.

Unit 2: Leaving Carthage

Lesson Map

Lesson	Learning Target	Success Criteria	Resources
1-2	• I can provide evidence of Dido's infatuation. • I can describe the impact of this infatuation on Troy.	• By analyzing the text for physical descriptions of infatuation. • By identifying participles.	Olimpi 14: Propter Amorem 4:74-89 Dido receiving Aeneas and Cupid disguised as Ascanius | National Gallery, London
3-4	• I can explain how this cave scene creates a change in Dido's relationship with Aeneas. • I can identify the matrimonial elements of the scene.	• By noting vocabulary suggestive of Roman marriage practices (pronuba, signum ignes conubiis, ululatunt, Nymphae, coniugium). • By analyzing vocabulary associated with speech (famae, vocat, nomine) in contrast to deeds.	Olimpi 15: Spelunca 4: 165-172
5-6	• I can describe the personification of *Fama* (rumor). • I can compare Vergil's *Fama* to how rumors spread today.	• By analyzing the physical description of Fama (rumor). • By analyzing the text for words describing motion and speed.	Olimpi 16: Fama I 4:173-188
7-8	• I can analyze the 'viral' elements of Fama's speech.	• By identifying descriptions of Dido and Aeneas and the season • By noting the use of compound verbs expressing movement (replebat, infecta, diffundit, detorquet, incendit, aggerat).	Olimpi 17: Fama II 4:189-197
9-10	• I can explain why Dido finds Aeneas's departure insulting.	• By analyzing the structure of questions. • By recognizing literary devices (anaphora, tricolon crescens, metonymy).	Olimpi 18: Aeneas Perfidus 4:305-313
11-12	• I can enumerate the things for which Dido blames Aeneas.	• By analyzing imperatives and interrogatives. • By recognizing future tense verbs.	Olimpi 19: Mene fugis? 4:314-330
13-14	• I can explain the opposing forces Aeneas feels.	• By analyzing the use of pronouns. • By contrasting Aeneas's word choices with	Olimpi 20: Aeneas Respondet I 4:331-339

		Dido's.	
15-16	• I can summarize Aeneas's priorities.	• By analyzing Ablative Absolutes. • By comparing Troy and Carthage.	Olimpi 21: Aeneas Respondet II 4:340-350
17-18	• I can describe external forces on Aeneas. • I can ascribe appropriate blame to Aeneas and/or Dido.	• By analyzing family members as representative of the past and future. • By examining Aeneas's speech for tone.	Olimpi 22: Imago Patris 4:351-361
	FLEX		
	ASSESSMENT		

Unit 3: Visiting the Underworld

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 follow Aeneas on his journey through the Underworld (katabasis), where his father Anchises shows him the future heroes of Rome. Students read the parade of heroes leading to Augustus and Anchises' reminder that Rome's gift is to rule (imperium), then meet Latinus, the king whose family connects Aeneas to Italy's past. By comparing Vergil's Underworld with Homer's, students examine how a visit to the dead becomes a vision of Rome's future. Ultimately, students investigate whether Vergil celebrates Augustus's rule or questions its human cost.

Essential Question(s):

1. Why must Aeneas travel through the Underworld before he can build Rome's future?
2. How does Vergil's epic support or subvert Augustan state ideology?

Enduring Understanding(s):

1. By transforming the Homeric epic tradition of visiting the dead (katabasis), Vergil shifts the journey from a personal quest about one's past and into a prophetic vision of Rome's future. The descent validates Aeneas' decision to leave Carthage and frames his individual sacrifice as a necessary step toward a divine national destiny (imperium sine fine).
2. For Vergil's contemporaries, Anchises' parade of historical cameos functioned as an imperially approved propaganda legitimizing recent Augustan rule. However, by lingering on the tragedy of human loss and exiting through the Gate of False Dreams, Vergil subtly questions the human and moral cost of that imperial destiny.

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.
- Roman Historical Connections
  - Part 1: Research/Presentation explaining related information from Vergil's contemporary world
  - Part 2: 'who wore it better' style presentation contextualizing the research in our Latin text.

Unit Specific Vocabulary

Vocab Lists

- progenies
- memento
- imperium
- Sidera
- katabasis

Key Verbs / Phrases

- *Hic Caesar et omni Iuli progenies*
- *hic vir, hic est*
- *Augustus Caesar, divi genus*
- *tu regere imperio populos, Romane, memento*
- *hae tibi erunt artes*
- *sanguinis ultimus auctor*
- *avis atavisque*

Grammatical Concepts

- prepositional phrases
- imperatives
- Dative of possession

Connections to Prior Units:

- Students may have studied Augustus and the Ara Pacis in Latin Historical Prose, preparing them to see how Augustus used monuments and stories to shape his public image.
- Students will have explored Roman beliefs about the underworld in the Latin 1, allowing them to compare those beliefs with Vergil's Underworld.

Connections to Future Units:

-

• Students will have examined Greek and Roman stereotypes in the Latin 1, preparing them to analyze how Anchises contrasts Greek and Roman strengths. • Students will have read about Latinus and his family in Livy's account of Aeneas's arrival in Latium in Latin Historical Prose, helping them place Latinus and his daughter in Italy's past. • Students will have followed Aeneas's decision to leave Dido in Unit 2, preparing them to evaluate how the Underworld validates that choice. (new)	
Family Overview (link below)	**Pacing for Unit**
•	• 9 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 may assume that Vergil either fully endorsed or secretly opposed Augustus's rule, failing to recognize that the poem can both celebrate Rome's achievements and question their human cost. • Students may assume that Aeneas is simply a stand-in for Augustus, failing to recognize that Vergil presents Aeneas as a flawed ancestor whose descendants include Augustus's family, not as a portrait of the emperor himself. • Students may assume that Vergil's Underworld shows what Romans literally believed about death, failing to recognize that it blends Homeric tradition, Greek philosophical ideas, and Vergil's own imagination to serve the poem's vision of Rome's future.

Differentiation through *Universal Design for Learning*	
UDL Indicator • Consideration 3.2: Highlight patterns, critical features, big ideas, and relationships	**Teacher Actions:** • Provide a map of the Roman world and a family tree organizer so students can track Augustus's reach and Latinus's family relationships. • Color-code imperatives and datives of possession in the Latin text so students can spot the commands Anchises gives Rome and the naming patterns in Latinus's family. • Provide a running chart where students sort each passage into evidence that Vergil celebrates Augustus's Rome and evidence that he questions its cost, collecting Latin support for the unit's central question as they read.
UDL Indicator • Consideration 9.3: Promote individual and collective reflection	**Teacher Actions:** • Have students keep short reflection notes on how their view of Vergil's attitude toward Augustus changes as they read • Host a structured discussion at the end of the unit where students defend a reading with Latin evidence, then reflect together on how a poem can support and question power at once. • Invite students to use the Olimpi tiered chapters as a self-check, noting where their decoding of Vergil's Latin breaks down and how their independence grows across all three units.

Unit 3: Visiting the Underworld			
Lesson Map			
Lesson	**Learning Target**	**Success Criteria**	**Resources**
1-2	• I can connect Augustus to Rome's past.. • I can quantify the extent of Augustus' power through geography.	• By analyzing the use of prepositional phrases and expressions of time. • By examining the text in conjunction with a map of the Roman world.	Olimpi 25: Augustus 6: 788-800 English selections of the Aeneid
3-4	• I can evaluate the worth of Rome's gifts. • I can hypothesize on Vergil's evaluation of Rome's gifts.	• By analyzing the use of imperatives. • By recognizing the use of participles.	Olimpi 26: Memento Romane 6: 847-853 English selections of the Aeneid
5-6	• I can connect characters to Rome's indigenous history. • I can explain why Latinus' daughter was a catch.	• By recognizing Datives of possession used in naming conventions. • By generating a family tree of relationships.	Olimpi 27: Latinus 7:45-58
	FLEX		
	ASSESSMENT		

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
Women's History	**Social Studies**	**10th-12th**	**.5**

Course Description:

This semester-long course explores how American women have pursued equality, from the founding of the nation to the present day. Students read primary sources by reformers, suffragists, activists, and their opponents in order to understand the story of each era and the beliefs of the people who shaped it. By examining the hopes and debates of women across more than two centuries, students develop a deeper understanding of citizenship and a clearer view of the questions about equality that remain open today.

Aligned Core Resources:	Connection to the ***BPS Vision of the Graduate***
•	EMPATHY • Demonstrating understanding of others perspectives and needs • Listen with an open mind to understand others' situations CIVIC LITERACY • Participate effectively in civic life through knowing how to stay informed and understanding governmental processes • Exercise the rights and obligations of citizenship at local state, national and global levels • Understand the local and global implications of civic decisions
Knowledge/Skill Dependent courses/Prerequisites:	**Link to *Completed Equity Audit***
•	• Women 's History Curriculum Equity Review

Unit Links

Unit 1: Foundations and Early America
Unit 2: The Long Fight for Suffrage
Unit 3: The Long Fight for Equal Rights
Unit 4: The Modern Movement
Standard Matrix

Unit 1: Foundations and Early America

Overview

Relevant Standards: Bold indicates priority

- 8.His.10.a. Describe how individual and group perspectives of the American Revolution are documented in historical records while identifying representation of marginalized voices (e.g., journals, letters, pamphlets, newspaper articles from sources such as the Hartford Daily Courant).
- **8.Civ.8.b. Analyze how ideas and principles about citizenship and access to political power expressed in founding documents influenced social and political systems in the early republic (e.g., Bill of Rights, Declaration of Independence, Three-Fifths Clause, Electoral College).**
- 8.His.16.a. Evaluate the US Constitution and Bill of Rights to determine if the goals of the American Revolution, as stated in the Declaration of Independence, were realized.
- **8.Civ.14.b. Compare movements for social change and the strategies they employed by the United States in the Antebellum Period (e.g., abolition, Second Great Awakening, suffrage, temperance).**
- **8.His.5.b. Explain how and why individuals challenged gender roles in the Civil War Era (e.g., Loreta Janeta Velazquez, Frances Louisa Clayton, Anna Elizabeth Dickinson, Hartford Soldiers' Aid Society, Rebecca Primus and Addie Brown).**
- **8.His.14.b. Analyze the causes and effects of the Reconstruction Amendments (e.g., abolition, Latino and Black citizenship, suffrage).**
- 8.Civ.13.a. Analyze the purposes, implementation, and consequences of policies and political strategies during the Reconstruction Era (e.g., Homestead Act, Second Treaty of Fort Laramie, women's suffrage, Radical Reconstruction).

Overview

In this unit, students explore how American women responded to the gap between the nation's founding promise of liberty and a legal system that stripped married women of property rights, limited their education, and denied them the vote. From the Daughters of Liberty to the organizers of the Seneca Falls Convention, students follow women who used wartime service, education, and moral reform to enter public life despite the doctrine of coverture and the expectations of the "Cult of Domesticity." Reading reformers in their own words, students examine how women turned natural rights, Christian arguments against slavery, and the ideal of Republican Motherhood into claims for equal citizenship. Ultimately, students investigate how women became a nationwide political force by 1870, even as debates over the 14th and 15th Amendments split their movement.

Essential Question(s):

EQ1. How did American women establish themselves in the early republic?

EQ2. What ideas influenced the fight for women's equality, and what arguments were used to justify their disenfranchisement?

Enduring Understanding(s):

EU1. Women fought to expand their public and political roles between the American Revolution and Reconstruction, moving from patriotic wartime support to leadership positions in major moral and social reform movements. While they were repeatedly excluded from formal political and constitutional power, women successfully chipped away at their legal limitations by securing property rights, expanding access to higher education, and organizing a standalone suffrage movement. While they did not achieve the right to vote nationally by 1870, women transformed themselves from legally invisible individuals into a formidable, nationwide political force.

EU2. Opponents of women's rights relied on a variety of ideas to justify women's exclusion from public life, including the "Cult of Domesticity," traditional readings of the Bible, and the legal doctrine of coverture, all of which cast women as naturally dependent and unsuited for politics. Conversely, reformers successfully repurposed Enlightenment ideals of natural rights, Christian moral arguments against slavery, and prevailing conceptions of motherhood to demand equal education and full legal citizenship.

Demonstration of Learning:

- Seminar and Summative Writing: To what extent did the nation's founding promise of natural rights apply to American women by 1870? Students first discuss the question in a seminar, then write an argument that addresses it using specific claims and relevant evidence from historical sources while acknowledging competing views.

Connections to Prior Units:	**Connections to Future Units:**
•	• Students will reread the Declaration of Sentiments at the end of Unit 4 to measure how far women's rights have advanced against the grievances listed in 1848, and to prepare for a seminar on whether the story of women's rights has an ending. • Students will follow the NWSA and AWSA into Unit 2, where the movement reunites and divides again over race, allowing students to compare the 1870 split with later tensions inside the movement. • Students will encounter a new version of the "Cult of Domesticity" in Unit 3, when postwar culture frames suburban motherhood as Cold War patriotism, allowing students to compare how each era defined

	women's proper sphere. • Students will read "Ain't I a Woman" from Sojourner Truth when learning about the idea of intersectionality in Unit 4 to examine how Black women have long challenged single-issue movements.
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.	• WMH-U1 Storyboard
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
• In 10th grade ELA, students read (or may be reading) Octavia Butler's Kindred. Students might compare the lives of Alice and Sarah, enslaved women on the Weylin plantation, with the ideals of Republican Motherhood and the "Cult of Domesticity," recognizing that the era's ideas about women's proper sphere assumed a freedom enslaved women were denied. • In 8th grade ELA, students read Narrative of the Life of Frederick Douglass. Students might revisit his account of Sophia Auld, who began teaching him to read until her husband forbade it, to show how slavery shaped white women's roles, before students meet Douglass again at Seneca Falls and as a central voice in the debate over the 15th Amendment.	• Students may assume that the women's rights movement began at Seneca Falls in 1848, failing to recognize how decades of abolition and moral reform work trained women as organizers, writers, and public speakers before the convention. • Students may assume that early women's rights activists shared a single set of goals, failing to recognize the disagreements over priorities and race that culminated in the split over the 15th Amendment. • Students may assume that all American women in this period shared the same legal status and experiences, failing to recognize how enslaved, free Black, Indigenous, and working-class women faced very different conditions than the white, middle-class reformers who dominate the written record.

Differentiation through *Universal Design for Learning*	
UDL Indicator • Consideration 1.3 Represent a diversity of perspectives and identities in authentic ways	**Teacher Actions:** • Pair the unit's sources from white reformers with the words of Black women from the same period where possible, such as Phillis Wheatley's 1774 letter on liberty to Samson Occom or Maria Stewart's public lectures in Boston in the early 1830s. • Name for students whose voices are missing from the written record and why, such as enslaved women barred from literacy and Indigenous women whose histories were kept orally, so students treat silence in the sources as evidence rather than absence. • Present Harriet Tubman and other Black women as decision-makers within the chapter stories rather than as symbols, asking "What did she decide, and why?" alongside "What did she accomplish?"
UDL Indicator • Consideration 3.1: Connect prior knowledge to new learning	**Teacher Actions:** • Open the unit by revisiting students' 8th-grade study of the American Revolution, asking what the founding promise of natural rights meant for women. • Introduce the unit storyboard (Setting 1776 → Outcome 1870) as a graphic organizer students complete chapter by chapter with one sentence answering "What happened?" • Place the Declaration of Independence beside the Declaration of Sentiments so students see how reformers reused familiar language.
Supporting Multilingual/English Learners	
Related *CELP standards:* • 9-12.1 An EL can . . . construct meaning from oral presentations and literary and informational text through grade-appropriate listening, reading, and viewing.	**Learning Targets:** • Level 1: With prompting and support, I can identify a few key words and phrases about rights and citizenship in a short primary source, such as Abigail Adams's "Remember the Ladies" letter. • Level 2: With prompting and support, I can identify the main topic of a primary source and retell a few key details, such as the grievances listed in the Declaration of Sentiments. • Level 3: With guidance and support, I can determine the central idea of a primary source and explain how specific details develop it, such as

	how the Declaration of Sentiments reuses the language of the Declaration of Independence. • Level 4: I can determine two central ideas in a primary source, analyze how they develop, and cite specific evidence, such as the competing arguments Elizabeth Cady Stanton and Lucy Stone made about the 15th Amendment. • Level 5: I can analyze how central ideas develop across multiple primary sources and cite specific evidence to explain how reformers argued for women's citizenship between 1776 and 1870.

Unit 1: Foundations and Early America

Lesson Map

Lesson	Learning Targets	Sources	Knowledge	Vocabulary
1	• I can describe how women organized to support the American Revolution despite living under coverture. • I can examine how early reformers used Enlightenment ideals to challenge women's exclusion.	Remember the Ladies	Enlightenment Natural Rights Coverture Daughters of Liberty Abigail Adams	
2	• I can describe how women transformed the idea of "Republican Motherhood" over time to gain access to higher education. • I can examine how reformers repurposed domestic expectations to push for expanded access to education.	A Vindication of the Rights of Woman James Fordyce's Sermons to Young Women	Constitutional Convention Three-Fifths Compromise Republican Motherhood Mary Wollstonecraft Female Academies	
3	• I can describe how female abolitionists pushed their activism into public spaces despite social backlash. • I can identify the religious and moral beliefs women used to justify speaking out against slavery.	An Appeal to the Christian Women of the South	Grimke Sisters Quakers American Anti-slavery Society	
4	• I can describe how female activists created their own standalone rights movement in response to political exclusion. • I can explain how reformers reinterpreted the nation's founding documents to argue against legal inequality.	Declaration of Sentiments	Elizabeth Cady Stanton Lucretia Mott Sojourner Truth World Anti-Slavery Convention Seneca Falls Convention Declaration of Sentiments Frederick Douglass	
5	• I can describe how women expanded their public roles during the Civil War to prove		Married Women's Property Acts	

	their value to the nation.		Wartime Motherhood Harriet Tubman	
6	• I can describe how disagreements over constitutional Amendments split the women's suffrage movement into competing factions. • I can compare the conflicting arguments and motivations within the women's suffrage movement regarding constitutional Amendments.	Elizabeth Cady Stanton on the 15th Amendment Lucy Stone in Favor of the 15th Amendment		
7	• Project/Assessment			
8	• Project/Assessment			
9	• Flex			
10	• Flex			

Unit 2: The Long Fight for Suffrage

Overview

Relevant Standards: Bold indicates priority

- US.His.16.a. Analyze the political, economic, and social agency demonstrated by Black Americans throughout the period of Reconstruction using evidence from multiple relevant historical sources (e.g., Black Republicans, Historically Black Colleges and Universities, Edisto Island).
- **US.His.10.a. Describe how individual and group perspectives about gender and sexuality in the late 19th and early 20th centuries are documented in historical records while noting possible limitations (e.g., We'wha, Vaudeville, bicycles, women's suffrage and education).**
- US.His.1.a. Evaluate how the Progressive Era is a result of immigration and industrialization (e.g., anti-lynching, Settlement House Movement, improved working conditions, childrens' rights).
- **US.Civ.12.a. Analyze how people in the Progressive Era used and challenged laws to advance social, political, economic, and environmental reforms (e.g., Populist Party, B'nai B'rith, National Woman Suffrage Movement, Sierra Club, Niagara Movement, Socialist Party of America).**
- US.His.16.b. Evaluate the juxtaposition between celebration of wartime service in World War I and the discrimination faced by individuals and groups using evidence from multiple historical sources (e.g., European, Latino, Indigenous, and Black service members, Thind v. United States).
- **US.Civ.2.a. Analyze the role of citizens in advocating for and ratifying the 19th Amendment to the United States Constitution (e.g., Ida B. Wells, Alice Paul, Anna Bernard Shaw, Helena Hill Weed, Frank B. Brandegee).**

Overview

In this unit, students explore how American women fought for the vote once it became clear that citizenship alone did not guarantee it. From Susan B. Anthony's arrest for voting in 1872 to the Tennessee legislature's deciding vote in 1920, students follow women who gained political experience in temperance and Progressive reform and then turned that experience into a national campaign, despite fierce opposition from anti-suffragists and Southern defenders of states' rights. Reading suffragists in their own words, students examine how women claimed the ballot as a matter of natural rights, motherhood, and patriotism, and how arguments over tactics and race split the movement from within. Ultimately, students investigate how women won the 19th Amendment, even as many Black, Indigenous, and Asian American women remained shut out of the ballot box.

Essential Question(s):

EQ1. How did American women secure political citizenship, and at what cost?

EQ2. What ideas influenced and divided the suffrage movement?

Enduring Understanding(s):

EU1. Between 1870 and 1920, American women transformed a fractured, localized movement into a disciplined national campaign that secured constitutional enfranchisement. Women built political momentum through temperance activism, Progressive Era reforms, state-level organizing, and wartime direct action, while navigating fierce challenges from the liquor lobby, anti-suffragist campaigns, and deep racial divisions within their own ranks. Although the ratification of the 19th Amendment in 1920 prohibited sex-based voter discrimination nationwide, poll taxes, literacy tests, violence, and citizenship laws continued to limit voting accessibility.

EU2. Proponents of women's suffrage often invoked natural rights, Christian values, and maternal obligations to argue that women needed the vote to protect families and reform industrial society. Although they broadly agreed on the universal goals of suffrage, activists were divided by debates about methodology which often reflected broader social concerns related to patriotism, loyalty, and race.

Demonstration of Learning:

- Summative Writing: To what extent was the 19th Amendment a victory for all American women? Write an argument that uses specific evidence from historical sources to weigh what the amendment achieved against its limitations.

Connections to Prior Units:	**Connections to Future Units:**
• Students will have studied how the debate over the 15th Amendment split the women's rights movement in Unit 1, allowing them to follow the NWSA as it tests the New Departure strategy and to see how the two factions reunite as NAWSA in 1890. • Students will have examined how women used the ideal of Republican Motherhood to justify education in Unit 1, preparing them to recognize the same reasoning in Willard's argument for "Home Protection." • Students may have studied the Progressive Era in Modern American History, including Jane Addams's settlement house work and suffragists' answers to common objections, allowing them to focus here on how women used reform work to build the case for suffrage.	• Students will see Alice Paul and the National Woman's Party return in Unit 3, when Paul drafts the Equal Rights Amendment, allowing students to evaluate whether winning the vote achieved the equality suffragists had promised. • Students will compare women's wartime work in World War I with their mobilization during World War II in Unit 3, examining whether wartime opportunities led to lasting change. • Students will return to the racial divisions within the suffrage movement when they study intersectionality in Units 3 and 4, allowing them to trace how Black women have repeatedly challenged movements that claimed to speak for all women.

	• Students will compare the strategies of the suffrage and temperance movements with modern organizing efforts such as the 2017 Women's March in Unit 4, evaluating which tactics have endured and which have changed.
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.	• WMH-U2 Storyboard
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
• Students will have read about the 1911 Triangle Shirtwaist Factory Fire in 7th grade ELA. Briefly revisit the fire to show how the deaths of young immigrant women garment workers fueled Progressive labor reform, and push students to consider why working-class women argued they needed the vote to protect themselves on the job.	• Students may assume that suffragists formed a unified movement with a shared strategy, failing to recognize the deep disagreements over state versus federal campaigns, moderate versus militant tactics, and whether to welcome or exclude Black women. • Students may assume that the 19th Amendment gave every American woman the right to vote in 1920, failing to recognize how poll taxes, literacy tests, violence, and citizenship laws continued to keep many Black, Indigenous, and Asian American women from voting. • Students may assume that men alone opposed women's suffrage, failing to recognize that women organized and led much of the anti-suffrage movement, arguing that voting would undermine women's moral influence in the home. • Students may assume that the temperance movement was only about banning alcohol, failing to recognize how it responded to women's legal and economic dependence on husbands whose drinking could leave families in poverty or danger.

Differentiation through *Universal Design for Learning*	
UDL Indicator • Consideration 7.4: Address biases, threats, and distractions	**Teacher Actions:** • When narrating Ida B. Wells's anti-lynching work and NAWSA's Southern strategy, provide clear historical context and give students space to process before moving on. • Remind students that understanding what historical actors were thinking, on their own terms, is not the same as agreeing with them.
UDL Indicator • Consideration 2.4: Address biases in the use of language and symbols	**Teacher Actions:** • Preview the gendered language students will meet in period sources, such as "Home Protection" and women's "proper sphere," and discuss what those terms assumed about women's roles.
Supporting Multilingual/English Learners	
Related *CELP standards:* • 9-12.4 An EL can . . . construct grade-appropriate oral and written claims and support them with reasoning and evidence.	**Learning Targets:** • Level 1: With prompting and support, I can express an opinion about whether the 19th Amendment was a victory for women, using a few key words and phrases from the unit. • Level 2: With prompting and support, I can state a claim about whether the 19th Amendment was a victory for all women, give one reason to support it, and write a concluding statement. • Level 3: With guidance and support, I can state a claim about the 19th Amendment, support it with evidence from sources studied in the unit, acknowledge an opposing idea, and write a concluding statement. • Level 4: I can construct a claim about the extent to which the 19th Amendment was a victory for all women, support it with logically ordered evidence, and address a counterargument in a formal style. • Level 5: I can construct a substantive claim about the extent to which the 19th Amendment was a victory for all women, distinguish it from counterclaims, and use relevant evidence from multiple sources to support my claim and refute counterclaims.

Unit 2: The Long Fight for Suffrage

Lesson Map

Lesson	Learning Targets	Sources	Knowledge	Vocabulary
1	• I can describe how suffragists used the "New Departure" strategy to challenge voting restrictions. • I can identify how Susan B. Anthony justified her actions during her trial.	Speech to Jurors Speech to Circuit Court	New Departure Susan B. Anthony Virginia Minor Minor v. Happersett (1875) Aaron Sargent NWSA	
2	• I can describe how women gained public political power through the temperance movement. • I can examine Frances Willard's writings to understand how she justified female political action.	Temperance and Home Protection	Frances Willard WCTU Home Protection Liquor Industry Lobby	
3	• I can describe how female progressive reformers tackled industrial abuses and racial injustice.		Jane Addams Settlement House Florence Kelley Ida B. Wells GFWC NCL	
4	• I can explain how the women's suffrage movement fractured along racial and tactical lines. • I can analyze how debates over tactics reflected broader social concerns about race.		Carrie Chapman Catt Mary Church Terrell Josephine Jewell Dodge Alice Paul NAWSA NACW NAOWS National Woman's Party	
5	• I can explain how patriotic war mobilization	Jeannette Rankin Suffrage	Jeannette Rankin	

	and radical direct action led to federal action on suffrage. • I can analyze how debates over tactics reflected broader social concerns related to wartime patriotism.		Woodrow Wilson National Woman's Party Silent Sentinels	
6	• I can trace how suffragists overcame intense state-level opposition to secure ratification of the 19th Amendment. • I can identify beliefs and persuasive appeals in Febb Burn's letter to her son.	Febb Burn Letter	Harry/Febb Burn Carrie Chapman Catt Alice Paul "Red Rose" Lobbyists Poll Taxes and Literacy Tests Citizenship Barriers	
7	• Project/Assessment			
8	• Project/Assessment			
9	• Flex			
10	• Flex			

Unit 3: The Long Fight for Equal Rights

Overview

Relevant Standards: Bold indicates priority

- US.His.4.d. Analyze complex and interacting factors that influenced a debate over national identity in the United States in the 1920s (e.g., Scopes Trial, Jazz, flappers, Immigration Act of 1924, Marcus Garvey, mass media and advertising).
- **US.His.1.d. Evaluate how the demand for labor on homefront in World War II shaped gender roles (e.g., mobilization, victory gardens, rationing, War Production Board).**
- US.His.5.b. Analyze the role of popular culture, subculture, and counterculture in shaping public perception of national identity during the post-World War II era (e.g., Beat Generation, Rock and Roll, Motown, Jazz, Hippies, television sitcoms, Hollywood films).
- **US.Civ.5.b. Evaluate the effectiveness of individuals, groups, and institutions in addressing issues of civil rights and justice in the post-World War II era (e.g., disability, education, environmental justice, LGBTQ+ rights, poverty, racial and gender equity, voting access).**
- **US.Civ.5.c. Analyze the role of legislative and judicial decisions in expanding or limiting civil liberties (e.g., Hernandez v. Texas, Executive Order 10450, Loving v. Virginia, Civil Rights Act of 1964, Voting Rights Act of 1965, Title IX of the Education Amendments Act of 1972, Roe v. Wade).**
- **US.His.1.g. Evaluate whether the conservative ascendency of the 1980s was a reaction to social and economic change and to what extent it was consistent with broader historical trends (e.g., New Right, Watergate, energy crisis, Reaganomics).**
- **US.His.1.h. Evaluate how popular culture in the 1970s and 1980s promoted and reflected hyper-consumerism, racial tension, women's empowerment, and the Cold War.**

Overview

In this unit, students explore how American women pursued equality in the six decades after winning the vote, as economic and political pressures pushed them into public life and then back toward the home. From the New Women of the 1920s and 1930s to the conservative activists who defeated the Equal Rights Amendment, students follow women who took on wartime jobs, pushed back against the postwar expectation that they return to the home, and built a movement that won new protections in law. Reading feminists and their opponents in their own words, students examine how women argued for constitutional equality and control over their own lives, and how others defended traditional family roles as the better protection for women. Ultimately, students investigate how women gained new legal and economic rights by 1982, even as the Equal Rights Amendment fell short of ratification.

Essential Question(s):

EQ1. How did American women pursue equality through economic, political, and social transformations between 1920 and 1982?

EQ2. What ideas influenced the fight for women's equality, and what arguments were used to oppose legal equality?

Enduring Understanding(s):

EU1. Between 1920 and 1982, American women transitioned from newly enfranchised citizens into leaders of multifaceted national movements. Women drove social and legislative change, filled essential wartime production roles, published foundational feminist literature, organized grassroots protests, and secured federal protections in the face of postwar expectations that women return to the home. Women won significant legal and economic gains, but the Equal Rights Amendment fell short of ratification.

EU2. Feminists argued that full citizenship required equal opportunities in work, education, and government, drawing on ideas of constitutional equality, women's control over their own bodies, and freedom from discrimination based on race, class, and sexuality. Opponents drew on religious teaching about the family and argued that the ERA would make women eligible for the military draft, weaken legal protections for wives and weaken families. This debate helped build the New Right and made gender and family policy a lasting divide in American politics.

Demonstration of Learning:

- Option 1: Students research another influential woman or event between 1920 and 1982 and explain how that woman or event fits into the larger story of the long fight for equal rights.
- Option 2: Compare and contrast the modern women of the 1920s and 1930s to the civil rights activists of the 60s. How were they similar? How were they different?

Connections to Prior Units:	**Connections to Future Units:**
• Students will have studied women's work during World War I in Unit 2, allowing them to compare it with mobilization during World War II and ask whether wartime opportunities lasted after the fighting ended. • Students will have followed Alice Paul and the National Woman's Party through the suffrage campaign in Unit 2, preparing them to see why Paul turned next to the Equal Rights Amendment. • Students will have examined the "Cult of Domesticity" in Unit 1, allowing them to recognize how postwar culture revived the idea of	• Students will see the New Right's influence continue in Unit 4, as debates over federal assistance in the Reagan era shape the lives of working and single mothers. • Students will return to women's health in Unit 4, comparing how postwar doctors treated women's dissatisfaction as illness with later debates over reproductive rights. • Students will revisit beauty pageants and the 1968 Miss America protest when they study the body positivity movement in Unit 4,

separate spheres in the form of suburban motherhood. • Students will have seen Black women organize separately from the mainstream suffrage movement in Unit 2, preparing them to understand why activists like Angela Davis challenged a feminism centered on white, middle-class women.	comparing how each generation has challenged standards of appearance. • Students will learn in Unit 4 how Kimberlé Crenshaw named "intersectionality" in 1989, allowing them to connect her term to arguments Angela Davis was already making.
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.	• WMH-U3 Storyboard
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
• In 7th grade ELA, students read A Raisin in the Sun. Consider briefly revisiting Beneatha's plan to become a doctor and Ruth's struggle over an unplanned pregnancy, helping students see how the limits of the 1950s ideal fell differently on Black working women. • In 10th grade ELA, students read (or may be reading) Of Mice and Men and analyze Curley's wife as a representation of gendered hierarchies. Push students to apply that analysis to the real women of the 1930s, comparing her isolation and lost ambitions with the Depression-era policies that pushed married women out of paid work.	• Students may assume that World War II permanently opened industrial jobs to women, failing to recognize that many women in defense work were laid off or moved into lower-paying jobs after 1945. • Students may assume that the suburban housewife of the 1950s reflected most women's lives, failing to recognize that many working-class women and women of color worked outside the home, and that the suburban ideal was often out of their reach. • Students may assume that second-wave feminism spoke for all women, failing to recognize how Black, working-class, and queer women criticized the movement for centering the concerns of white, middle-class housewives. • Students may assume that the Equal Rights Amendment was defeated by men opposed to women's equality, failing to recognize that conservative women like Phyllis Schlafly helped organize and lead the campaign against it.
Differentiation through *Universal Design for Learning*	
UDL Indicator	**Teacher Actions:**

• Consideration 3.2: Highlight and explore patterns, critical features, big ideas, and relationships	• Use the unit storyboard as a timeline students mark with gains and setbacks, helping them see the unit's pattern of wartime opportunity, postwar retreat, and renewed activism. • Place Betty Friedan and Phyllis Schlafly side by side, charting how each claimed to speak for women's interests and what each believed women needed. • Return to the unit's essential questions at the end of each lesson, asking students to add one new piece of evidence to a running chart.
Supporting Multilingual/English Learners	
Related *CELP standards:* • 9-12.9 An EL can . . . create clear and coherent grade-appropriate speech and text.	**Learning Targets:** • Level 1: With prompting and support, I can communicate basic information about a woman or event from 1920 to 1982, using simple sentences and words learned in the unit. • Level 2: With prompting and support, I can introduce a woman or event from 1920 to 1982, explain a brief sequence of events, and connect my ideas with words such as first, next, and because. • Level 3: With guidance and support, I can develop a short sequence of events that shows how a woman or event fits into the larger story of the fight for equal rights, using transitions such as as a result and for example. • Level 4: I can introduce and develop a detailed sequence of events or comparison, such as how the New Women of the 1920s and the civil rights activists of the 1960s were similar and different, using varied transitions. • Level 5: I can write a clear and coherent account, with a concluding section, that explains how a woman or event fits into the larger story of women's fight for equality between 1920 and 1982, using complex transitions to show relationships among events and ideas.

Unit 3: The Long Fight for Equal Rights

Lesson Map

Lesson	Learning Targets	Sources	Knowledge	Vocabulary
1	• I can describe how female activists and cultural figures expanded their social and political roles between the world wars. • I can examine how Alice Paul justified the demand for complete constitutional equality.	Text of the ERA	Alice Paul ERA (1923) Flappers Harlem Renaissance Zora Neale Hurston Billie Holiday Frances Perkins	
2	• I can describe how American women's contributions to WWII expanded opportunities in the face of prevailing gender norms. • I can analyze Eleanor Roosevelt's arguments for the necessity of female civic and industrial leadership during wartime.	Women in War Speech, 1944	Rosie the Riveter Women's Army Corps (WAC) WAVES Eleanor Roosevelt Lanham Act	
3	• I can describe how a return to gendered expectations impacted suburban women in the aftermath of WWII.		Baby Boom Suburban Ideal Mrs. America Pageant "Mrs. Degree" Lobotomy Electroconvulsive Therapy	
4	• I can describe how second-wave feminists responded to postwar domestic expectations. • I can analyze excerpts from The Feminine Mystique to understand the lived experience of the suburban ideal.	The Feminine Mystique	The Pill (1960) Betty Friedan The Feminine Mystique (1963) Equal Pay Act (1963) NOW Gloria Steinem Ms. Magazine	

5	• I can describe how the women's liberation movement evolved into a broader intersectional struggle over time. • I can identify the connections Angela Davis draws between race, class, and gender.	Black Women in America	Miss America Protest (1968) Angela Davis Marsha P. Johnson Stonewall Uprising (1969) Title IX (1972) Roe v. Wade (1973)	
6	• I can describe how conservative women organized to halt the ratification of the Equal Rights Amendment. • I can identify Phyllis Schlafly's arguments in opposition to the ERA.	What's Wrong with "Equal Rights" for Women?	Phyllis Schlafly STOP ERA New Right Ronald Reagan ERA Deadline (1982)	
7	• Project/Assessment			
8	• Project/Assessment			
9	• Flex			
10	• Flex			

Unit 4: The Modern Movement

Overview

Relevant Standards: Bold indicates priority

- **US.Civ.5.b. Evaluate the effectiveness of individuals, groups, and institutions in addressing issues of civil rights and justice in the post-World War II era (e.g., disability, education, environmental justice, LGBTQ+ rights, poverty, racial and gender equity, voting access).**
- **US.Civ.5.c. Analyze the role of legislative and judicial decisions in expanding or limiting civil liberties (e.g., Hernandez v. Texas, Executive Order 10450, Loving v. Virginia, Civil Rights Act of 1964, Voting Rights Act of 1965, Title IX of the Education Amendments Act of 1972, Roe v. Wade).**
- **US.His.2.c. Analyze the effectiveness of individual and group responses to public policies that they deem to be discriminatory.**
- **US.Civ.10.a. Analyze the impact of personal perspectives in public debates about national security and individual liberties (e.g., 2nd Amendment, Obergefell v. Hodges, Dobbs v. Jackson Women's Health Organization, Sanctuary Cities, Dakota Access Pipeline).**
- US.Civ.14.b. Analyze the impact of multimedia on American politics and public discourse (e.g., 24-hour news cycle, echo chambers, social media algorithms, live streaming, trolls, deep fakes, artificial intelligence).

Overview

In this unit, students explore how American women pursued equality after the defeat of the Equal Rights Amendment, as many legal barriers fell but questions about work, family, and power remained. From working mothers in the 1980s to the women who campaigned for the nation's highest offices, students follow women as they moved into positions of power and built new movements amid national debates over welfare and abortion. Reading writers and leaders in their own words, students examine how some named problems such as unpaid work at home and discrimination based on both race and sex, while others pointed to the effects of welfare on families. Ultimately, students investigate how far the fight for women's equality has come, returning to the Declaration of Sentiments to ask whether a woman in the White House would mark the end of the story.

Essential Question(s):

EQ1. How have American women pursued equality since the defeat of the Equal Rights Amendment?

EQ2. How have Americans named and debated the problems women still face?

Enduring Understanding(s):

EU1. Since the defeat of the Equal Rights Amendment, American women have moved into positions of power once closed to them, from the Supreme Court to the vice presidency. Women won new legal protections against pay discrimination and sexual harassment and organized some of the largest protests in American history, even as changes to public assistance reshaped the lives of single mothers. At the same time, the Supreme Court's 2022 decision overturning Roe v. Wade and returning abortion law to the states and the absence of a female president have left Americans debating how far the fight for equality has come.

EU2. Writers and activists argued that many inequalities lay beyond the reach of law, naming problems such as the unpaid "second shift" of work at home and the overlapping effects of race and sex, and insisting that women's rights are human rights rather than private concerns. Others named different problems, arguing that welfare programs trapped families in dependence and that feminism undervalued mothers who chose to stay home. Because Americans still disagree about which problems matter most, the future of women's rights remains an open debate.

Demonstration of Learning:

- Seminar and Summative Writing: Would a woman in the White House mark the end of the story of women's rights? Students first sort the grievances in the 1848 Declaration of Sentiments into questions now settled and questions still debated, then discuss the compelling question in a seminar. Students then write a comparative essay tracing how one or more of those grievances have changed between 1848 and today, using specific evidence from historical sources across the course.

Connections to Prior Units:	**Connections to Future Units:**
• Students will have read the Declaration of Sentiments in Unit 1, allowing them to return to its list of grievances and judge which have been resolved and which remain. • Students will have read Betty Friedan's description of "the problem that has no name" in Unit 3, preparing them to see how later writers named new problems such as the "second shift" and overlapping discrimination based on race and sex. • Students will have studied the organizing strategies of the suffrage, temperance, and liberation movements in Units 2 and 3, allowing them	• This is the final unit of the course.

to compare those tactics with #MeToo and the 2017 Women's March. • Students will have followed the fight over Roe v. Wade and the rise of the New Right in Unit 3, preparing them to trace how debates over abortion and public assistance continued through Casey, Dobbs, and welfare reform.	
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.	• WMH-U4 Storyboard • Sensitive Topics Guidelines
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions:**
•	• Students may have formed strong opinions about abortion, public assistance, and recent elections based on current political debates. The unit should not seek to persuade or dissuade students, but should push for a more thorough and informed understanding of how Americans on different sides have defined the problems women face. • Students may assume that all women share the same views on women's issues, failing to recognize that women have led on both sides of debates over abortion, public assistance, and feminism itself. • Students may assume that the pay gap results entirely from employers paying women less for the same job, failing to recognize that researchers debate how much of the gap reflects discrimination and how much reflects differences in occupations, hours, and time away from work for caregiving. • Students may assume that Dobbs v. Jackson banned abortion nationwide, failing to recognize that the decision returned the question to the states, which now have widely different laws.

Differentiation through *Universal Design for Learning*	
UDL Indicator • Consideration 7.4: Address biases, threats, and distractions	**Teacher Actions:** • Treat questions such as abortion law and public assistance as open questions, presenting each side in its own words and keeping the focus on understanding perspectives rather than persuading students. • Describe recent events by their dates, actions, and scale rather than by political labels.
UDL Indicator • Consideration 9.4: Cultivate empathy and restorative practices	**Teacher Actions:** • Co-create discussion norms with students at the start of the course and revisit them before each discussion of an open question. • Use structured formats, such as assigned perspectives or structured academic controversy, so students argue from sources rather than personal experience, and no student has to defend a view as their own. • Make clear that no student will be asked to share personal experiences or reveal their own position on an open question.
Supporting Multilingual/English Learners	
Related *CELP standards:* • 9-12.2 An EL can . . . participate in grade-appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions	**Learning Targets:** • Level 1: With prompting and support, I can listen actively during a seminar and respond to simple questions about whether women have achieved equality, using a few key words from the unit. • Level 2: With prompting and support, I can share basic information from a unit source in a short discussion and answer simple questions about it. • Level 3: With guidance and support, I can participate in a seminar discussion by building on a classmate's idea, sharing my own idea, and adding evidence from a source we studied. • Level 4: I can participate in a seminar discussion by expressing my ideas clearly, supporting them with specific evidence from the course, and asking questions to clarify others' ideas. • Level 5: I can participate in an extended seminar discussion by expressing my ideas clearly and persuasively, referring to evidence

	from across the course, and asking questions that probe the reasoning behind others' claims.

Unit 4: The Modern Movement

Lesson Map

Lesson	Learning Targets	Sources	Knowledge	Vocabulary
1	• I can describe how working mothers balanced paid work and family life in the face of policy changes and national debates. • I can compare how Arlie Hochschild and Ronald Reagan described the lives of working and single mothers.	Reagan on Welfare Reform Hochschild, *The Second Shift*	Ronald Reagan AFDC Cuts Personal Responsibility and Work Opportunity Act (1996) Welfare Queen Arlie Hochschild Second Shift Glass Ceiling Lilly Ledbetter Fair Pay Act (2009)	
2	• I can describe how women gained seats on the Supreme Court and in Congress, and how the Anita Hill hearings helped spark the 1992 “Year of the Woman.” • I can analyze Hillary Clinton's argument that women’s rights are human rights.	Women’s Rights Are Human Rights	Sandra Day O’Connor Ruth Bader Ginsburg Anita Hill Clarence Thomas Year of the Woman (1992) Carol Moseley Braun Fourth World Conference on Women (1995)	
3	• I can describe how women’s activism grew to address overlapping identities and spread through social media. • I can compare how Sojourner Truth and Audre Lorde described the discrimination faced by Black women.	Ain’t I a Woman? There Is No Hierarchy of Oppressions	Sojourner Truth Audre Lorde Kimberlé Crenshaw Intersectionality (1989) Tarana Burke #MeToo (2006/2017) Women’s March (2017)	
4	• I can describe how women challenged gendered expectations in the media and the marketplace.		Body Positivity Beauty Standards Pink Tax	

			Gender Tax Repeal Act (1995) Social Media	
5	• I can describe how laws on family leave and abortion changed between 1992 and 2022.		Roe v. Wade (1973) Planned Parenthood v. Casey (1992) Undue Burden FMLA (1993) Dobbs v. Jackson (2022) State Abortion Laws	
6	• I can describe how women moved closer to the presidency between 1972 and 2024.		Shirley Chisholm (1972) Geraldine Ferraro (1984) Sarah Palin (2008) Hillary Clinton (2016) Kamala Harris (2021, 2024) Nikki Haley (2024)	
7	• Socratic Seminar: Would a woman in the White House mark the end of the story of women's rights?	Declaration of Sentiments		
8	• Project/Assessment			
9	• Flex			
10	• Flex			

Standard Matrix		Unit 1	Unit 2	Unit 3	Unit 4
US.Inq.1.a.	Explain how compelling and supporting questions reflect an enduring issue in United States History.	S	S	S	S
US.Inq.1.b.	Explain how supporting questions contribute to an inquiry and how new compelling and supporting questions merge when engaging sources that represent varied perspectives.				
US.Inq.1.c.	Determine the kinds of sources that will be helpful in answering compelling and supporting questions, taking into consideration multiple points of view represented in the sources, the types of sources available, and the potential uses of the sources.				
US.Inq.2.a.	Apply disciplinary knowledge and practices to demonstrate an understanding of United States history content.	P	P	P	P
US.Inq.3.a.	Gather relevant information from multiple sources representing a wide range of views and mediums while using the origin, authority, structure, context, and corroborative value to guide the selection of credible sources.			S	
US.Inq.3.b.	Organize and prioritize evidence directly and substantively from multiple sources in order to develop or strengthen claims (e.g., detect inconsistencies).	P	P	P	P
US.Inq.3.c.	Refine claims and counterclaims by pointing out strengths and limitations of arguments and explanations (e.g., precision, significance, knowledge conveyed).		S		S
US.Inq.4.a.	Construct arguments using precise and knowledgeable claims, with evidence from multiple sources, while acknowledging counterclaims and evidentiary weaknesses.		P		P
US.Inq.4.b.	Construct explanations using sound reasoning, correct sequence, relevant examples, and pertinent details to contextualize evidence and arguments (e.g., chronology, causation, procedure).	P	P	P	P
US.Inq.4.c.	Critique historical arguments and explanations while acknowledging the strengths and weaknesses given the purpose and audience (e.g., credibility, bias, reasoning, sequencing, details).				
US.Inq.4.d.	Present arguments and explanations that feature evocative ideas and multiple perspectives about United States History topics to reach a range of audiences and venues outside the classroom using print, oral, and digital technologies.				
US.Inq.4.e.	Analyze the characteristics and causation of national problems issues, both past and present, using a multidisciplinary lens.				S
US.Inq.4.f.	Evaluate and implement strategies for individual and collective action to address national problems in classrooms, schools, and out-of-school civic contexts.	S	S	S	S

Standard Matrix		Unit 1	Unit 2	Unit 3	Unit 4
US.His.16.a	Analyze the political, economic, and social agency demonstrated by Black Americans throughout the period of Reconstruction using evidence from multiple relevant historical sources (e.g., Black Republicans, Historically Black Colleges and Universities, Edisto Island).		S		
US.Civ.13.a	Evaluate intended and unintended outcomes of Reconstruction plans and policies in terms of rebuilding a shared national identity (e.g., moderate and radical Republicans, Compromise of 1877, Freedmen's Bureau, Reconstruction Treaties).				
US.Civ.5.a.	Evaluate the effectiveness of state and federal government in upholding the Reconstruction Amendments (e.g., Black Codes, Enforcement Acts, Jim Crow laws).				
US.Civ.14.a.	Analyze the historical context of racism, racial violence, and challenges to reconciliation between the United States and the former Confederacy.				
US.His.7.a.	Explain how contemporary perspectives of Reconstruction are shaped by political and social attitudes.				
US.His.4.a.	Analyze complex and interacting factors that influenced the strategies for Black social and economic progress in the late 19th and early 20th centuries (e.g., Booker T. Washington, W. E. B. Du Bois, Ida B. Wells, Mary Townsend Seymour).				
US.His.12.a.	Develop questions about the rise of nativism and assimilation efforts of immigrants and Indigenous peoples (e.g., Punjabi Migration, Indian Boarding Schools, Chinese Exclusion Act, Rock Spring Massacre, 1907 Bellingham Riots, Immigration Act of 1917).				
US.Eco.12.a.	Evaluate the impact of laissez-faire economic policies regarding corporate decision making, labor conditions, and public advocacy in the Gilded Age (e.g., monopoly, captains of industry, muckrakers, social Darwinism, labor unions).				
US.His.10.a.	Describe how individual and group perspectives about gender and sexuality in the late 19th and early 20th centuries are documented in historical records while noting possible limitations (e.g., We'wha, Vaudeville, bicycles, women's suffrage and education).		P		
US.His.1.a.	Evaluate how the Progressive Era is a result of immigration and industrialization (e.g., anti-lynching, Settlement House Movement, improved working conditions, childrens' rights).		S		
US.Civ.12.a.	Analyze how people in the Progressive Era used and challenged laws to advance social, political, economic, and environmental reforms (e.g., Populist Party, B'nai B'rith, National Woman Suffrage Movement, Sierra Club, Niagara Movement, Socialist Party of America).		P		
US.His.1.b.	Evaluate the role of the media in shaping public opinions and debates about America's emergence as an imperial power (e.g., muckrakers, yellow journalism, propaganda).				

Standard Matrix		Unit 1	Unit 2	Unit 3	Unit 4
US.His.4.b.	Analyze how economic and cultural hegemony influenced American perspectives of imperialism at the end of the 19th century (e.g. Cuba, Puerto Rico, Spanish American War, Annexation of Hawaii and Philippines, dispossession of Latino American lands in the American West).				
US.His.14.a.	Analyze the causes and effects of United States involvement in WWI (e.g., threats to United States neutrality, support for democracy, suppression of civil liberties, debate over the League of Nations and the United States role in global affairs).				
US.His.14.b.	Analyze how advancements in warfare impacted military personnel and civilians (e.g., aircraft, artillery, chemical weapons, land mines, trench warfare, shell shock).				
US.His.16.b.	Evaluate the juxtaposition between celebration of wartime service in World War I and the discrimination faced by individuals and groups using evidence from multiple historical sources (e.g., European, Latino, Indigenous, and Black service members, Thind v. United States).		S		
US.His.4.c.	Analyze how racism and nativism shaped perspectives about individuals and groups and influenced government policy (e.g., Red Summer, Sacco Vanzetti, eugenics movement, immigration acts in the 1920s, Angel Island, Ku Klux Klan).				
US.His.4.d.	Analyze complex and interacting factors that influenced a debate over national identity in the United States in the 1920s (e.g., Scopes Trial, Jazz, flappers, Immigration Act of 1924, Marcus Garvey, mass media and advertising).			S	
US.Civ.2.a.	Analyze the role of citizens in advocating for and ratifying the 19th Amendment to the United States Constitution (e.g., Ida B. Wells, Alice Paul, Anna Bernard Shaw, Helena Hill Weed, Frank B. Brandegee).		P		
US.His.14.c.	Analyze the causes and effects of the Great Migration (e.g., Jim Crow laws, racial terrorism, emergence of urban Black cultural centers, resurgence of Islam).				
US.His.6.a.	Analyze how authors, artists, and musicians documented perspectives and experiences of individuals and groups throughout the interwar period (e.g., Jacob Lawrence, Dorthea Lange, Langston Hughes, Billie Holiday, Yasuo Kuniyoshi, Magdalena Carmen Frida Kahlo y Calderón).			S	
US.His.12.b.	Develop questions to investigate the causes and effects of the Great Depression using multiple historical sources.				
US.Eco.3.a.	Analyze the ways in which government incentives and personal motivation influenced production and distribution under New Deal policies (e.g., Agricultural Adjustment Act, Tennessee Valley Authority Act, Civilian Conservation Corps, Federal Housing Administration).				

Standard Matrix		Unit 1	Unit 2	Unit 3	Unit 4
US.Eco.6.a.	Explain potential approaches to stabilize markets in response to the Great Depression (e.g., plans by Herbert Hoover, Franklin D. Roosevelt, Huey Long, and the American Communist Party).				
US.Eco.8.a.	Describe the possible consequences, both intended and unintended, of government policies to address social and economic problems during the Great Depression (e.g., role of the Federal government, banking practices, inequitable access to benefits, migration, environmental impacts, social safety net).				
US.His.1.c.	Evaluate the role of economic and political developments that created the conditions leading to WWII and the Holocaust (e.g., Great Depression, nationalism, militarism).				
US.His.16.c.	Develop arguments about the juxtaposition between the United States' founding ideals and actions of the Federal government during World War II using evidence from multiple relevant sources (e.g., Japanese- American Internment, Holocaust intervention, Braceros Program, Fair Employment Practices Act, segregated regiments, women in the military).				
US.His.16.d.	Describe the achievements and contributions of diverse individuals and groups during World War II using evidence from historical sources (e.g., Women Accepted for Volunteer Emergency Service, Tuskegee Airman, Navajo Code Talkers, 442 Japanese-American regiment, 158th Regimental Combat Team).			S	
US.His.1.d.	Evaluate how the demand for labor on homefront in World War II shaped gender roles (e.g., mobilization, victory gardens, rationing, War Production Board).			P	
US.His.1.e	Evaluate the United States government's complex responses to the Holocaust while recognizing the history of antisemitism in both historical and contemporary contexts (e.g., Voyage of the St. Louis, lack of response to the Final Solution, Nuremberg Trials).				
US.His.14.d.	Analyze the multiple and complex causes and effects of the nuclear age (e.g., Manhattan Project, Hiroshima, Nagasaki, Operation Paperclip, nuclear proliferation, Strategic Arms Limitations Treaties, atomic culture, Three Mile Island accident).				
US.His.14.e.	Evaluate the impact of foreign policy and military intervention in upholding the United States' founding ideals during the Cold War (e.g., Truman Doctrine, Marshall Plan, North Atlantic Treaty Organization, Warsaw Pact, Korea, Cuba, Chile, Vietnam).				
US.His.1.f.	Evaluate how the Korean and Vietnam Wars were products of the geopolitical contexts of the Cold War.				
US.His.5.a.	Analyze how heightened domestic tensions and claims about perceived threats to democratic values led to widespread civil rights violations (e.g., House Un-American Activities Committee, Hollywood Ten, Lavender Scare, treatment of Civil Rights and anti-Vietnam War activists, televised news).				

Standard Matrix		Unit 1	Unit 2	Unit 3	Unit 4
US.Eco.13.a.	Explain why investments in infrastructure and industry expanded consumer culture and increased standards of living in the United States (e.g., housing access, mass production, urbanization, utilities).				
US.His.16.e.	Develop a reasoned argument about the role of the United States government in providing access to fair and open housing using multiple relevant sources (e.g., Federal Housing Administration, Servicemen's Readjustment Act of 1944, Levittown, redlining, Interstate Highway System).				
US.His.5.b.	Analyze the role of popular culture, subculture, and counterculture in shaping public perception of national identity during the post-World War II era (e.g., Beat Generation, Rock and Roll, Motown, Jazz, Hippies, television sitcoms, Hollywood films).			S	
US.His.15.a.	Identify both long term causes and triggering events to develop historical arguments about efforts to abolish legalized racial segregation, discrimination, and disenfranchisement (e.g., Southern Christian Leadership Conference, Black Panther Party, Student Nonviolent Coordinating Committee, American Jewish Congress, American Indian Movement, United Farm Workers, Congress of Racial Equality).				
US.Civ.5.b.	Evaluate the effectiveness of individuals, groups, and institutions in addressing issues of civil rights and justice in the post-World War II era (e.g., disability, education, environmental justice, LGBTQ+ rights, poverty, racial and gender equity, voting access).			P	P
US.Civ.5.c.	Analyze the role of legislative and judicial decisions in expanding or limiting civil liberties (e.g., Hernandez v. Texas, Executive Order 10450, Loving v. Virginia, Civil Rights Act of 1964, Voting Rights Act of 1965, Title IX of the Education Amendments Act of 1972, Roe v. Wade).			P	P
US.His.11.a.	Determine the usefulness of historical sources to support an inquiry about the causes, escalation, and public reaction to the Vietnam War based on their maker, origin, intended audience, and purpose (e.g., art, ephemera, film, government reports, media, music).				
US.His.1.g.	Evaluate whether the conservative ascendency of the 1980s was a reaction to social and economic change and to what extent it was consistent with broader historical trends (e.g., New Right, Watergate, energy crisis, Reaganomics).			P	
US.His.1.h.	Evaluate how popular culture in the 1970s and 1980s promoted and reflected hyper-consumerism, racial tension, women's empowerment, and the Cold War.			S	
US.His.2.a	Analyze how innovations in the application of technology contributed to cultural and political diffusion (e.g., televangelism, Music Television, personal computing, Hip Hop music, cable television, political talk radio).				

Standard Matrix		Unit 1	Unit 2	Unit 3	Unit 4
US.His.15.b.	Develop an argument about the long-term causes and triggering events of United States foreign policies designed to contain and dismantle communism (e.g., Iran Hostage Crisis, El Salvador, Nicaragua, Iran-Contra, Afghanistan).				
US.Geo.3.a.	Analyze changing spatial patterns of cultural enclaves within and among United States regions using paper-based and electronic graphic techniques (e.g., Jamaican, Puerto Rican, Bosnian, Vietnamese, Sikh, Mexican, Cuban, Muslim).				
US.Civ.13.b.	Evaluate United States policies to address public safety in terms of intended and unintended outcomes, and related consequences (e.g., War on Drugs, “America Responds to AIDS” public information campaign, Immigration Reform and Control Act).				
US.His.2.b.	Assess the US response to human rights violations around the world (e.g., genocide, support for free elections, sanctions, humanitarian aid, funds for human rights organizations).				
US.His.2.c.	Analyze the effectiveness of individual and group responses to public policies that they deem to be discriminatory.				P
US.His.14.f.	Analyze the multiple and complex causes and effects of the September 11th attacks on domestic and foreign policy.				
US.His.5.c.	Analyze how the September 11th attacks shaped perspectives in the United States (e.g., views of Muslims and Sikhs, Department of Homeland Security, Transportation Security Administration, Patriot Act).				
US.Eco.8.b.	Describe domestic economic policies in terms of market outcomes (e.g., North American Free Trade Agreement, Electronic Benefit Transfer, Great Recession, Dodd-Frank Wall Street Reform and Consumer Protection Act, Puerto Rico Oversight, Management, and Economic Stability Act).				
US.Geo.12.a	Evaluate the effects of human-made and natural catastrophes on global trade, politics, and human migration in the United States (e.g., Hurricane Katrina, Flint water crisis, Deepwater Horizon oil spill, climate change, investments in green technology).				
US.Civ.10.a.	Analyze the impact of personal perspectives in public debates about national security and individual liberties (e.g., 2nd Amendment, Obergefell v. Hodges, Dobbs v. Jackson Women's Health Organization, Sanctuary Cities, Dakota Access Pipeline).				P
US.Civ.14.b.	Analyze the impact of multimedia on American politics and public discourse (e.g., 24-hour news cycle, echo chambers, social media algorithms, live streaming, trolls, deep fakes, artificial intelligence).				S

Course Title:	Content Area:	Grade Level:	Credit (if applicable)
MS Grades 6-8 Technology Education	**MS CTE**	**Middle School**	**N/A**

Course Description:

In Middle School Technology Education, students engage in hands-on, project-based learning across 15-day trimester units covering Manufacturing, Construction, and Digital Technology. The units in this curriculum can be taught in any order across the grade-span they are written for. Throughout the course, learners master production lab safety to operate hand tools, power tools, and digital fabrication equipment, which includes 3D printers, laser engravers, and CNC machinery, to design and build custom physical artifacts. They apply precision measurement down to ⅛ inch tolerances by grade 8 while constructing 2D graphic media, parametric CAD models across x, y, and z-axes, and architectural floor plans. In computer science sequences, students write block code to automate physical robotics, program flight paths for drones using core aerospace mechanics (pitch, yaw, roll), and construct electrical circuits analyzed via Ohm's Law. Students also cultivate digital citizenship by managing data privacy, evaluating web sources and AI summaries for bias, and practicing effective AI prompting. By applying the 8-step Engineering Design Process within team environments, students continuously prototype, debug, and refine their work to solve real-world technical problems. Because learning sequences vertically align from Grade 6 through Grade 8 without requiring prerequisite knowledge, students build progressively deeper technical self-sufficiency whether they take a single trimester or enroll across multiple years.

Aligned Core Resources:

Advanced CT Career Clusters taught in BPS Gr. 9-12
(in bold are the aligned BPS Gr. 6-8 clusters)

- **Advanced Manufacturing**
- Arts, Entertainment, & Design
- **Construction**
- **Digital Technology**
- Education
- Financial Services
- Healthcare & Human Services
- Hospitality, Events, & Tourism
- Management & Entrepreneurship
- Marketing & Sales

CCTC Standards
ISTE Standards
ITEEA STEL Standards

Connection to the *BPS Vision of the Graduate*

The ISTE Standards create a seamless integration of and alignment to the Vision of the Graduate skills:

Meaningfully contribute to a global society
ISTE Standards
- 1.7 Global Collaborator
- 1.2 Digital Citizen

Effectively communicate in a global society
ISTE Standards
- 1.6 Creative Communicator
- 1.4 Innovative Designer

Successfully employ skills for self-sufficiency
ISTE Standards
- 1.1 Empowered Learner

Demonstrate Academic Knowledge and Skills
ISTE Standards
- 1.3 Knowledge Constructor
- 1.5 Computational Thinker

Additional Course Information:
Knowledge/Skill Dependent courses/prerequisites

Students may not elect to take Technology Education in grades 6, 7, and 8. The units have been designed to ensure that a foundation is built over time for students who do take more than 2 years of MS Tech Ed, but each unit can be successfully completed without any prior knowledge from a previous grade level.

Link to *Completed Equity Audit*

Equity Curriculum Review Audit MS TECH ED (2026-27)

Standard Matrix

Standards	Unit 1	Unit 2	Unit 3

CCTC (Common Career Technical Core)			
Career and Technical Education: Manufacturing Career Cluster			
Manufacturing **MN 1**: Evaluate the nature and scope of the Manufacturing Career Cluster and the role of manufacturing in society and in the economy.	✓		
Manufacturing **MN 3**: Comply with federal, state and local regulations to ensure worker safety and health and environmental work practices.	✓		
Manufacturing Production Process Development **MN-PPD 1**: Produce quality products that meet manufacturing standards and exceed customer satisfaction.	✓		
Manufacturing Production Process Development **MN-PPD 2**: Research, design and implement alternative manufacturing processes to manage production of new and/or improved products.	✓		
Manufacturing Production Process Development **MN-PPD 5**: Develop procedures to create products that meet customer needs.	✓		
Career and Technical Education: Architecture and Construction Career Cluster			
Design/Pre-Construction **AC-DES 2**: Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.	✓		
Architecture & Construction **AC 1**: Use vocabulary, symbols and formulas common to architecture and construction.		✓	
Architecture & Construction **AC 2**: Use architecture and construction skills to create and manage a project.		✓	
Architecture & Construction **AC 4**: Evaluate the nature and scope of the Architecture & Construction Career Cluster and the role of architecture and construction in society and the economy.		✓	
Construction **AC-CST 1**: Describe contractual relationships between all parties involved in the building process.		✓	
Career and Technical Education: Information and Technology Career Cluster			
Information Technology **IT 1**: Demonstrate effective professional communication skills and practices that enable positive customer relationships.			✓
Programming & Software Development **IT-PRG 1**: Analyze customer software needs and requirements.			✓
Information Support & Services **IT-SUP 1**: Provide technology support to maintain service.			✓
ISTE (International Society for Transforming Education) Standards			
1.1: **Empowered Learner** Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.			

1.1.a Learning Goals	✓		✓
1.1.b Customized Learning Environments	✓		✓
1.1.c Feedback to Improve Practice	✓		✓
1.1.d Technology Fundamentals	✓	✓	✓
1.2: **Digital Citizen** Students recognize the responsibilities and opportunities for positively contributing to their digital communities.			
1.2.a Digital Footprint			✓
1.2.b Online Interactions	✓	✓	✓
1.2.c Safeguard Well-being	✓		✓
1.2.d Digital Privacy			✓
1.3: **Knowledge Constructor** Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.			
1.3.a Effective Research Strategies			✓
1.3.b Evaluate Information			✓
1.3.c Curate Information			✓
1.3.d Explore Real-World Issues			✓
1.4: **Innovative Designer** Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.			
1.4.a Design Process	✓		✓
1.4.b Design Constraints	✓		✓
1.4.c Prototypes	✓	✓	✓
1.4.d Open-Ended Problems	✓	✓	✓
1.5: **Computational Thinker** Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.			
1.5.a Problem Definitions			✓
1.5.b Data Sets			✓
1.5.c Decompose Problems			✓
1.5.d Algorithmic Thinking			✓
1.6: **Creative Communicator** Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.			

1.6.a Choose Platforms or Tools	✓		✓
1.6.b Original and Remixed Works	✓		
1.6.c Communicate Complex Ideas	✓		✓
1.6.d Customize the Message	✓		
1.7: **Global Collaborator** Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.			
1.7.a Global Connections			✓
1.7.b Multiple Viewpoints	✓		✓
1.7.c Project Teams	✓	✓	✓
1.7.d Local and Global Issues			✓
ITEEA (International Technology and Engineering Educators Association) STEL (Standards for Technological & Engineering Literacy) Standards			
STEL-1: **Nature & Characteristics of Technology and Engineering**			
STEL-1J: Develop innovative products and systems that solve problems based on individual or collective needs and wants.	✓		
STEL-1K: Compare and contrast the contributions of science, engineering, mathematics, and technology.			✓
STEL-1L: Explain how technology and engineering are closely linked to creativity, resulting in intended and unintended innovations.	✓		
STEL-1M: Apply creative problem-solving strategies to the improvement of existing devices or processes.			✓
STEL-2: Core Concepts of Technology and Engineering			
STEL-2M: Differentiate between inputs, processes, outputs, and feedback in technological systems.			✓
STEL-2N: Illustrate how systems thinking involves considering relationships between every part.		✓	
STEL-2O: Create an open-loop system that has no feedback path and requires human intervention.			✓
STEL-2P: Create a closed-loop system that has a feedback path and requires no human intervention.			✓
STEL-2R: Compare how different technologies involve different sets of processes.	✓		
STEL-2S: Defend decisions related to a design problem.	✓		
STEL-3: Integration of Knowledge			
STEL-3E: Analyze how different technological systems often interact with economic, environmental, and social systems.			✓
STEL-3G: Explain how knowledge gained from other content areas affects technological development.			✓
STEL-4: **Impacts of Technology**			
STEL-4K: Examine the ways that technology can have both positive and negative effects at the same time.			✓

STEL-4N: Analyze examples of technologies that have changed the way people think, interact, and communicate.			✓
STEL-7: **Design in Technology and Engineering Education**			
STEL-7P: Illustrate the benefits and opportunities associated with different approaches to design.		✓	
STEL-7Q: Apply the technology and engineering design process.	✓		✓
STEL-7R: Refine design solutions to address criteria and constraints.	✓	✓	✓
STEL-7T: Assess design quality based upon established principles and elements of design.	✓		
STEL-7U: Evaluate the strengths and weaknesses of different design solutions.			
STEL-8: **Apply, Maintain, & Assess Systems**			
STEL-8H: Research information from various sources to use and maintain technological products or systems.		✓	
STEl-8I: Use tools, materials, and machines to safely diagnose, adjust, and repair systems.	✓	✓	
STEL-8J: Use devices to control technological systems.		✓	
STEL-8K: Design methods to gather data about technological products.			✓
STEL-8L: Interpret the accuracy of information collected.			✓

Unit Links

Grades 6-8 Technology Education
- Unit 1: Manufacturing
- Unit 2: Construction
- Unit 3: Digital Technology

Unit Title
Unit 1: Manufacturing

Relevant Standards:
CCTC • MN 1, MN 3, MN-PPD 1, MN-PPD 2, MN-PPD 5 • AC-DES 2 ISTE Standards for Students • 1.1, 1.4, 1.6, 1.7 ITEEA STEL • STEL-1, STEL-2, STEL-7, STEL-8

Essential Question(s)	Enduring Understanding(s)
• How do graphic designers combine visual elements to communicate a clear, effective message to an audience? • How do additive and subtractive manufacturing processes differ, and how do designers choose between them? • Why are precise dimensional planning and digital file preparation critical to successful physical fabrication? • How do spatial planning principles and building constraints shape architectural floor plans?	• Visual design relies on the intentional selection and arrangement of elements. This includes line, shape, color, texture, space, typography, and image to structure visual hierarchy and convey intended messaging. • Additive manufacturing builds products layer-by-layer from 3D models, whereas subtractive manufacturing removes material through cutting or engraving; choosing the right method depends on design complexity, material selection, and structural needs. • Accurate CAD modeling across spatial axes (X, Y, Z), proper file export formats (.STL/.OBJ), and slicing optimization prevent geometric print errors and ensure physical prototypes match intended dimensions. • Architectural design requires balancing structural rules, safety requirements (such as emergency escape windows), and room functionality when configuring walls, roof slopes, and interior layouts.
Demonstration of Learning	**Pacing for Unit**
See Assured Learning Experiences under Learning Sequence for specific tasks. Students will receive teacher and peer feedback as well as opportunities to self-reflect, refine, and revise their work.	15 Days
Family Overview (link below)	**Integration of Technology:**
Middle School Technology Education: Family Overview	• 2D graphic software to manipulate line, shape, color, typography, and image placement to build digital layouts like business cards, logos, calendars, and theme park brochures. • Students create parametric 3D CAD models defined along X, Y, Z axes, check geometry for printing errors, export .STL/.OBJ files, slice models in slicing software, and operate 3D printers to fabricate physical prototypes. • In Grade 7, students use architectural software to draw floor plans incorporating interior/exterior walls, escape windows, door types, and roof slopes. • Students use design software to prepare vector files, check cut/engrave lines, and run automated CNC machines, laser cutters, and vinyl plotters to produce coasters, dog tags, bookmarks, and water bottles.
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**

Graphic design elements, Line, Shape, Color, Texture, Space, Typography, Image, Layout, Visual hierarchy, Additive manufacturing, Subtractive manufacturing, 3D CAD modeling, Spatial axes (X, Y, Z), Extrude, Sketch, Measure, Scale, Slicing software, File export formats (.STL, .OBJ), Architectural floor plan, Laser cutting, CNC engraving.	***Suggested Materials:*** 3D printers, 3D filament, Laser engravers, CNC machines, Cricut vinyl cutters, Graphic design software, 3D CAD modeling software, Architectural software, Slicing software, Vinyl sheets, Dog tag blanks, Wood cutting board stock, Water bottles, Coasters, Paper, Cardstock. ***Required Software & Hardware:*** 2D graphic design software, 3D CAD modeling software, slicing software, architectural CAD software, 3D printers, laser engravers, CNC machinery, and Cricut vinyl cutters.
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
Coordinate Geometry & 3D Spatial Systems (CCSS.MATH.CONTENT.6.G & 8.G) • Translating 3D CAD modeling concepts onto coordinate systems across X, Y, and Z spatial axes, reinforcing geometric transformations, coordinate graphing, and 3D spatial visualization. Scale, Proportions & Ratios (CCSS.MATH.CONTENT.7.RP & 7.G) • Applying proportional reasoning and scale factors when converting real-world building dimensions into scaled architectural floor plans and 3D-printed digital models. Material Properties & State Changes (NGSS MS-PS1) • Comparing additive manufacturing (thermoplastic extrusion) and subtractive manufacturing (laser cutting and CNC engraving) based on how heat and mechanical forces alter physical states of polymers and materials. Geometric Composition & Layout (CCSS.MATH.CONTENT.6.G) • Applying plane geometry principles (lines, shapes, symmetry, area, and spatial ratios) when composing visual layouts in graphic design software.	• Students confuse layer-by-layer deposition with material removal, assuming 3D printers carve solid blocks or CNC machines build layers. • Students assume 2D screen visuals guarantee successful prints, ignoring wall thickness, supports, and spatial alignment across X, Y, Z axes. • Students view graphic design as mere decoration rather than strategic visual communication using typography, layout, and hierarchy. • Students assume standard image files work on machines without exporting to .STL/.OBJ format and generating slicing toolpaths.
Connections to Prior Units	**Connections to Future Units**
Engineering design practices are woven throughout all units. The ISTE standards are also taught in each unit of Grades 6-8.	Each learning sequence aligns vertically to a corresponding learning sequence in 7th and 8th grade.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Ad Breakdown Audit" analyzing real-world commercials, logos, and product packaging to critique effective vs. cluttered visual hierarchy.	Interactive digital element decoder guide mapping definitions and visual examples of line, shape, color, texture, space, typography, and image.	Annotate a sample advertisement using digital callouts, complete a visual element sorting puzzle, or record an audio critique of a graphic asset.
LT2	"Client Design Challenge" choosing a real-world scenario (theme park brochure, business card, or event calendar) for a specific target audience.	Video micro-tutorials on software tools (color pickers, alignment guides, typography rules) paired with customizable layout templates.	Design a digital graphic product (e.g., brochure, logo, or card) using vector design software and present a written or verbal design rationale.
LT3 G6&8	"Custom Accessory Challenge" designing functional physical objects (pencil toppers, dice, or keychains) to solve an everyday storage or organization problem.	Interactive 3D X/Y/Z spatial axis models, step-by-step visual slicing guides, and pre-print error checklists (wall thickness, supports, overhangs).	Build a multi-layer parametric 3D CAD model, export and slice an .STL/.OBJ file, and operate a 3D printer to produce a physical prototype.
LT3	"Tiny Home / Living Space Challenge" designing an	Color-coded architectural symbol key (exterior/interior	Draft a digital architectural floor plan incorporating walls,

G7	efficient residential floor plan balancing spatial functionality with safety constraints.	walls, door swing radii, escape window placement) and pre-built room component libraries.	doors, windows, and furniture, or record a virtual screen-recorded walkthrough of the layout.
LT4	"Custom Brand Fabrication" creating personalized physical products (engraved dog tags, coasters, water bottles, or wooden cutting boards).	Visual toolpath guides distinguishing vector cut lines (hairline stroke) from raster engraving fills, paired with machine setup safety checklists.	Prepare vector graphics in software, configure laser/CNC power and speed settings, and operate subtractive machinery to produce a finished product.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can identify and explain the elements of graphic design that create a visually appealing product.* | I can match graphic design elements (color, contrast, alignment, space) to example images using a visual reference card and word bank.	I can identify design elements in a product and describe how they make it visually appealing using graphic organizers and sentence starters.	I can analyze and explain in detail how specific graphic design principles interact to create an aesthetically pleasing, professional product.
LT2	I can arrange text and image elements in a software program to build a layout using visual step-by-step checklists.	I can apply graphic design elements (fonts, color schemes, spacing) in software to create a digital layout using project templates	I can independently apply graphic design principles within digital software tools to design a cohesive, visually effective product.
LT3 G6&8	I can use 3D modeling software to design a prototype with multiple layers and produce it with additive manufacturing (3D printing).* | I can manipulate pre-made 3D shapes to build a multi-layer model in software and prepare it for 3D printing using visual icon guides.	I can design a multi-layer prototype using 3D modeling software and describe the 3D printing process using sequence sentence frames	I can design a multi-layered 3D prototype using modeling tools and evaluate how additive manufacturing layers material to produce the physical model.
LT3 G7	I can select and place basic rooms, doors, and windows on a grid in architectural software using visual menu guides.	I can create a labeled, functional floor plan in architectural software using software tools and sentence starters to describe spatial features	I can construct a scaled floor plan using architectural software, evaluating spatial layout choices and structural efficiency in writing.
LT4	I can draw a simple vector shape/cutline in design software and point out where a laser/CNC cutter removes material using visual cards.	I can design a prototype in modeling software and describe how subtractive tools (laser/CNC) cut away material using a flowchart and sentence frames.	I can create a precise prototype in modeling software and explain the technical process of subtractive manufacturing in producing the physical object.

Lesson Sequence	Learning Target	Success Criteria	Assured Learning Experiences GRADE 6	GRADE 7	GRADE 8
Learning Sequence 1: Graphic Design					
1	**Learning Target 1** I can identify and explain the elements of graphic design that create a visually appealing product.	• I can identify, define, and locate graphic design elements (line, shape, color, texture, space, typography, and image) in products. • I can describe the role of each element in a design and how they work together to convey a message.	***Theme Park Brochure***	***Calendars House for Sale***	***Logo Business Cards***
2-5	**Learning Target 2** I can apply the elements of graphic design within a software program to create a visually appealing product.	• I can use the tools embedded in graphic design software to create elements such as color, lines, shapes, images, typography, and text. • I can use correct design vocabulary when I talk about my work and others' work. • I can collaborate effectively with others to create a graphic design, give and receive feedback, and improve my work. • I can complete a project and explain how I used elements of graphic design to create a visually appealing product.			

Learning Sequence 2: Additive Manufacturing					
GRADE 6 & 8					
6	**Learning Target 3** I can use 3D modeling software to design a prototype with multiple layers and produce it with additive manufacturing (3D printing).	• I can explain what additive manufacturing is and how it differs from subtractive manufacturing. • I can plan my product with its dimensions before I use 3D modeling software.	**Pencil Toppers**		***3D Dice***
7-8		• I can use the 3D modeling software tools (such as extrude, sketch, and measure) to build my design. • I can create my model to the correct size and scale. • I can identify all 3 axis lines (X, Y, Z) used to create my model. • I can check my model for errors or imperfections that would lead to an error print • I can export my model in the correct file format (such as .STL or .OBJ) and prepare it in slicing software. • I can safely operate the 3D printer and remove my print. • I can evaluate my prototype and explain what I would change to improve it.			
GRADE 7					
6-8	**Learning Target 3** I can use Architectural Software to create a simple floor plan.	• I can create exterior and interior walls. • I can create various types of doors and understand where and when to use specific doors. • I can create various types of windows and understand where specific escape windows need to be placed. • I can create a roof and understand the differences in slope. • I can create furniture and appliances used for specific types of rooms. • I can edit and customize specific furniture or appliances.		***Floorplan***	
Learning Sequence 3: Subtractive Manufacturing					
9	**Learning Target 4** I can use modeling software to design a prototype and produce it with subtractive manufacturing (Laser/CNC printing).	• I can explain what subtractive manufacturing is and how it differs from additive manufacturing. • I can sketch or plan my product with its dimensions before I start modeling.	***Cricut*** **Dog Tags** **Book Marks**	***Cricut*** ***Cutting Boards*** ***Coins***	***Cricut*** ***Water Bottles*** ***Coasters***
10-12		• I can use graphic design software tools to build my design. • I can create my model to the correct size and scale. • I can check my model for errors to ensure the right elements will be cut or engraved and check for parts that won't print as expected.			
13-15		• I can export my model in the correct file format. • I can safely operate the Laser/CNC machine and remove my print. • I can evaluate my prototype and explain what I would change to improve it.			

Unit Title
Unit 2: Construction

Relevant Standards:
CCTC • AC 1, AC 2, AC 4, AC-CST 1 ISTE Standards for Students • 1.1, 1.2, 1.4, 1.7 ITEEA STEL • STEL-2, STEL-7, STEL-8

Essential Question(s)	Enduring Understanding(s)
• Why is strict adherence to safety protocols mandatory when working in a production lab? • How does precision in measurement affect the quality and structural integrity of a constructed project? • How do builders select the proper tools, fasteners, and adhesives for a given material or assembly task? • How do surface finishes impact both the aesthetic appearance and longevity of built structures?	• Following shop rules, locating emergency equipment, maintaining tool discipline, and demonstrating safety mastery (scoring 90%+ on safety evaluations) are essential to preventing injuries and maintaining a safe shop environment. • Measuring and marking stock accurately within specified tolerance limits ensures that components assemble correctly and perform as intended. • Tool selection (hand vs. power tools) and joint connection methods (screws, nails, bolts, wood glue, hot glue) depend on raw material properties, required mechanical strength, and manufacturing efficiency. • Applying protective surface treatments such as wood stain, paint, or polyurethane can enhance project aesthetics while protecting raw materials from environmental wear and damage.
Demonstration of Learning	**Pacing for Unit**
See Assured Learning Experiences under Learning Sequence for specific tasks. Students will receive teacher and peer feedback as well as opportunities to self-reflect, refine, and revise their work.	15 Days
Family Overview (link below)	**Integration of Technology:**
Middle School Technology Education: Family Overview	• Technology is integrated through digital safety presentations and online safety exams (Google Forms). • Students use precision measuring instruments to mark physical stock within specified tolerances. • Students operate physical processing machinery to bore holes, cut, shape, and smooth raw stock. They select mechanical fasteners (screws, bolts, nuts), structural adhesives (wood glue, hot glue), and surface finish systems (stain, paint, polyurethane) to assemble finished projects like candy machines, birdhouses, and CO_2 cars.
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Production lab safety, Safety contract, Emergency procedures, Safety equipment, Measurement tolerance, Ruler, Tape measure, Hand tools, Power tools, Boring, Shaping, Cutting, Fasteners, Screws, Nails, Bolts, Nuts, Adhesives, Wood glue, Hot glue, Glue gun, Raw materials, Wood stain, Paint, Polyurethane finish	***Suggested Materials:*** Safety glasses, Rulers, Tape measures, Hand saws, Wood rasps, Clamps, Drill presses, Power sanders, Wood stock, Screws, Nails, Bolts, Nuts, Wood glue, Hot glue sticks, Wood stain, Paint, Polyurethane finish, CO2 car blocks.

	Required Software & Hardware: Interactive digital presentation tools, online assessment platforms (Google Forms), precision measuring tools, power tools (drill presses, power sanders, boring machinery), fasteners, adhesives, and finishing tools.
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
Fractions & Precision Measurement (CCSS.MATH.CONTENT.5.NF & 6.NS) • Performing fractional arithmetic and number-line partitioning down to $\frac{1}{2}$", $\frac{1}{4}$", and $\frac{1}{8}$" precision marks when measuring and marking physical stock materials. Structural Mechanics & Forces (NGSS MS-PS2) • Analyzing how physical forces (compression, tension, shear) act on constructed wooden structures, mechanical fasteners (screws, bolts, nails), and adhesive joints. Chemical Interactions of Finishes & Adhesives (NGSS MS-PS1) • Investigating chemical bonding and physical properties of materials when applying wood stains, paints, polyurethane, and adhesives to protect raw wood fibers. Geometric Tolerance & Construction Layout (CCSS.MATH.CONTENT.7.G) • Constructing perpendicular angles, parallel edges, and measuring within defined error tolerances to guarantee structural squareness and alignment.	• Students line up stock with the physical edge of a ruler instead of the zero mark. • Students misinterpret fractional marks and ignore saw kerf width, breaching tolerance limits. • Students use glue alone for load-bearing joints or drive screws without pre-drilling pilot holes, splitting stock. • Students treat stains, paint, and polyurethane as purely decorative rather than protective moisture barriers. • Students force power tools under physical pressure rather than letting tool speed and blade geometry cut safely.
Connections to Prior Units	**Connections to Future Units**
Engineering design practices are woven throughout all units. The ISTE standards are also taught in each unit of Grades 6-8.	Each learning sequence aligns vertically to a corresponding learning sequence in 7th and 8th grade.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Production Lab Safety Audit / Hazard Hunt" inspecting shop tools, locating emergency shut-offs, eyewash stations, and PPE to master lab protocols.	Interactive visual safety poster & digital tour mapping machine danger zones, color-coded floor boundaries, and PPE requirements side-by-side.	Pass the shop safety evaluation with 90%+ accuracy, perform a peer safety audit demonstration, or record an emergency procedure video walkthrough.
LT2	"Precision Measurement Challenge" measuring physical project stock against tiered tolerance limits (Grade 6: ½", Grade 7: ¼", Grade 8: ⅛") to pass quality control.	Color-coded physical/digital ruler fraction guides highlighting fractional increments (½", ¼", ⅛") aligned directly with stock marking diagrams.	Measure and mark physical stock within specified tolerances, complete a digital measurement matching activity, or explain kerf width and fractional marks in a video log.
LT3	"Hand Tool Master Craftsman Challenge" selecting and testing hand tools (rasps, hand saws, clamps) to shape wood stock for projects (e.g., tic-tac-toe, birdhouses).	Labeled tool wall infographic and tactile reference cards illustrating correct grip, direction of force, and specific tool applications.	Demonstrate proper hand tool usage by shaping a wooden artifact, completing a physical tool identification practical, or recording a video tutorial on hand saw safety and technique.
LT4	"Machining Workshop Challenge" operating drill presses and power sanders to bore precise holes and shape project components safely.	Step-by-step visual machine operation checklists and digital demonstration videos highlighting feed speed, stock clamping, and guard positioning.	Safely operate power tools to bore holes or sand edges on a project block, complete a teacher-observed practical assessment, or create a video safety guide for a specific machine.
LT5	"Joint Strength Experiment" testing how screws, nails,	Visual fastener & adhesive selection matrix detailing load	Assemble project components using appropriate

	bolts, wood glue, and hot glue withstand physical forces (tension/shear) on wooden joints.	capacities, pre-drilling pilot hole requirements, and cure times.	fasteners and adhesives, construct a joint sample board, or present a written justification for fastener choice based on joint load.
LT6	"Material Properties Lab" comparing raw wood stock, acrylics, and composites to determine optimal tools and cutting speeds for each material type.	Tactile material sample board paired with a reference chart matching material hardness to ideal saw blades and sanding grits.	Select and process appropriate materials to complete a multi-material project, write a material selection report, or present a digital pitch on raw material choices.
LT7	"Custom Surface Design Studio" experimenting with wood stains, paints, and polyurethane to achieve protective and aesthetic finishes on completed builds.	Visual finishing comparison guide showing grain emphasis, moisture protection levels, and step-by-step application technique cards.	Apply a multi-step finish (stain, paint, or topcoat) to a final project, present a finished prototype with a written finishing log, or record an instructional video on sanding and staining.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can match lab safety rules and protective gear (e.g., eye protection, tie back long hair) using visual signage cards and picture clues.	I can describe lab safety procedures and emergency responses using visual checklists and sentence frames (*"I must wear ___ because..."*).	I can explain production lab safety rules, identify potential hazards, and justify safety protocols in writing.
LT2	I can measure project materials to specified lengths using color-coded rulers and visual target guides.	I can measure and verify that project dimensions fall within allowable tolerance limits using guided calculation charts and sentence starters	I can independently measure, evaluate, and explain whether project dimensions meet required tolerance specifications (½", ¼", or ⅛").
LT3	I can select and name basic hand tools (e.g., hand saw, hammer, file) using labeled picture cards and visual step guides.	I can describe how to safely select and use hand tools for specific tasks using graphic organizers and sentence starters	I can explain and execute proper hand tool selection, safe handling techniques, and maintenance steps for project fabrication.
LT4	I can identify power tools and match them to safety icons using visual guides and teacher demonstration checklists.	I can describe the safe operating steps for specific power tools using sequential sentence frames and safety checklists.	I can explain in detail proper operating procedures, safety features, and material handling techniques for designated power tools.
LT5	I can sort and match fasteners (screws, nails, bolts) and adhesives (wood glue, epoxy) to visual sample cards.	I can select and describe which fasteners or adhesives to use for specific material joints using sentence frames and guides.	I can compare, evaluate, and justify the selection of specific fasteners and adhesives based on joint strength and material properties.
LT6	I can identify and categorize raw materials (wood, acrylic, metal, composite) using physical samples and visual vocabulary cards.	I can describe how different materials behave and why they were chosen for project parts using graphic organizers and sentence starters.	I can analyze material properties (e.g., grain direction, hardness, flexibility) and explain why specific materials fit project requirements.
LT7	I can match finishing tools and materials (sandpaper grades, paint, stain, sealer) to visual picture cards.	I can describe the sequence of steps for surface preparation and finish application using flowcharts and sentence frames.	I can explain the technical purpose, surface preparation, and application steps of various finishes to protect and complete a project.

Lesson Sequence	Learning Target	Success Criteria	Assured Learning Experiences GRADE 6 GRADE 7 GRADE 8
Learning Sequence 1: Hand Tools			
1	**Learning Target 1** I can identify and explain how to be safe in the Production Lab.	• I can follow the shop rules without being reminded. • I can accomplish safety procedures in the event of an emergency. • I can locate and describe how to use essential safety equipment in the woodshop. • I can pass the safety quiz with 90% accuracy.	• ***Safety presentation*** • ***Tour of makerspace and location safety tools*** • ***Signed safety contract*** • ***Safety quiz*** • ***CTE Master Why SAFETY/Rules 23/24***

2	**Learning Target 2** I can produce a product with measurements that are accurate or within tolerance of: Grade 6: ½ inch Grade 7: ¼ inch Grade 8: ⅛ inch	• I can accurately measure and mark materials to the nearest 1/2" using standard measuring tools (such as a ruler or tape measure). • I can measure to the nearest ½ / ¼ / ⅛ inch mark on the measurement tool and know what each line stands for. • I line up the zero end (or the end of the tool) with the edge of my material. • I double-check my measurement before I mark or cut. • I can create a finished product with the correct measurements.	***Mug holder*** ***Tic Tac Toe*** ***Buzzing Bee***	***Candy Machine Letters*** ***Turkeys/Snowmen*** ***Note Pad/Holder*** ***Magic Belt holder*** ***3 Piece Puzzle*** ***Cube Puzzle***	***Pair of Dice*** ***Skills WS*** ***Bank*** ***Bird House*** ***CO_2 Cars***
3-5	**Learning Target 3** I can properly use hand tools to complete my project.	• I can clean up and put tools away before I leave. • I can use hand tools to smooth and shape my project • I can use hand tools to measure and cut the material to the proper size. • I can only use tools and machines I have been trained on. • I can identify what a hand tool is and what it is properly used for.			
Learning Sequence 2: Power Tools					
6-15	**Learning Target 4** I can properly use power tools to complete my project.	• I can clean the power tools before I leave. • I can use power tools to smooth and shape my project. • I can use power tools to bore holes in the material. • I can use power tools to cut the material to the proper size. • I can only use the power tools and machines I have been trained on. • I can identify what a power tool is and what it is properly used for.	***See above***	***See above***	***See above***
6-15	**Learning Target 5** I can properly use fasteners and adhesives to complete my project.	• I can use screws, nails, bolts, or nuts to fasten two pieces of wood together in my projects. • I can use glue, hot glue, or other fasteners to make materials stay together.			
6-15	**Learning Target 6** I can properly use various materials to complete my project.	• I can select and use a variety of materials to complete a project and I understand the proper tools needed to use on each specific type of material.			
6-15	**Learning Target 7** I can apply a variety of different finishes to complete the project.	• I can properly apply a finish to achieve a desired appearance for completion. This may include wood stain, paint, or polyurethane.			

Unit Title	
Unit 3: Digital Technology	
Relevant Standards:	
CCTC • IT 1, IT-PRG 1, IT-SUP 1 ISTE Standards for Students • 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7 ITEEA STEL • STEL-1, STEL-2, STEL-3, STEL-4, STEL-7, STEL-8	
Essential Question(s)	**Enduring Understanding(s)**
• How do individuals balance the benefits of digital tools and AI with online safety, privacy, and critical evaluation of information? • How do computer science principles and block coding enable physical automation and robotics? • How does the Engineering Design Process guide the development of creative solutions to real-world technical problems? • How do electrical principles govern the flow of energy in technological systems?	• Responsible digital citizenship requires maintaining personal data privacy, recognizing web tracking and phishing, managing digital footprints, and evaluating AI summaries and web content for bias. • Computer programming converts logical algorithms into block code sequences that control hardware actuators, process sensor feedback loops, and direct robotic and aerial drone movements. • The Engineering Design Process provides a systematic, iterative approach to defining problems, developing structural models, testing prototypes, and refining designs based on performance constraints. • Electrical energy flows through closed conductive loops where Voltage (V), Current (I), and Resistance (R) interact according to Ohm's Law (V = I/R) across Series, Parallel, or Short circuit configurations.
Demonstration of Learning	**Pacing for Unit**
See Assured Learning Experiences under Learning Sequence for specific tasks. Students will receive teacher and peer feedback as well as opportunities to self-reflect, refine, and revise their work.	15 Days
Family Overview (link below)	**Integration of Technology:**
Middle School Technology Education: Family Overview	• Students interact with search engines and AI interfaces to master AI prompt engineering, evaluate browser tracking/cache/cookies, analyze online bias, and cross-reference AI summary outputs against primary web sources. • Students write block code and text-based code in Scratch, Code.org, and Khan Academy to create software programs and debug code logic. They program Ozobot and Lego Spike robots to process sensor inputs (light/distance/touch) and control motor outputs. Students also write code to navigate aerial drones by applying flight physics principles (pitch, yaw, roll, lift, thrust, drag). • Students use virtual simulation software (Tinkercad Circuits) and physical Arduino hardware to design closed conductive energy loops. They apply Ohm's Law to compute missing variables and construct Series, Parallel, and Short circuits.
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**

Digital safety, Password security, Phishing, Data privacy, Cache, Cookies, Targeted ads, AI prompt engineering, Artificial Intelligence, Media bias, Primary sources, Data centers, Computer science, Coding, Robotics, Block coding, Debugging, Sensors, Motors, Actuators, Pitch, Yaw, Roll, Lift, Thrust, Weight, Drag, Drones, Engineering Design Process, Conductive energy loop, Voltage, Current, Resistance, Ohm's Law (V = I/R), Series circuit, Parallel circuit, Short circuit.	***Suggested Materials:*** Ozobot robots, Lego Spike robotics kits, Aerial drones, Arduino microcontroller kits, Breadboards, LEDs, Connecting wires, Power sources, Lego building bricks, Solar panels, Mini wind turbines, Marbles, Paper, Cardboard, Computers. ***Required Software & Hardware:*** Web browsers, AI prompt interfaces, programming environments (Scratch, Code.org, Khan Academy), Ozobot robots, Lego Spike robotics kits, aerial drones, Tinkercad Circuits, and Arduino microcontroller kits.
Opportunities for Interdisciplinary Connections:	**Anticipated misconceptions**
Forces, Motion & Aerodynamics (NGSS MS-PS2) • Analyzing physical force vectors (balancing lift against weight (gravity) and thrust against drag) while programming drone flight movements across pitch, yaw, and roll axes. Algebraic Equations & Ohm's Law (CCSS.MATH.CONTENT.8.EE & NGSS MS-PS3) • Applying linear single-variable algebra and proportional reasoning to solve for missing variables using Ohm's Law ($V = I \cdot R$) in electrical circuits. Energy Transfer & Renewable Systems (NGSS MS-PS3) • Exploring energy transformations by constructing mechanisms that harness natural energy sources (wind, solar, hydro, gravity) to generate electrical or mechanical work. Human Impacts on Earth Systems & Data Infrastructures (NGSS MS-ESS3) • Evaluating environmental resource consumption by analyzing the electrical and thermal energy demands of global AI data center infrastructure.	• Students assume robots possess inherent intelligence, failing to realize hardware strictly executes programmed block code. • Students trust AI summaries as absolute facts, ignoring algorithmic bias, errors, and the need to verify primary sources. • Students believe electrical current gets consumed by loads rather than flowing continuously in a closed loop to ground via Ohm's Law. • Students expect adding parallel loads to dim lights equally, confusing parallel branching with series voltage division. • Students assume higher propeller speed drives drones forward, confusing thrust with lift and directional control (pitch, yaw, roll).
Connections to Prior Units	**Connections to Future Units**
Engineering design practices are woven throughout all units. The ISTE standards are also taught in each unit of Grades 6-8.	Each learning sequence aligns vertically to a corresponding learning sequence in 7th and 8th grade.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
	GRADE 6		
LT1	"Password & Phishing Mystery" analyzing real vs. fake login emails and testing password strength meters to prevent data breaches.	Color-coded internet safety checklist and visual infographics contrasting secure vs. unsecure digital footprints.	Create a digital safety infographic, complete an interactive phishing identification challenge, or record a tutorial video on password security.
LT2	"AI vs. Primary Source Detective" evaluating web search outputs and AI summaries against primary sources to spot bias.	Side-by-side source evaluation matrix highlighting primary sources, AI-generated content, and indicators of bias.	Write a critical evaluation report comparing sources, sort web results into valid/biased categories, or record a screencast explaining how to verify online information.
LT3	"Robot Anatomy & Code Breakdown" dissecting physical Ozobots and Lego Spike robots to map hardware parts to software code blocks.	Visual computer science word wall and flashcard deck connecting terms (algorithm, loop, sensor, actuator) to physical robot actions.	Complete a physical card-sorting puzzle matching CS terms to actions, construct a visual vocabulary diagram, or present an oral explanation of robotics terminology.
LT4	"Ozobot / Lego Spike Maze Challenge" programming a physical robot to navigate an obstacle course or complete a delivery route.	Step-by-step block-coding flowchart templates and visual bug-hunting/debugging guides.	Write block code to execute a multi-step robot task, record a video walkthrough explaining code logic and debugging, or demonstrate live robot execution on a

			challenge mat.
LT5	"Real-World Engineering Mishaps" analyzing famous engineering design triumphs and failures to explore why iteration matters.	8-step Engineering Design Process visual wheel and flowchart with distinct icon prompts for each stage (Ask, Imagine, Plan, Create, Test, Improve).	Map a historical engineering problem onto the EDP flowchart, present a written breakdown of EDP steps, or create an interactive digital presentation explaining the process.
LT6	"Renewable Energy Structure Challenge" designing and building a gravity or wind-powered structure (e.g., Lego car or tower) to solve a functional problem.	Multimodal design brief outlining structural constraints, energy input/output diagrams, and physical testing criteria.	Build and test a physical prototype using given materials, document design iterations in an engineering log, or present a pitch justifying design changes based on test data.
GRADE 7			
LT1	"Data Privacy & Targeted Ads Audit" investigating how web searches generate cookies, cache data, and targeted advertisements on personal devices.	Color-coded data tracking infographic mapping browser cookies, cache files, and targeted advertising loops side-by-side.	Create a digital privacy guide, record a video tutorial explaining how to clear browser cache and cookies, or complete a scenario-based data privacy audit worksheet.
LT2	"AI Prompt Engineering Challenge" crafting and refining AI prompts to assist in writing, brainstorming, or solving everyday problems while analyzing AI benefits and risks.	Comparative visual guide displaying ineffective vs. effective AI prompt structures alongside privacy rule checklists (what NOT to share in prompts).	Present a portfolio of AI prompt iterations and generated outputs, record a screencast demonstrating prompt refinement techniques, or write an evaluation comparing AI assistance to traditional research.
LT3	"Game & App Development Lab" writing digital lines of code to build interactive software programs or animations.	Step-by-step code logic reference cards and visual syntax/debugging flowcharts to isolate software errors.	Program a functional software demo, record a video walkthrough explaining code execution and debugging steps, or submit an annotated digital code portfolio.
LT4	"Robotic Navigation Challenge" writing block code sequences to program physical robots to complete multi-step tasks across simulated environments.	Visual block-coding drag-and-drop templates and step-by-step sequential logic planning sheets.	Execute a successful live robot demo, record a video explaining block code logic and peer feedback adjustments, or present a flowchart detailing the robot's automated sequence.
LT5	"Automated Sensor & Manipulator Challenge" programming robots to process real-time sensor feedback (light, distance, touch) to trigger motor actions and manipulate physical objects.	Interactive hardware diagram mapping sensor inputs to motor actuations alongside conditional logic templates (If/Then statements).	Program a robot to navigate an obstacle course using active sensors, present a video breakdown of sensor-triggered code loops, or construct a physical/digital flow diagram of hardware responses.
LT6	"Real-World Structural Design Challenge" applying the Engineering Design Process to construct physical structures or systems that solve authentic real-world problems.	Scaffolded 8-step Engineering Design Process documentation organizer with visual icons for each iterative phase.	Construct and test a physical structural prototype, maintain a detailed engineering design journal documenting iterations, or deliver a design pitch explaining test performance and refinements.
LT7	"Virtual & Physical Circuit Lab" using Tinkercad Circuits and Arduino hardware kits to build closed conductive loops and analyze electrical current flow.	Color-coded electrical schematic guides illustrating closed loops, voltage sources, loads (LEDs), resistor placements, and Ohm's Law formulas.	Assemble a physical/virtual circuit that lights an LED, complete a multi-step Ohm's Law calculation worksheet, or produce an instructional video explaining how voltage, current, and resistance interact in a closed circuit.
GRADE 8			
LT1	"AI Field Audit" investigating real-world applications of artificial intelligence across medicine, art, agriculture, autonomous transportation, and manufacturing.	Interactive infographics and visual case study cards mapping real-world AI applications to specific industry sectors.	Create a digital poster/presentation summarizing real-world AI uses, record a podcast interview on AI's transformation of industries, or complete a matching grid pairing AI tools to industry problems.
LT2	"Data Center & Tech Footprint Challenge" analyzing the hidden environmental impact of AI data centers, energy demands, and viral social media trends on global society.	Visual infographic contrasting the electrical and water demands of AI data infrastructure against global resource sustainability alongside digital footprint maps.	Draft a critical opinion report on the environmental costs of AI data centers, create a digital infographic on social media consumption, or present a group debate on

			emerging technology ethics.
LT3	"Interactive Software Studio" using programming platforms (Scratch, Code.org, or Khan Academy) to write lines of code that animate graphics, calculate math, or build interactive tools.	Step-by-step digital syntax reference guides, logic flowcharts, and visual code-debugging checklists.	Program an interactive digital application, record a video walkthrough explaining code execution and debugging steps, or submit an annotated digital code repository.
LT4	"Flight Physics & Aerodynamics Simulator" analyzing physical force vectors (lift vs. weight, thrust vs. drag) and rotation axes (pitch, yaw, roll) on aircraft and drones.	Interactive 3D aircraft diagrams highlighting flight controls alongside visual force vector diagrams (thrust, drag, lift, weight).	Demonstrate flight movement axes using a physical model drone, complete an aerodynamic force labeling task, or record a video explaining how pitch, yaw, and roll manipulate flight paths.
LT5	"Aerial Drone Obstacle Course Challenge" programming autonomous flight paths for aerial drones to perform precision landings, altitude holds, and obstacle navigation.	Visual drone flight-block coding templates paired with step-by-step troubleshooting & pre-flight safety checklists.	Execute a live autonomous drone flight mission, record a screencast explaining flight code revisions and troubleshooting, or present a flight path blueprint with written code explanations.
LT6	"Engineering Challenge Case Study" examining structural challenges (e.g., marble runs, paper airplanes, bridges, or strongest columns) through the Engineering Design Process lens.	Visual 8-step Engineering Design Process diagram mapping structural design constraints, force testing rules, and failure analysis prompts.	Write a reflective engineering report explaining each EDP step used in a challenge, create a digital EDP flowchart for a completed build, or deliver an oral presentation detailing design choices.
LT7	"Clean Energy Mechanical Design Challenge" applying the EDP to build a prototype (e.g., bridge, tower, or marble mechanism) powered by natural energy sources (wind, solar, hydro, or gravity).	Multimodal design brief outlining energy conversion models, material limitations, and physical performance measurement criteria.	Construct and test a physical prototype driven by natural energy, document trial data and structural refinements in an engineering log, or present a design pitch with performance evidence.
LT8	"Circuit System Audit" testing physical and virtual Arduino circuits to discover how current paths behave across Series, Parallel, and Short circuit configurations.	Color-coded circuit schematic diagrams contrasting Series (single path), Parallel (multiple branches), and Short (zero-resistance bypass) circuit configurations.	Build and test physical/virtual Arduino circuits for each circuit type, draw and label electrical schematics explaining current flow differences, or record an instructional video explaining the properties and hazards of short vs. series/parallel circuits.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
	GRADE 6		
LT1	I can sort information into "safe to share" vs. "private" using visual cards and picture prompts.	I can describe online safety rules and ways to protect personal data using sentence frames ("I keep my data safe by...").	I can explain strategies for maintaining privacy online and evaluate potential digital security risks in writing.
LT2	I can identify everyday digital tools and activities using labeled icon cards.	I can describe how digital tools help with daily tasks using graphic organizers and sentence starters.	I can analyze and explain the positive and negative impacts of digital literacy on daily learning, communication, and life.
LT3	I can match basic CS vocabulary (algorithm, loop, code, automation) to visual icons and picture definitions.	I can define basic CS terms and describe how they connect to automation using sentence frames and visual organizers.	I can explain CS terminology in detail and justify how algorithms and code enable automated tasks in everyday technology.
LT4	I can sequence visual direction blocks (arrows, start/stop) to guide a robot through a path using visual guides.	I can write block-based code to perform specific robot tasks using a step-by-step coding checklist and sentence starters.	I can construct, test, and debug code scripts to command a robot to complete multi-step tasks independently.
LT5	I can place the steps of the Engineering Design Process (Ask, Imagine, Plan, Create, Improve) in order using a visual flowchart.	I can explain how each step of the EDP helps solve problems using graphic organizers and sentence starters.	I can evaluate and explain in detail how engineers systematically apply the EDP to solve complex problems.

LT6	I can apply the engineering design process to find creative solutions to problems by drawing or building a simple solution following a visual EDP step-by-step checklist.	I can apply the EDP to design a creative problem solution using guided planning sheets and sentence starters.	I can independently apply all stages of the EDP to research, prototype, test, and refine creative solutions to design challenges.
GRADE 7			
LT1	I can sort types of web data (search history, clicks, location) using visual icon cards and sorting charts.	I can describe what data companies collect online and how it affects my device using sentence frames ("Companies track ___ to show...").	I can analyze how web tracking impacts user privacy, targeted content, and device performance, explaining findings in writing.
LT2	I can match digital tools (email, search engines, apps) to daily activities using picture cards.	I can describe the role of digital literacy in personal and academic life using graphic organizers and sentence starters.	I can evaluate the multi-faceted impact of digital literacy on modern communication, productivity, and daily routines.
LT3	I can arrange pre-made visual code blocks in order to complete a digital task using step-by-step software prompts.	I can write functional computer code to solve specific tasks using guided coding templates and sentence starters.	I can design, write, and debug computer code to execute complex program tasks, explaining code logic in writing.
LT4	I can select and order visual commands to control a robot using color-coded block cards.	I can write block-based code to perform robot tasks using visual troubleshooting guides and sentence frames.	I can write, test, and refine programming scripts to command a robot to execute multi-step tasks.
LT5	I can match robot sensors (touch, light, distance) and motors to their functions using visual picture cards.	I can program a robot to respond to sensor inputs or drive motors using guided code blocks and sentence frames.	I can design and program an automated robot that uses multiple sensor inputs and motor outputs to complete complex tasks.
LT6	I can identify a design problem and draw a solution using a visual EDP organizer.	I can apply the EDP stages to build and test a creative solution using structured design logs and sentence starters.	I can execute the full EDP to design, construct, test, and iterate creative solutions to engineering challenges with written reflections.
LT7	I can label the components of a circuit (power, wire, LED/load, ground) on a diagram using visual vocabulary cards.	I can describe how electrical energy flows in a closed circuit using sentence frames ("Energy flows from the power source through the load to...").	I can explain and demonstrate the mechanics of a closed conductive loop, detailing the roles of power, load resistance, and ground.
GRADE 8			
LT1	I can match AI applications (facial recognition, recommendation algorithms, chatbots) to picture cards.	I can identify and describe real-world AI examples across different industries (healthcare, transport, media) using sentence starters.	I can analyze and explain diverse real-world applications of AI across various professional fields and daily life.
LT2	I can sort images of emerging tech into positive and negative impact categories using visual graphic organizers.	I can describe how AI affects individuals, local communities, and global society using cause-and-effect sentence frames.	I can evaluate the societal, ethical, and economic impacts of AI and emerging technologies on personal, local, and global scales.
LT3	I can assemble visual code blocks to execute program actions using a visual step-by-step guide.	I can write and test code to complete specific software tasks using reference cards and sentence starters.	I can develop, test, and optimize code in a programming environment to perform complex computational tasks.
LT4	I can label the 4 forces of flight (lift, weight, thrust, drag) and movements (pitch, roll, yaw) on a model aircraft diagram.	I can describe core flight movements and aerospace physics principles using labeled diagrams and sentence starters.	I can explain the physics of flight and how control surfaces manipulate pitch, roll, and yaw to steer aerospace vehicles.
LT5	I can select visual flight commands (takeoff, move, turn, land) to build a drone flight route on a grid.	I can program a drone to navigate a course or complete tasks using block coding templates and flight checklists.	I can write, test, and debug flight programs enabling drones to autonomously execute complex, multi-step tasks.
LT6	I can match EDP stages to their visual descriptions using flowcharts and picture cards.	I can explain how the EDP provides a structured framework for technical problem solving using sentence starters.	I can explain the iterative nature of the EDP and justify how engineers use it to systematically resolve design challenges.

LT7	I can follow an EDP visual checklist to guide building and testing a creative project prototype.	I can apply the EDP to design, prototype, and refine a project solution using engineering notebook templates.	I can apply the complete EDP to innovate, gather test data, analyze results, and optimize creative solutions for engineering problems.
LT8	I can match the 3 major circuit types (series, parallel, combination) to visual schematic diagrams.	I can identify and describe series, parallel, and combination circuits using schematic diagrams and sentence starters.	I can compare, contrast, and analyze series, parallel, and combination circuits, explaining current and voltage behavior in each.

Lesson Sequence	Learning Target	Success Criteria	Assured Learning Experiences GRADE 6	GRADE 7	GRADE 8
GRADE 6					
Learning Sequence 1: Digital Citizenship					
1	**Learning Target 1** I can keep myself and my personal information safe when online.	• I can identify ways to stay safe online • I can explain characteristics of a strong password • I can determine if something is a phishing attempt			
2	**Learning Target 2** I can recognize the impact of digital literacy on my daily life.	• I can use multiple sources and searches to find the most accurate information possible. • I can use multiple sources to identify bias. • I can determine if my search results are an AI summary or a primary source and use both effectively.			
Learning Sequence 2: Automation & Programming (Coding & Robotics)					
3	**Learning Target 3** I can identify and explain basic computer science terms and describe how they relate to automation and programming.	• I can define key terms related to coding and robotics. • I can define and identify what computer science is and why it is important. • I can explain why code is needed to make a computer do something.			
4-9	**Learning Target 4** I can create code to perform certain tasks with a robot.	• I can use accurate coding and robotics terms when I talk and write about my work. • I can use block coding to program a sequence of events in the correct order. • I can use block coding to complete a desired task. • I can reflect upon and improve my work when the robot does not perform the task accurately. • I can identify the relationship between coding and robotics. • I can collaborate effectively with others to create code, give and receive feedback, and improve our collective work.	***Code Terms*** ***Robotic Terms*** ***Ozobot*** ***Lego Spike***		
Learning Sequence 3: Engineering Design Process					
10	**Learning Target 5** I can explain how the engineering design process is used to solve problems.	• I can identify the steps of the engineering design process. • I can complete a project and explain how I used each step of the engineering design process. • I can explain how the Engineering Design Process is used to solve Real-World Problems.	***Lego Cars*** ***Lego Towers***		
11-15	**Learning Target 6**	• I can determine how to harness natural energy sources (wind, solar, hydro, or gravity) to be used to power a structure/system built to solve the problem proposed.			

	I can apply the engineering design process to find creative solutions to problems.	• I can create a structure using materials given, to solve any problem proposed. • I can explain the components used to try to create any structure.			
GRADE 7					
Learning Sequence 1: Digital Citizenship					
1	**Learning Target 1** I can explain the information companies gather from my web activity and how it affects me and my devices.	• I can identify which information is appropriate to share online. • I can identify targeted ads and how the information I provide leads to them. • I can determine when and how to clear my cache and cookies.			
2	**Learning Target 2** I can recognize the impact of digital literacy on my daily life.	• I can identify which information is appropriate in an AI prompt. • I can explain the personal benefits and risks of using AI. • I can write an effective and efficient series of AI prompts. • I can use AI to generate ideas or refine my communication.			
Learning Sequence 2: Automation & Programming (Coding & Robotics)					
3-4	**Learning Target 3** I can create code to perform certain tasks within a computer program.	• I can use Digital Lines of Code to create coding to write a computer program. • I can debug my code when an error occurs. • I can refine my code when it does not perform as expected. • I can reflect upon and improve my work when my program does not perform the task accurately.			
5-6	**Learning Target 4** I can create code to perform certain tasks with a robot.	• I can use accurate coding and robotics terms when I talk and write about my work. • I can use block coding to program a sequence of events in the correct order. • I can use block coding to complete a desired task. • I can reflect upon and improve my work when the robot does not perform the task accurately. • I can identify the relationship between coding and robotics. • I can collaborate effectively with others to create code, give and receive feedback, and improve our collective work.			
7-10	**Learning Target 5** I can program a robot to use sensor(s) and/or motor(s) to complete a task.	• I can write and modify code that controls various sensors or motors to solve problems • I can use sensor inputs to control the robot's actions. • I can program a robotic motor to operate in various actions to manipulate objects.			
Learning Sequence 3: Engineering Design Process					
10-11	**Learning Target 6** I can apply the engineering design process to find creative solutions to problems.	• I can explain how the engineering design process is used to solve problems. • I can design and construct a structure used to solve a real world problem given.		***Audrino Kits*** ***TinkerCad*** ***Circuits***	
12-15	**Learning Target 7** I can explain a closed conductive loop that allows electrical energy to flow from a	• I can explain how voltage, current, and resistance are used to create a system. • I can apply Ohm's Law to solve missing variables in order for the system to work (Voltage, Current, and Resistance).			

	power source through any load (LED), and back to ground.	• I can create a system that uses all variables in order to make a conductive energy loop.			
GRADE 8					
Learning Sequence 1: Digital Citizenship					
1	**Learning Target 1** I can recall real-world examples of AI in varied fields.	• I can summarize why it is important to learn about AI. • I can define artificial intelligence. • I can explain how Artificial Intelligence is transforming the world around us.			
2	**Learning Target 2** I can recognize the impact of AI and emerging technologies on myself, my community, and the world.	• I can describe the environmental impacts of data centers. • I can identify how viral trends can impact society. • I can explain what it means to be a critical consumer of social media and other online information.			
Learning Sequence 2: Automation & Programming (Coding & Robotics)					
3-4	**Learning Target 3** I can create code to perform certain tasks within a computer program.	• I can use lines of code to write a computer program. • I can debug my code when an error occurs. • I can refine my code when it does not perform as expected. • I can reflect upon and improve my work when my program does not perform the task accurately.			***Khan academy*** ***Scratch*** ***Code.org*** ***Drones***
5	**Learning Target 4** I can understand the core flight movements and basic physics of aerospace.	• I can explain what pitch, yaw, and roll are. • I can explain lift, thrust, weight and drag.			
6-9	**Learning Target 5** I can program drones to complete a series of tasks.	• I can test my code and identify problems. • I can troubleshoot and revise my code. • I can program my aerial robot to complete an assigned task.			
Learning Sequence 3: Engineering Design Process					
10	**Learning Target 6** I can explain how the engineering design process is used to solve problems.	• I can identify the steps of the engineering design process. • I can complete a project and explain how I used each step of the engineering design process. • I can explain how the Engineering Design Process is used to solve Real-World Problems.			***Marble madness*** ***Paper airplane*** ***Strongest Column*** ***Bridge Design*** ***Audrino Kits***
11	**Learning Target 7** I can apply the engineering design process to find creative solutions to problems.	• I can determine how to harness natural energy sources (wind, solar, hydro, or gravity) to be used to power a structure/system built to solve the problem proposed. • I can create a structure using materials given, to solve any problem proposed. • I can explain the components used to try to create any structure.			
12-15	**Learning Target 8** I can identify the 3 major circuit types applied to electronics.	• I can understand the differences in a Series, Parallel, or Short Circuit. • I can create a Parallel Circuit system and explain how it works.			

Course Title	Content Area	Grade Level:	Credit (if applicable)
Geometry & Statistics ACA/ACC	Math	9-10	1.0

Course Description

Students build on their middle school study of transformations of figures. Using definitions of congruence and similarity, students prove the triangle congruence and similarity theorems. Students apply these theorems to prove results about quadrilaterals, isosceles triangles, and other figures. Students extend their understanding of similarity to right triangle trigonometry in this course and to periodic functions in future courses.

Next, students derive volume formulas and study the effect of dilation on both area and volume. They use coordinate geometry to connect ideas from algebra and geometry. Students review theorems, skills, and functions from prior units and reconsider them, using the structure of the coordinate plane. Students use transformations and the Pythagorean Theorem to build equations of circles, parabolas, parallel lines, and perpendicular lines from definitions, and students link transformations to the concept of functions.

Nearing the end of the course, students analyze relationships between segments and angles in circles and develop the concept of radian measure for angles, which will be built upon in subsequent courses. Students close the year by extending what they learned about probability in grade 7 to consider probabilities of combined events and to identify when events are independent.

Illustrative Math Information for Families: https://accessim.org/9-12-aga/geometry?a=family

Aligned Core Resources

Geo & Stats Lesson Materials TEACHER (2026)

https://accessim.org/9-12-aga/geometry/course-guide?a=teacher

CT Core Standards

Imagine Learning iM Resources (BPS teacher login through ClassLink)

https://accessim.org/9-12-aga/geometry/course-guide/further-reading?a=teacher

- Empowering All Storytellers: Tips for Engaging Special Populations Using IM® v.360 for Grade 6–12
- Tackling Wordy Problems: How the Three Reads Math Language Routine Supports Access for All Learners
- Think Pair Share
- Math Language Routines: Discourse with a Purpose
- Unlocking Learners' Thinking Using the Mathematical Language Routines
- A Circumference By Any Other Name . . .

Link to *Equity Audit*

Equity Curriculum Review Audit (Stats & Geo 2026)

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							
	MP 1	**MP 2**	**MP 3**	**MP 4**	**MP 5**	**MP 6**	**MP 7**	**MP 8**
Unit 1	1-7	4, 5, 7	2-5	7	1	2-7	1-7	2-5
Unit 2A	3-5	1-5	3-5	-	5	3-5	1-5	1-2
Unit 2	6-8	1-4	1-8	6-8	6	3-8	1-3	3-4
Unit 3	2, 4, 8	2-2	7	2, 6, 8	8	1-8	1-5	3-7
Unit 4	1-8	2-6	-	5-7	3-7	1-7	4-6	4-6
Unit 5	2, 3, 5	5	1, 2, 5	5	2, 5, 6	2, 5	6	4
Unit 6	3, 5	-	2, 5	-	3, 5	1–3	5, 6	4
Unit 7	1, 4	1, 3, 4	2, 3	-	-	1	2, 1	4
Unit 8	-	1 -3, 5, 6	2, 5	4 - 6	1, 3 - 5	1 - 5	1, 2, 4, 5	3, 5

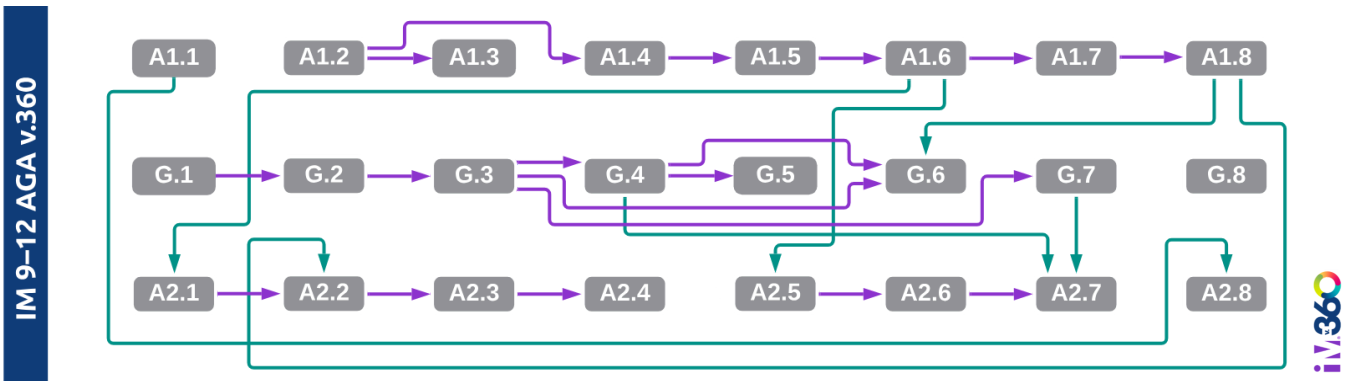
Bristol Public Schools Vision of the Graduate

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

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



Standard Matrix

Standard	Unit								
	1	2A	2	3	4	5	6	7	8
HSA-CED.A.2 *Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.*					✓	✓			
HSA-CED.A.4 *Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.*			✓	✓		✓			
HSA-REI.C.7 *Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically.*						✓			
HSA-SSE.A.1 *Interpret expressions that represent a quantity in terms of its context.*							✓		
HSA-SSE.A.1.a *Interpret parts of an expression, such as terms, factors, and coefficients.*					✓	✓			
HSA-SSE.A.1.b *Interpret complicated expressions by viewing one or more of their parts as a single entity.*					✓		✓		
HSA-SSE.A.2 *Use the structure of an expression to identify ways to rewrite it.*						✓			
HSA-SSE.B.3 *Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.*						✓			
HSF-IF.C.7 *Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.*						✓			
HSF-IF.C.7.b *Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.*						✓			
HSF-IF.C.9 *Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).*					✓				
HSG-C.A.1 *Prove that all circles are similar.*			✓						
HSG-C.A.2 *Identify and describe relationships among inscribed angles, radii, and chords.*						✓	✓		
HSG-C.A.3 *Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.*							✓		
HSG-C.B.5 *Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of*							✓		

proportionality; derive the formula for the area of a sector.									
HSG-CO.A.1 *Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.*	✓	✓				✓			
HSG-CO.A.2 *Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not.*				✓			✓		
HSG-CO.A.3 *Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.*									
HSG-CO.A.4 *Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.*									
HSG-CO.A.5 *Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.*		✓				✓			
HSG-CO.B.6 *Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.*		✓							
HSG-CO.B.7 *Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.*		✓							
HSG-CO.B.8 *Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.*		✓							
HSG-CO.B.9 *Prove theorems about lines and angles.*	✓								
HSG-CO.C.9 *Prove theorems about lines and angles (vertical angles are congruent; parallel lines cut by a transversal; perpendicular bisector properties).*		✓				✓			
HSG-CO.C.10 *Prove theorems about triangles (interior angle sum; base angles of isosceles triangles are congruent; midsegments; medians).*	✓	✓	✓	✓	✓	✓			
HSG-CO.C.11 *Prove theorems about parallelograms (opposite sides/angles congruent; diagonals bisect each other; rectangle diagonals congruent).*	✓	✓							
HSG-CO.D.12 *Make formal geometric constructions with a variety of tools and methods (copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines).*	✓								
HSG-CO.D.13 *Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.*									
HSG-GMD.A.1 *Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.*					✓	✓			
HSG-GMD.A.3 *Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*					✓				
HSG-GMD.B.4 *Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.*					✓				
HSG-GPE.A.1 *Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.*						✓	✓		
HSG-GPE.B.4						✓			

Use coordinates to prove simple geometric theorems algebraically.									
HSG-GPE.B.5 *Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.*						✓			
HSG-GPE.B.6 *Find the point on a directed line segment between two given points that partitions the segment in a given ratio.*						✓			
HSG-GPE.B.7 *Use coordinates to compute perimeters of polygons and areas of triangles and rectangles.*						✓			
HSG-MG.A.1 *Use geometric shapes, their measures, and their properties to describe objects.*	✓	✓		✓	✓		✓		
HSG-MG.A.2 *Apply concepts of density based on area and volume in modeling situations.*					✓				
HSG-MG.A.3 *Apply geometric methods to solve design problems.*	✓	✓	✓	✓	✓		✓		
HSG-SRT.A.1 *Verify experimentally the properties of dilations given by a center and a scale factor.*			✓						
HSG-SRT.A.1.a *A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.*			✓						
HSG-SRT.A.1.b *The dilation of a line segment is longer or shorter in the ratio given by the scale factor.*			✓						
HSG-SRT.A.2 *Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.*			✓						
HSG-SRT.A.3 *Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.*			✓						
HSG-SRT.B.4 *Prove theorems about triangles involving similarity (line parallel to one side divides the other two proportionally; Pythagorean Theorem proved using similarity).*	✓		✓						
HSG-SRT.B.5 *Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.*			✓	✓		✓	✓		
HSG-SRT.C.6 *Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.*				✓					
HSG-SRT.C.7 *Explain and use the relationship between the sine and cosine of complementary angles.*				✓					
HSG-SRT.C.8 *Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*				✓	✓		✓		
HSN-Q.A.1 *Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*			✓		✓	✓			
HSN-Q.A.2 *Define appropriate quantities for the purpose of descriptive modeling.*				✓					
HSN-Q.A.3 *Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.*		✓	✓	✓					
HSS-CP.A.1 *Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").*								✓	
HSS-CP.A.2								✓	

Understand that two events A and B are independent if the probability of both occurring together is the product of their probabilities, and use this characterization to determine if they are independent.									
HSS-CP.A.3 *Understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.*								✓	
HSS-CP.A.4 *Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.*								✓	
HSS-CP.A.5 *Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.*								✓	
HSS-CP.B.6 *Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.*								✓	
HSS-CP.B.7 *Apply the addition rule, P(A or B) = P(A)+P(B) - P(A and B) and interpret the answer in terms of the model.*								✓	
HSS-ID.A.1 *Represent data with plots on the real number line (dot plots, histograms, and box plots).*									✓
HSS-ID.A.2 *Use statistics appropriate to the shape of the distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more data sets.*									✓
HSS-ID.A.3 *Interpret differences in shape, center, and spread in context, including the effects of outliers.*									✓
HSS-ID.B.5 *Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.*								✓	

Unit Links

Geometry ACA/ACC
- Unit 1: Tools for Geometry (~8 blocks)
- Unit 2A: ACC Congruence (~7 blocks)
- Unit 2: Similarity (~12 blocks)
- Unit 3: Right Triangle Trigonometry (~9 blocks)
- Unit 4: Solid Geometry (~10 blocks)
- Unit 5: Coordinate Geometry (~9 blocks)
- Unit 6: Circles (~8 blocks)
- Unit 7: One Variable Statistics (~ 8 blocks)
- Unit 8: Conditional Probability (~6 Blocks)

Use of Instructional Time
(181 School Days = 90 blocks)
- Unit 1 - 8 blocks
- Unit 2A - 7 blocks (ACC only)
- Unit 2 - 12 blocks
- Unit 3 - 9 blocks
- Unit 4 - 10 blocks
- Unit 5 - 9 blocks
- Unit 6 - 8 blocks
- Unit 7 - 6 blocks
- Unit 8 - 8 blocks

ACC 77 blocks
ACA 70 blocks

At the teacher's discretion, remaining time will be utilized for creating a math community and responding to student performance on formative assessments. Additionally, time will be allotted for assessment review days (both to prepare for an assessment and to provide student feedback after an assessment).

Unit Title

Unit 1: Tools for Geometry - BPS Unit (~8 blocks)

Relevant Standards

G.CO.A.1 G.CO.B.9 G.CO.C.10
G.CO.C.11 G.CO.C.12 G.MG.A.1 G.MG.A.3

Essential Question(s)	Enduring Understanding(s)
• How do we use precise language and notation to communicate geometric ideas? • What relationships exist between angles formed by intersecting lines? • How can we determine if a set of measurements forms a valid geometric figure? • Why do angle measures in polygons follow predictable patterns? ***ACC Only*** • How do we know a statement is true in geometry—what is the difference between observing a pattern and proving it? • How do definitions, postulates, theorems, and corollaries work together to build geometric knowledge? • What role does logical reasoning play in constructing valid geometric arguments?	• Precise notation and language are essential for communicating and understanding geometric relationships. • Angles formed by intersecting lines have predictable relationships that can be used to solve problems and find unknown measures. • The sum of angles in any polygon follows a formula that depends only on the number of sides. • Triangles have special properties (angle sum, isosceles, inequality) that constrain their possible measurements. • Points and lines that divide figures into equal parts have special properties and applications. • The relationship between angle measures determines which side is longest and which angles are largest. ***ACC Only*** • Geometric truths can be established through logical reasoning, building from definitions and postulates to theorems. • Geometry is built on a foundation of undefined terms, definitions, postulates (assumptions), and theorems (proven statements). • Valid proofs require each statement to follow logically from previous statements, justified by definitions, postulates, or prior theorems.

Demonstration of Learning	Pacing for Unit

Students will have access to a variety of the following:
• iM Checkpoints
• Formative assessments throughout unit
• Periodic quizzes to check progress
Common Assessment
• End of Unit Assessment
  ○ Part 1: Pear Assessment - more straightforward, one or two steps
  ○ Part 2: On paper, mult-step
	8 Blocks (80 minute lessons)

Family Overview (link below)	Integration of Technology
Stats & Geo Family Overview (2026)	• Desmos • Pear Assessment • iM v.360 Digital Applets

Unit-specific Vocabulary		Aligned Unit Materials, Resources, and Technology (beyond core resources)
Complementary angles Supplementary angles Vertical angles Transversal Corresponding angles Alternate interior angles Triangle inequality theorem Midpoint	***ACC Only*** Undefined term Definition Postulate (or axiom) Theorem Corollary Conjecture Proof	N/A

Bisector Angle bisector Alternate exterior angles Perpendicular bisector Consecutive interior angles	Two-column proof Deductive reasoning Inductive reasoning	

Opportunities for Interdisciplinary Connections	Anticipated misconceptions
• Physics: Angle of incidence equals angle of reflection (vertical angles, supplementary angles) • Art: Perspective Drawings - Using angle relationships and parallel lines to create realistic depth • Geography: Using triangle properties to estimate distances on maps • Language Arts: Logical Arguments - Proof writing develops the same logical structure as persuasive essays or debates • Language Arts: Technical Writing - Learning to write clearly and justify claims is essential in many fields	• Using vertical angles for any two angles that look opposite. • Assuming corresponding or alternate angles are congruent without a parallel-line statement. • Believing the angle sum of every polygon is 360°. • Checking only one pair of sides for the Triangle Inequality (for example, 2 + 3 > 4 is enough). • Thinking complementary or supplementary angles must be adjacent. • Believing any line through a midpoint is the perpendicular bisector.

Connections to Prior Units	Connections to Future Units
• Grade 4: Point, line, segment, ray, angle • Grade 4-6: Degree measure • Grade 4-8: Parallel lines, perpendicular lines • Grade 6-7: Congruence • Grade 5-7: Triangle types (scalene, isosceles, equilateral, acute, right, obtuse) • Grade 3, 5-7: Quadrilaterals • Grade 7: complementary and supplementary angles and solving for unknown angle measures • Grade 8: angle relationships with parallel lines and transversals, and the triangle angle sum • Grade 8: linear equations, used to solve for unknown angles written as algebraic expressions.	• Unit 2A (ACC Congruence) and Unit 2 (Similarity): vertical, parallel-line, and triangle angle relationships justify congruent angles and the AA similarity criterion. • Unit 2 (Similarity), Lessons 7-8 (ACC): the Angle Bisector Theorem extends the angle bisector ideas from this unit. • Unit 3 (Trigonometry): complementary angles in a right triangle explain why the sine of one acute angle equals the cosine of the other. • Unit 5 (Coordinate Geometry): the midpoint from Lesson 6 and the perpendicular bisector idea reappear in coordinate form. • Unit 6 (Circles): the polygon angle sum from Lesson 5 supports the angle relationships of inscribed quadrilaterals.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Geometric Notation Scavenger Hunt" matching physical architectural structures (beams, corners, laser paths) to their formal symbols.	Interactive digital word wall and symbol decoder card displaying visual diagrams, symbolic names, and verbal descriptions side-by-side	Label a complex architectural blueprint digitally, build a physical pipe-cleaner diagram with written notation keys, or record a video walkthrough naming objects.
LT2	"Dynamic Angle Slider Lab" using GeoGebra or Desmos where moving one beam dynamically updates surrounding angle measures to uncover static sum patterns.	Color-coded angle pair graphic organizers highlighting adjacent vs. non-adjacent pairs and visual equation templates.	Solve multi-step angle puzzles using a choice of algebraic equation steps, narrated screen recordings, or physical equation-building tiles.
LT3	"City Street Grid Analysis" mapping parallel avenues and transversal streets to locate congruent traffic light angles and turn lanes.	Transparent color-coded overlays that slide along transversals to visually demonstrate how corresponding angles align directly on top of each other.	Create a digital decision tree flowchart or record a video explaining how to determine whether two lines are parallel based on given angle measurements.
LT4A	"Building Rules vs. Discoveries Debate" categorizing game rules (postulates/definitions) vs. strategies proven to always work (theorems).	Hierarchical taxonomy map with distinct visual icons categorizing Undefined Terms → Definitions → Postulates (assumed) → Theorems (proven).	Sort statement cards into correct logical categories using a drag-and-drop digital board or defend card placements in a peer Socratic circle.

LT5A	"Geometry Courtroom" role-play where students act as attorneys presenting step-by-step evidence to prove vertical angles or parallel lines "beyond a reasonable doubt."	Scaffolded two-column proof templates paired with a visual "Reason Bank" detailing allowed postulates, definitions, and prior theorems.	Construct proofs using a choice of physical statement/reason puzzle strips, digital flowchart proofs, or formal written two-column proofs.
LT6	"Rigid Structure Challenge" testing which combination of three side lengths or angle measures forms a valid, unshakeable triangle using physical strips.	Interactive dynamic applet showing the 180° tear-off angle sum visualization alongside formula cheat-sheets for Isosceles and Equilateral properties.	Solve missing side and angle tasks using a choice of written algebraic problem sets, digital whiteboard walkthroughs, or physical manipulative demonstrations.
LT7	"Structural Design Audit" evaluating why bridges and cranes use diagonal braces to turn quadrilaterals into rigid shapes.	Quadrilateral family tree infographic displaying nested properties (parallelograms, rectangles, rhombi, squares, trapezoids) with marked side/angle tick marks.	Construct an interactive geometry presentation or design a digital property-matching game that calculates unknown interior angles and side lengths.
LT8	"Map Logistics & Delivery Hub Challenge" finding the exact midpoint between two emergency response centers to minimize travel distance.	Step-by-step visual construction guide mapping segment bisectors and angle bisectors with color-coded congruent halves.	Demonstrate midpoint and bisector calculations using paper-folding (origami) proofs, digital compass/straightedge software constructions, or algebraic equation steps.
LT9A	"Axiomatic System Puzzle" analyzing what happens to geometric truths if a postulate is removed or changed (e.g., Euclidean vs. Non-Euclidean geometry).	Comparative matrix contrasting the origin, proof requirement, and logical hierarchy of geometric statements across polygon and triangle properties.	Create a digital infographic flowchart or record an audio podcast explaining how a new polygon theorem relies on underlying triangle postulates.
LT10A	"Mythbusters: Geometric Edition" investigating unproven geometric conjectures about triangles and quadrilaterals to confirm or disprove them logically.	Visual flowchart proof templates mapping the logical progression from Given Hypotheses → Intermediate Triangle Properties →Final Polygon Claim.	Deliver a formal written two-column proof, present an oral defense of a geometric proof, or create a video step-by-step proof breakdown.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can match geometric figures (points, lines, segments, rays, angles) to their correct symbols and names using visual reference cards.	I can name and label geometric objects (points, lines, segments, rays, angles) using proper symbols and sentence frames.	I can fluently translate between visual diagrams, written descriptions, and formal geometric notation for points, lines, segments, rays, and angles.
LT2	I can identify complementary, supplementary, vertical, and adjacent angles on a diagram using color-coding and visual guides.	I can set up simple equations to solve for missing angle measures using angle relationship templates and sentence frames.	I can solve multi-step algebraic problems to find missing angle measures and justify the geometric relationships used in writing.
LT3	I can identify matching parallel line angle pairs (alternate interior, corresponding, etc.) on a labeled diagram using color-coded cards.	I can use parallel line angle rules to find unknown angle measures using visual guides and sentence starters.	I can calculate unknown angle measures formed by parallel lines cut by a transversal and justify my reasoning using formal angle theorems.
LT4A	I can sort geometry statements into categories (definitions, postulates, theorems) using picture cards and a visual word bank.	I can distinguish between definitions, postulates, theorems, and corollaries using graphic organizers and sentence starters.	I can evaluate and explain the structural differences between definitions, postulates, theorems, and corollaries in mathematical logic.
LT5A	I can place pre-written proof steps in order using a visual flowchart and picture clues.	I can complete two-column geometry proofs using a given bank of statements and reasons with sentence frames.	I can construct independent, formal geometric proofs (two-column, paragraph, or flow proof) to justify geometric relationships.
LT6	I can label angle sums and side relationships on a triangle diagram using visual reference sheets.	I can calculate missing angles and sides of triangles using triangle theorems (Triangle Angle Sum, Isosceles Triangle Theorem) and step-by-step guides.	I can apply advanced triangle theorems and properties algebraically to calculate unknown side and angle measures with full written justifications.

LT7	I can sort shapes (parallelograms, rectangles, rhombuses, squares, trapezoids) and match their sides/angles to visual property cards.	I can use quadrilateral properties to find unknown side lengths and angle measures using structured templates and sentence starters.	I can write and solve algebraic equations to determine missing side and angle measures in various quadrilaterals, justifying each step with shape properties.
LT8	I can label the midpoint of a segment or the bisector of an angle on a diagram using visual markers.	I can write equations to find unknown segment lengths and angle measures using midpoint and bisector definitions with step-by-step frames.	I can solve multi-step algebraic equations involving segment/angle bisectors and midpoints, providing written explanations of my solutions.
LT9A	I can sort geometry statements into categories (definitions, postulates, theorems) using picture cards and a visual word bank.	I can distinguish between definitions, postulates, theorems, and corollaries using graphic organizers and sentence starters.	I can evaluate and explain the structural differences between definitions, postulates, theorems, and corollaries in mathematical logic.
LT10A	I can place pre-written proof steps in order using a visual flowchart and picture clues.	I can complete two-column geometry proofs using a given bank of statements and reasons with sentence frames.	I can construct independent, formal geometric proofs (two-column, paragraph, or flow proof) to justify geometric relationships.

Lesson Sequence	Learning Target	Success Criteria/Assessment
Section A	**Learning Target #1** I can use proper geometric notation and symbols (points, lines, segments, rays, angles) to identify and name geometric objects **Learning Target #2** I can use angle relationships to find missing measures. **Learning Target #3** I can use parallel line angle relationships to find unknown angle measures **Learning Target #4A** ***ACC Only*** I can distinguish between definitions, theorems, postulates, and corollaries **Learning Target #5A** ***ACC Only*** I can use logical arguments to prove geometric relationships.	**Lesson 1** • I can identify and define geometric objects • I can correctly label points, lines, segments, and rays using proper notation when given a diagram • I can name an angle three ways (vertex as middle point, or using three points) • I can measure angles and correctly classify them by type • I can identify parallel, perpendicular, and intersecting lines in a figure • ***ACC Only*** I can explain the difference between a definition and a postulate with examples • ***ACC Only*** I can identify whether a given statement is a definition, theorem, postulate, or conjecture, and justifies reasoning **Lesson 2** • I can identify complementary pairs (sum = 90°) and supplementary pairs (sum = 180°) in diagrams • I can write and solves linear equations of the form ax+b=c to find unknown angle measures • I can identify vertical angles formed by two intersecting lines • I can state that vertical angles are congruent and use this to find missing angle measures • I can solve multi-step problems involving two or more angle relationships • ***ACC Only*** I can write a formal proof that vertical angles are congruent using the definition of supplementary angles • ***ACC Only*** I can justify each step of their proof using definitions, postulates, or previously proven theorems • ***ACC Only*** I can apply the vertical angles theorem to solve more complex geometric configurations **Lesson 3** • I can identify and label corresponding, alternate interior, alternate exterior, and consecutive interior angles • I can state properties: corresponding angles are congruent, alternate interior angles are congruent, consecutive interior angles are supplementary • I can use angle properties and relationships to write and solve linear equations (2x+10=3x−5) to find angle measures • I can determine if two lines are parallel by checking if given

		angle pairs have the expected relationship • I can solve applied problems (e.g., finding angles in architectural designs with parallel lines) • ***ACC Only*** I can prove that corresponding angles are congruent (using properties of parallel lines and transversals) • ***ACC Only*** I can prove that alternate interior angles are congruent (using corresponding angles and vertical angles) • ***ACC Only*** I can explain why consecutive interior angles must be supplementary (using linear pairs and congruent angles) • ***ACC Only*** I can write formal proofs justifying why lines are parallel given angle relationships
Section B	**Learning Target #6** I can use theorems and properties of triangles to find angle and side measures. **Learning Target #7** I can use properties of quadrilaterals to find angle and side measures. **Learning Target #8** Use properties of midpoints and bisectors to find unknown angle and segment measures. **Learning Target #9A** ***ACC Only*** I can distinguish between definitions, theorems, postulates, and corollaries **Learning Target #10A** ***ACC Only*** I can use logical arguments to prove geometric relationships.	**Lesson 4** • I can find unknown angle measures of a triangle using the fact that all three interior angles sum to 180° • I can solve multi-step linear equations to find unknown angles (e.g., x+(x+20)+(x+10)=180) • I can classify triangles by both angle and side properties • I can use the isosceles triangle theorem to find unknown angles and sides • ***ACC Only*** I can prove the triangle sum theorem. • ***ACC Only*** I can prove the isosceles triangle theorem and its converse. **Lesson 5** • I can find unknown angle measures of a quadrilateral using the fact that all four interior angles sum to 360° • I can classify quadrilaterals by properties • I can solve linear equations with multiple steps to find angles in quadrilaterals • I can identify properties of special quadrilaterals (rectangles, rhombi, squares) and use them to find angles • ***ACC Only*** I can prove the quadrilateral angle sum theorem by dividing a quadrilateral into triangles • ***ACC Only*** I can explain why the formula is 360° by connecting it to the triangle sum theorem • ***ACC Only*** I can extend my reasoning to find angle sums in other polygons (pentagons, hexagons, etc.) **Lesson 6** • I can identify angle bisectors in diagrams and state that they divide an angle into two congruent parts • I can use angle bisector properties to find unknown angle measures • I can identify midpoints and the congruent segments formed by a midpoint of a line segment. • I can recognize midpoints and segment bisectors and use them to find segment lengths • ***ACC Only*** I can construct a perpendicular bisector and an angle bisector • ***ACC Only*** I can prove that all points on a perpendicular bisector are equidistant from the endpoints • ***ACC Only*** I can prove that an angle bisector divides the opposite side in the ratio of the adjacent sides (angle bisector theorem) **Lesson 7** • I can determine which side of a triangle is longest based on opposite angle measures. • I can check whether three given lengths can form a triangle by testing all three inequalities • I can find the range of possible values for the third side of a

		triangle • I can solve applied problems involving triangle inequality (e.g., "Can a ladder of length 20 reach a wall 18 ft away?") • ***ACC Only*** I can prove the triangle inequality theorem using the exterior angle theorem or distance properties • ***ACC Only*** I can prove that larger angles have longer opposite sides (and conversely) • ***ACC Only*** I can apply these theorems to prove properties of special triangles (isosceles, equilateral)

End of Unit Assessment

- Combine procedural skills (finding angles, solving equations) with conceptual understanding (explaining why theorems work)
- ***ACC Only:*** Include proofs. Separate scoring for proof reasoning, mathematical precision, and justification of steps

Unit Title	
Unit 2A (iM U2): Congruence (~7 blocks) ***ACC Only***	
Relevant Standards: Bold indicates priority	
G.CO.A.1 G.CO.A.5 G.CO.B.6 G.CO.B.7 G.CO.B.8 G.CO.C.9 G.CO.C.10 G.CO.C.11 G.MG.A.1 G.MG.A.3 N.Q.A.3	
Essential Question(s)	**Enduring Understanding(s)**
• What must be true about two triangles before we can say they are congruent? • How can a rigid motion show that two figures are congruent? • Why must a valid congruence criterion be established before we use corresponding parts? • How do we build a logical argument in which every claim is justified?	• Congruent figures have the same size and shape, which can be shown through rigid motions or by matching corresponding sides and angles. • Triangles are congruent when a specific set of three parts matches (SSS, SAS, ASA, or AAS); other combinations, such as SSA, do not guarantee congruence. • Once triangles are proven congruent, all of their corresponding parts are congruent (CPCTC). • A two-column proof is a logical argument in which each statement is justified by a definition, postulate, or previously proven result.
Demonstration of Learning	**Pacing for Unit**

Students will have access to a variety of the following:
• iM Checkpoints
• Formative assessments throughout unit
• Periodic quizzes to check progress
Common Assessment
• End of Unit Assessment
  ○ Part 1: Pear Assessment - more straightforward, one or two steps
  ○ Part 2: On paper, mult-step
	7 Blocks (80 minute lessons)

Family Overview (link below)	**Integration of Technology**
Stats & Geo Family Overview (2026)	• Desmos • Pear Assessment • iM v.360 Digital Applets
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Congruent figures Rigid motion Corresponding parts Congruence statement Included side Included angle SSS, SAS, ASA, AAS, CPCTC Two-column proof	N/A
Opportunities for Interdisciplinary Connections	**Anticipated misconceptions**
• Manufacturing and quality control: Interchangeable machine parts must be congruent to a specification, and inspectors check them against a template. • Textiles and quilting: Quilt blocks are cut as congruent triangles and squares, and pieces are sewn together along matching edges. • Architecture: Identical roof trusses and window frames are congruent, so builders can reuse one pattern. • Language arts: A two-column proof is a structured argument in which each claim needs a reason, just as	• Believing SSA or AAA proves triangles congruent. • Writing congruence statements with mismatched vertices, such as $\Delta ABC \cong \Delta EFD$ when angle A does not match angle E. • Accepting a figure as congruent because it looks the same or has tick marks, without a stated reason. • Thinking AAS requires the side to be included, or treating ASA and AAS as interchangeable. • Using CPCTC before the triangles are proven congruent. • Believing a reflection changes congruence, or that

a written argument needs evidence. • Computer-aided design: Designers copy and reflect shapes to create congruent parts for 3D printing.	congruent figures must have the same orientation.

Connections to Prior Units	Connections to Future Units
• Unit 1: triangle angle sum, vertical angles, and parallel-line angle relationships, which serve as reasons in congruence proofs. • Unit 1, Lesson 6: perpendicular and angle bisectors, which create congruent segments and angles. • Grade 8: rigid transformations (translations, reflections, rotations) and congruence described through them.	• Unit 2 (Similarity): the AA, SAS, and SSS similarity criteria mirror the congruence criteria, and CPCTC becomes corresponding sides are proportional. • Unit 5 (Coordinate Geometry): triangle proofs can be verified with coordinates and the distance formula. • Unit 6 (Circles): proofs about congruent chords, arcs, and triangles in circles use the same two-column structure.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Identical Logo Challenge" analyzing corporate logos or architectural trusses to identify identical interlocking triangles and matching parts.	Color-coded triangle congruence statements (e.g., Triangle ABC ≅ Triangle DEF) where matching vertices, angles, and sides share identical colors and tick marks.	Write six corresponding part statements (3 angles, 3 sides) from a given congruence statement, or construct a digital drag-and-drop matching puzzle.
LT2	"Rigid Structure Test" using physical snap-together geometry strips or popsicle sticks to test which combinations of 3 given parts create an unshakeable, rigid triangle.	Visual shortcut reference cards contrasting SSS (3 pairs of sides), SAS (included angle between two sides), and ASA (included side between two angles) with clear markings.	Sort diagram cards of triangle pairs into SSS, SAS, ASA, or "Not Enough Information" categories, justifying selections in writing or through an oral summary.
LT3	"Geometry Courtroom" role-play where students act as attorneys presenting step-by-step evidence to prove "beyond a reasonable doubt" that two triangles are congruent.	Scaffolded two-column proof templates paired with a "Reason Bank" (Given, Reflexive Property, Vertical Angles Theorem, Definition of Midpoint, SSS, SAS, ASA).	Complete a two-column proof by arranging physical/digital statement and reason strips, or draft a full handwritten proof from a labeled diagram.
LT4	"Land Surveyor Mystery" calculating an unreachable distance across a river or canyon by establishing congruent triangles and applying CPCTC (Corresponding Parts of Congruent Triangles are Congruent).	Flowchart proof visuals illustrating the logical chain: Given Info -> Triangle Congruence (SSS/SAS/ASA) -> CPCTC -> Final Segment/Angle Claim.	Write a complete proof utilizing CPCTC to show two segments or angles are congruent, or solve for an unknown algebraic variable using CPCTC equations.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can match corresponding angles and sides between two congruent triangles using color-coded cards and visual markers.	I can write and interpret congruence statements to list matching sides and angles using structured templates.	.I can write, interpret, and apply congruence statements to set up and solve for missing sides and angles of corresponding figures.
LT2	I can match labeled triangle diagrams to SSS, SAS, and ASA visual reference cards.	I can identify whether SSS, SAS, or ASA applies to a pair of triangles using a decision flowchart and sentence frames.	I can evaluate triangle diagrams and given information to determine and justify whether SSS, SAS, or ASA proves the triangles congruent.
LT3	I can put cut-out proof steps in order to complete a simple two-column triangle proof using picture clues.	I can fill in missing statements and reasons in a two-column triangle proof using a word/reason bank.	I can independently construct a complete two-column proof to justify whether two triangles are congruent.
LT4	I can identify CPCTC as the reason matching parts are equal after triangles are proven congruent using visual cards.	I can complete a multi-step proof using triangle congruence theorems and CPCTC using sentence starters and a reason bank.	I can construct a complete geometric proof using triangle congruence theorems and CPCTC to prove statements about specific angles and segments

Lesson Sequence	Learning Target	Success Criteria/Assessment
Section A	**Learning Target #1**	**Lesson 1**

	Write, interpret, and apply congruence statements that establish corresponding parts. **Learning Target #2** Identify situations where Side-Side-Side, Angle-Side-Angle, and Side-Angle-Side Triangle Congruence Theorems apply.	• I can identify corresponding parts from a congruence statement. • I can write a congruence statement. • I can explain why if all the corresponding sides and angles of two triangles are congruent, then the triangles are congruent. **Lesson 2** • I can explore triangle congruence conjectures using technology (e.g. Desmos). • I can explain what information is needed to prove two triangles are congruent. • I can use given information to mark a diagram and determine if any triangle congruence theorems apply.
Section B	**Learning Target #3** Justify whether or not triangles are congruent by reasoning through two column proofs. **Learning Target #4** Use triangle congruence theorems and CPCTC to prove statements about angles and segments.	**Lesson 3** • I can use properties of Isosceles, Equilateral, and right triangles to determine information needed to prove triangles congruent. • I can use the Side-Side-Side and Side-Angle-Side Triangle Congruence Theorems in proofs. • I can use the Angle-Side-Angle and Angle-Angle-Side Triangle Congruence Theorem in proofs. **Lesson 4** • I can use vertical angle relationships, the reflexive property, and other angle/segment relationships to determine information needed to prove triangles congruent. • I can use the Side-Side-Side and Side-Angle-Side Triangle Congruence Theorems in proofs. • I can use the Angle-Side-Angle and Angle-Angle-Side Triangle Congruence Theorem in proofs. **Lesson 5** • I can use triangle congruence theorems to prove that two triangles are congruent, and then apply CPCTC to prove that specific corresponding sides or angles are congruent or find missing measures.
End of Unit Assessment		

Unit Title	
Unit 2 (iM U3): Similarity (~12 blocks)	
Relevant Standards: Bold indicates priority	
HSA-CED.A.4 HSG-C.A.1 HSG-CO.C.10 HSG-MG.A.3 HSG-SRT.A.1 HSG-SRT.A.1.a HSG-SRT.A.1.b HSG-SRT.A.2 HSG-SRT.A.3 HSG-SRT.B.4 HSG-SRT.B.5 HSN-Q.A.1 HSN-Q.A.3	
Essential Question(s)	**Enduring Understanding(s)**
• What makes two figures similar, and how is similarity different from congruence? • How can a scale factor describe an enlargement or a reduction? • How can proportional reasoning help us find lengths we cannot measure directly? • Which measurements are enough to prove that two triangles are similar?	• Similar figures have the same shape: corresponding angles are congruent and corresponding sides are proportional. • A dilation with scale factor k multiplies every length by k, producing a figure similar to the original. • Similar triangles allow us to find heights, distances, and other lengths indirectly through proportions. • Two pairs of congruent angles (AA), three proportional sides (SSS), or two proportional sides with a congruent included angle (SAS) guarantee similarity.
Demonstration of Learning	**Pacing for Unit**

Students will have access to a variety of the following:
• iM Checkpoints
• Formative assessments throughout unit
• Periodic quizzes to check progress
Common Assessment
• End of Unit Assessment
  ○ Part 1: Pear Assessment - more straightforward, one or two steps
  ○ Part 2: On paper, mult-step
	12 Blocks (80 minute classes)

Family Overview (link below)	**Integration of Technology**
Stats & Geo Family Overview (2026)	• Desmos • Pear Assessment • iM v.360 Digital Applets
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Dilation Center of dilation Scale factor Similar figures Similarity transformation Scaled drawing Indirect measurement AA similarity SAS similarity SSS similarity Side-splitter theorem Angle Bisector Theorem (ACC) Altitude to the hypotenuse Geometric mean	N/A
Opportunities for Interdisciplinary Connections	**Anticipated misconceptions**
• Cartography: Map scales apply one constant scale factor, so distances on a map are proportional to real distances. • Photography and film: Enlarging, cropping, and projecting images are dilations, and a projected	• Believing similar figures must be the same size or the same orientation. • Inverting the scale factor, such as using original length over new length. • Believing SSA establishes similarity.

image is a scaled version of the original. • Astronomy: Eratosthenes estimated Earth's circumference by comparing shadow angles at two cities, using similar triangles and proportions. • Biology and medicine: Scaled microscope images and anatomical drawings preserve proportions so measurements can be converted to real sizes. • Forestry and surveying: Shadow measurements and sighting tools use similar triangles to find the heights of trees and buildings.	• Mixing segments in the side-splitter proportion, such as comparing a segment on one side to a whole side. • Mismatching corresponding sides in a proportion, such as a short side over a long side across triangles. • Applying altitude-to-hypotenuse relationships to a triangle that is not a right triangle. •

Connections to Prior Units	**Connections to Future Units**
• Unit 2A (ACC Congruence): the congruence criteria and corresponding-parts reasoning, which the similarity criteria mirror. • Unit 1: triangle angle sum and parallel-line angles, which justify AA similarity. • Grade 7: proportional relationships and scale drawings, which introduce the scale factor idea. • Grade 8: dilations and the Pythagorean Theorem.	• Unit 3 (Trigonometry): sine, cosine, and tangent are ratios that stay constant across similar right triangles. • Unit 4 (Solid Geometry): scale factors extend to area (k^2) and volume (k^3) for similar solids. • Unit 5 (Coordinate Geometry): dilations on the coordinate plane connect proportional reasoning to slope. • Unit 6 (Circles): all circles are similar, so arc length and sector area scale with the radius scale factor.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Photo Distortion Lab" analyzing digital images stretched non-proportionally vs. scaled uniformly to discover that similar shapes preserve angles while side lengths scale.	Side-by-side visual matrix showing original vs. dilated figures with color-coded congruent angles and scale factor multiplier arrows.	Perform a digital dilation using interactive applets or construct a physical scaled drawing, explaining why corresponding angles remain equal while side lengths scale.
LT2	"Map Scale & Architectural Blueprint Challenge" calculating actual building or landscape dimensions using scaled blueprints and map keys.	Color-coded ratio match templates pairing corresponding vertices from formal similarity statements directly to side-length proportions.	Write formal similarity statements and solve proportional equations for missing sides using a choice of algebraic worksheets, digital proportion builders, or video walkthroughs.
LT3	"Indirect Measurement Outdoor Lab" using tree shadows, ground mirror reflections, or clinometers to measure the unreachable heights of flagpole or building structures.	Visual reference cards contrasting the three triangle similarity criteria (AA~, SAS~, SSS~) with highlighted angle and side requirements.	Sort diagram cards into AA~, SAS~, SSS~, or "Not Similar" categories, or write and solve algebraic equations to calculate unknown side lengths.
LT4	"Overlapping Truss & Bridge Analysis" investigating structural bridge girders and nested shadows to untangle complex overlapping shapes.	Color-coded tracing overlays that visually separate overlapping triangles or altitude-to-hypotenuse figures into standalone, aligned shapes.	Redraw separated overlapping triangles and solve for missing segment lengths using side-splitter or geometric mean proportions.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can match corresponding angles and sides between a shape and its scaled copy using color-coded cards and visual guides.	I can describe similarity by explaining that corresponding angles are equal and corresponding sides are proportional using sentence frames.	I can define similarity in terms of angle congruence and side length proportionality to describe and justify relationships between figures and their scaled copies.
LT2	I can match similar shapes to their similarity statements and fill in pre-made proportional relationships to find missing side lengths.	I can write similarity statements and set up proportions to solve for missing side lengths using calculation templates.	I can express figure similarity using formal mathematical notation and solve complex proportional equations to calculate missing measurements with written justifications.
LT3	I can sort triangle pairs into "Similar" or "Not Similar" using visual criteria cards	I can determine if two triangles are similar using similarity shortcuts (AA,	I can prove two triangles are similar using AA, SAS, or SSS similarity criteria

	(AA, SAS, SSS) and match missing side values.	SAS, SSS) and find missing measures using guided step-by-step frames.	and algebraically solve for unknown angle and side measures.
LT4	I can trace overlapping triangles in different colors on a diagram and match their corresponding parts using visual cards.	I can separate and redraw overlapping triangles to prove they are similar and calculate missing side lengths using structured templates.	I can analyze complex figures with shared sides and angles to establish triangle similarity and solve for unknown measures using formal geometric reasoning.

Lesson Sequence	Learning Target	Success Criteria/Assessment
Section A	**Learning Target #1** Use relationships of angles and side lengths to define similarity and describe the relationship between figures and their scaled copies. **Learning Target #2** Represent the relationship between similar figures using formal notation and use proportional relationships to solve for missing measurements.	**Lesson 1 (iM Lesson 2)** • I can make observations of properties of similar figures through scale factors and dilations. • I can dilate a figure given a scale factor and a center. • I can calculate the lengths of parts of a scaled drawing. **Lesson 2 (iM Lesson 3)** • I can explain what happens to line segments and angles in a dilation. • I know the definition of similarity. • I can write a statement of proportionality for similar figures. **Lesson 3** • I can write similarity statements. • I know the relationships between corresponding sides and angles in similar figures. • I can solve for unknown side lengths in similar figures. • I can solve for unknown angle measures in similar triangles and quadrilaterals.
Section B	**Learning Target #3** Determine that two triangles are similar and find missing measures.	**Lesson 4** • I can explain why the Angle-Angle Triangle Similarity Postulate works. • I can explain why the Side-Angle-Side and Side-Side-Side Triangle Similarity Theorems work. **Lesson 5** • I can determine whether two triangles are similar using triangle similarity theorems and postulates. • I can find missing measures of similar triangles. **Lesson 6** • I can use indirect measurement to solve for unknown parts in similar triangles. • I can apply triangle similarity to real-life situations to calculate distances or heights that cannot be measured directly.
Section C	**Learning Target #4** Determine that two or more triangles that share sides and angles are similar and find missing measures.	**Lesson 7** • I can apply the side-splitter theorem to solve for unknown lengths in triangles. • ***ACC Only:*** I can apply the angle bisector theorem to solve for unknown lengths in triangles. **Lesson 8 (iM Lesson 13)** • I can find similar triangles formed by the altitude drawn to the hypotenuse of a right triangle. • I can solve problems involving similar right triangles.
End of Unit Assessment		

Unit Title	
Unit 3 (iM U4): Right Triangle Trigonometry (~9 blocks)	
Relevant Standards: Bold indicates priority	
HSA-CED.A.4 HSG-CO.A.2 HSG-CO.C.10 HSG-MG.A.1 HSG-MG.A.3 HSG-SRT.B.5 HSG-SRT.C.6 HSG-SRT.C.7 HSG-SRT.C.8 HSN-Q.A.2 HSN-Q.A.3	
Essential Question(s)	**Enduring Understanding(s)**
• How can the ratio of two sides of a right triangle describe one of its acute angles? • Why do sine, cosine, and tangent depend only on the angle and not on the size of the triangle? • How can we find unknown sides and angles of a right triangle? • How do trigonometric ratios help us solve real-world problems involving height, distance, and slope?	• The trigonometric ratios of an acute angle depend only on that angle, because similar right triangles have equal side ratios. • The Pythagorean Theorem relates the three sides of any right triangle and is the basis for finding unknown lengths. • The sine of an acute angle equals the cosine of its complement, reflecting the complementary relationship of the two acute angles in a right triangle. • Inverse trigonometric functions find an unknown angle from two known sides, and angles of elevation and depression model real-world situations.
Demonstration of Learning	**Pacing for Unit**

Students will have access to a variety of the following:
• iM Checkpoints
• Formative assessments throughout unit
• Periodic quizzes to check progress
Common Assessment
• End of Unit Assessment
  ○ Part 1: Pear Assessment - more straightforward, one or two steps
  ○ Part 2: On paper, mult-step
	9 Blocks (80 minute lessons)

Family Overview (link below)	**Integration of Technology**
Stats & Geo Family Overview (2026)	• Desmos • Pear Assessment • iM v.360 Digital Applets
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Hypotenuse Leg Opposite side Adjacent side Pythagorean Theorem Pythagorean triple Simplest radical form (ACC) Special right triangles (ACC) Sine Cosine Tangent Inverse trigonometric function Angle of elevation Angle of depression	N/A
Opportunities for Interdisciplinary Connections	**Anticipated misconceptions**
• Physics: Forces on a ramp or inclined plane are split into components using sine and cosine. • Civil engineering and construction: Road grades and	• Mixing up opposite and adjacent sides by using the position of the right angle instead of the reference angle.

roof pitches are slopes described by tangent, and accessibility ramps must meet specified slope ratios.
- Aviation: Pilots use descent angles and glide slopes, which are angles of depression measured from a horizontal line.
- Video game design: Character movement and aiming use sine and cosine to find horizontal and vertical components of direction.
- Astronomy and surveying: Angles of elevation measure the height of a tower, a mountain, or a star above the horizon.

- Believing sin A = cos A, or that sine and cosine of the same angle are interchangeable.
- Assuming trig ratios change with triangle size.
- Applying the Pythagorean Theorem to a non-right triangle, or naming the wrong side as the hypotenuse.
- Simplifying radicals incorrectly, such as $\sqrt{(9 + 16)} = 3 + 4$ **(ACC)**.
- Confusing angle of elevation with angle of depression.

Connections to Prior Units

- Unit 2 (Similarity): similar right triangles and the altitude-to-hypotenuse relationships explain why trig ratios depend only on the angle.
- Unit 1: complementary angles and the triangle angle sum, which underlie the complementary-angle relationship between sine and cosine.
- Grade 8: the Pythagorean Theorem and its applications, needed to find missing sides.
- Prior coursework: simplifying square roots, used for special right triangles and radical expressions **(ACC)**.

Connections to Future Units

- Unit 4 (Solid Geometry): the Pythagorean Theorem and trig ratios find heights and slant heights of pyramids and cones.
- Unit 5 (Coordinate Geometry): the distance formula is a Pythagorean Theorem application, and slope is the tangent of the angle of inclination.
- Unit 6 (Circles): radian measure extends the trig ideas to the unit circle.
- Future courses (Algebra 2 and Precalculus): trig functions, the unit circle, and the Law of Sines and Law of Cosines for non-right triangles.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1A	"Exact Measurement Audit" comparing exact radical values vs. rounded decimal approximations in architectural design and construction blueprints.	Visual prime factor tree templates and step-by-step radical simplification flowcharts highlighting perfect square factors	Solve radical expression sets using a choice of handwritten factor trees, digital drag-and-drop tile applets, or screencast walkthroughs.
LT2	"Ramp & Ladder Safety Inspection" testing whether wheelchair ramps and ladders meet safety code slope ratios using exact right triangle side measurements.	Color-coded Pythagorean Theorem formula scaffolds mapping legs vs. hypotenuse alongside visual square-grid area models.	Calculate missing side lengths using handwritten algebraic steps, digital calculator logs, or physical grid-manipulative demonstrations.
LT3	"Shadow Ratio Mystery" measuring outdoor shadows of objects of different heights at the same time of day to discover constant side ratios across similar triangles.	Color-coded SOH CAH TOA reference cards mapping opposite, adjacent, and hypotenuse relative to a targeted reference angle.	Construct a digital applet proving side ratios stay constant across similar right triangles or write a comparative ratio breakdown.
LT4	"Virtual Drone Flight Planner" calculating the horizontal distance needed to reach a targeted altitude given a fixed ascent angle.	Visual decision flowchart mapping given information (reference angle + 1 known side) to the correct trig ratio.	Solve for unknown side lengths using step-by-step handwritten algebra, calculator syntax logs, or student-recorded video tutorials.
LT5	"Crime Scene / Impact Angle Investigation" determining the trajectory angle of an object using horizontal and vertical impact distances.	Calculator key guide paired with labeled right triangle diagrams showing the unknown angle.	Submit solved angle problems via written algebraic equations, interactive Desmos models, or oral explanations.
LT6	"Co-Function Discovery Lab" using interactive geometry applets to slide an angle measure and observe its sine value continuously equal the opposite angle's cosine.	Dual-labeled right triangle diagram displaying complementary angles with matching color-coded side ratios.	Write a Claim-Evidence-Reasoning (CER) explanation or record a short video proving why the sine of an angle is equal to the cosine of its complementary angle.
LT7	"Surveyor & Aviation Challenge" measuring real school building heights or pilot descent paths using homemade clinometers and elevation angles.	Annotated real-world diagrams contrasting angle of elevation (looking up from horizontal) vs. angle of depression (looking down from horizontal).	Design a real-world trigonometry word problem portfolio, present a clinometer height lab report, or record a video solving a scenario.

Supporting Multilingual/English Learners (*CELP standards*)			
	Emerging	**Expanding**	**Bridging**
LT1A	I can simplify basic square roots using a perfect square visual reference card and prime factor tree templates.	I can evaluate and simplify radical expressions using radical multiplication and division properties with guided calculation steps.	I can independently apply properties of radicals to evaluate, simplify, and rationalize complex radical expressions with full written work.
LT2	I can label the legs and hypotenuse on a right triangle and solve for missing sides using a color-coded Pythagorean Theorem formula card.	I can use the Pythagorean theorem to calculate missing side lengths of right triangles using step-by-step problem templates.	I can calculate exact missing side lengths of right triangles algebraically, simplifying radicals and justifying each step.
LT3	I can label the opposite, adjacent, and hypotenuse sides of a right triangle relative to a reference angle using SOH CAH TOA visual cards.	I can set up sine, cosine, and tangent ratios for similar right triangles using SOH CAH TOA reference frames and side ratio templates.	I can apply geometric similarity in right triangles to derive, explain, and apply the sine, cosine, and tangent ratios in written detail.
LT4	I can select the correct trig ratio (sin, cos, or tan) and plug given values into a visual equation guide to find a missing side.	I can set up and solve trigonometric equations to calculate missing side lengths of right triangles using structured calculation frames.	I can select, set up, and algebraically solve trigonometric equations to find any missing side length of a right triangle with full written justifications.
LT5	I can use an inverse trig button guide to find a missing angle measure from a given side ratio.	I can set up and solve inverse trigonometric equations to calculate missing acute angle measures using structured templates.	I can evaluate side relationships to apply inverse trigonometric functions to find missing acute angles of right triangles with full algebraic reasoning.
LT6	I can match the sine of one acute angle to the cosine of the other acute angle in a right triangle using a color-coded diagram.	I can explain why the sine of an angle equals the cosine of its complementary angle using sentence frames and labeled right triangle diagrams.	I can prove and explain in detail why the sine of an angle is equal to the cosine of its complementary angle using right triangle side relationships and complementary angle definitions.
LT7	I can label real-world pictures (angles of elevation/depression, height, distance) to create a right triangle diagram using visual prompts.	I can solve real-world word problems involving height and distance using right triangle trig templates and sentence starters.	I can model, analyze, and solve complex real-world application problems involving angles of elevation and depression, justifying each step in context.

Lesson Sequence	Learning Target	Success Criteria/Assessment
Section A	**Learning Target #1A** ***ACC Only*** Use the properties of radicals to evaluate and simplify radical expressions. **Learning Target #2** Find missing side lengths of right triangles.	**Lesson 1A (ACC only)** • I can multiply, add, and divide expressions with square roots. • I can simplify square roots by rewriting them as the product of a square root of a perfect square and another number. • I can rationalize a denominator that contains a single radical. • I can recognize whether an expression is in simplest radical form and simplify it if it is not. **Lesson 2** (ACC 1 Day, ACA 2 Days, if needed) • I can identify the hypotenuse and legs of a right triangle. • I can apply the Pythagorean Theorem to find missing measures of right triangles. • I can recognize that an irrational number expressed as a radical is the most precise and that a decimal representation is an approximation. **Lesson 3 (ACC Only)** • I can discover the special right triangle relationships using the Pythagorean Theorem. • I can use special right triangle relationships to find missing measures.

Section B	**Learning Target #3** Apply relationships among similar right triangles to discover and apply cosine, sine, and tangent ratios. **Learning Target #4** Use trigonometric ratios to find missing side lengths of right triangles. **Learning Target #5** Use inverses of trigonometric ratios to find missing angle measures of right triangles.	**Lesson 4** ● I can compare the ratios of corresponding sides of similar triangles (e.g., opposite/hypotenuse) to show they are proportional. ● I can explain that because all right triangles with a common acute angle are similar, the ratios of their side lengths (trigonometric ratios) are constant regardless of the triangle's size. ● I can define the sine, cosine, and tangent ratios. **Lesson 5 (iM Lesson 6)** ● I can write an equation using trig functions to relate an angle and the ratio of two sides. ● I can find the missing side lengths of a right triangle when given one side length and one of its acute angles. **Lesson 6 (iM Lesson 10)** ● I can find the acute angles of a right triangle when given two side lengths.
Section C	**Learning Target #6** I can explain why $\sin(\theta)=\cos(90-\theta)$ **Learning Target #7** Use trigonometric functions to solve real-world problems involving height, distance, and angles.	**Lesson 7 (iM Lesson 8)** ● I can explain why the sine of an angle equals the cosine of its complement using geometric reasoning. **Lesson 8 (iM Lesson 7+)** ● I can write trigonometric equations to represent real-world situations involving height, distance, and angles. ● I can find the angle of elevation or depression or use the angle of elevation/depression to calculate heights and distances.
End of Unit Assessment		

Unit Title

Unit 4 (iM U5): Solid Geometry

(ACA ~10 blocks in S1, include on midterm) (ACC ~ 5 blocks in S1, 5 blocks in S2, not on midterm, give quiz)

Relevant Standards: Bold indicates priority

HSA-CED.A.2	HSA-SSE.A.1.a	HSA-SSE.A.1.b	HSF-IF.C.9	HSG-CO.C.10
HSG-GMD.A.1	HSG-GMD.A.3	HSG-GMD.B.4	HSG-MG.A.1	HSG-MG.A.2
HSG-MG.A.3	HSG-SRT.C.8	HSN-Q.A.1		

Essential Question(s)	Enduring Understanding(s)
• How do we determine the surface area and volume of three-dimensional figures? • What do the volume formulas for prisms, pyramids, cylinders, cones, and spheres have in common? • How does scaling a figure's dimensions by a factor affect its area and volume? • How can volume and density describe real objects?	• Surface area measures the total area covering a solid, and volume measures the space inside it; they are measured in square and cubic units. • Many volume formulas share the structure base area times height, and pyramids and cones hold one-third of the volume of prisms and cylinders with the same base and height. • When dimensions are scaled by k, area scales by k^2 and volume scales by k^3. • Cavalieri's principle lets us find the volume of an oblique solid from its base area and perpendicular height, and density connects mass to volume.
Demonstration of Learning	**Pacing for Unit**

Students will have access to a variety of the following:
• iM Checkpoints
• Formative assessments throughout unit
• Periodic quizzes to check progress
Common Assessment
• End of Unit Assessment
  ○ Part 1: Pear Assessment - more straightforward, one or two steps
  ○ Part 2: On paper, mult-step
	ACA
	• 10 blocks in Semester 1 (80 minute lessons)
	
	ACC
	• 5 blocks (Semester 1) and 5 blocks (Semester 2)
	• Ten 80 minute lessons

Family Overview (link below)	**Integration of Technology**
Stats & Geo Family Overview (2026)	• Desmos • Pear Assessment • iM v.360 Digital Applets
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Polyhedron Prism Pyramid Cylinder Cone Sphere Net Lateral area Surface area Slant height Oblique solid Cavalieri's principle Density Volume scale factor	N/A
Opportunities for Interdisciplinary Connections	**Anticipated misconceptions**
• Packaging and manufacturing: Companies design containers to hold a required volume with the least surface area, which lowers material cost.	• Forgetting the one-third in pyramid and cone volume formulas, or the four-thirds in the sphere formula. • Using slant height where the perpendicular height is

• Construction and civil engineering: Concrete footings, silos, and cylindrical water tanks are estimated with volume formulas. • Biology: Surface-area-to-volume ratios shrink as organisms grow, which affects heat loss and nutrient exchange in cells and animals. • Earth and physical science: Density identifies materials such as metals or minerals and helps estimate the mass of a rock sample. • Culinary arts: Bakers adjust recipes when changing pan size, since the volume of a similar pan scales with the cube of the scale factor.	needed, or the reverse. • Thinking doubling every dimension doubles volume or area. • Confusing surface area with volume, or using square units for volume. • Using the slanted side length of an oblique prism as its height. • Forgetting to take a square or cube root when solving for a radius or side from area or volume.
Connections to Prior Units	**Connections to Future Units**
• Grade 7: area and circumference of circles, and area and volume of prisms and cylinders. • Grade 7: nets of three-dimensional objects and surface area. • Unit 2 (Similarity): the scale factor concept, which this unit extends to area (k^2) and volume (k^3). • Unit 3 (Trigonometry): the Pythagorean Theorem and trig ratios used to find slant heights and heights of pyramids and cones.	• Unit 5 (Coordinate Geometry): area and perimeter of polygons on the coordinate plane use the area formulas from Unit 4. • Unit 6 (Circles): the circle area formula from this unit extends to sector area and arc length, and to the circular bases of cylinders and cones. • Future courses (Calculus): volumes of solids of revolution and cross-sections extend Cavalieri's principle.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Floor Plan & Turf Cost Challenge" calculating material costs to tile irregular rooms or resurface multi-shape athletic fields.	Color-coded formula cheat sheet visually decomposing composite 2D shapes into basic rectangles, triangles, and circles.	Calculate total area using handwritten grid decompositions, interactive Desmos geometry tools, or a video walkthrough explaining shape partitioning.
LT2 A	"Packaging & Gift Wrap Audit" investigating how manufacturing companies minimize cardboard waste when designing product boxes.	Unfoldable 3D physical nets and interactive digital 3D applets that map folded solid faces directly to flat 2D shapes.	Compute surface area using physical net cutouts, labeled color-coded diagrams, or step-by-step video demonstrations.
LT3	"Water Capacity & Displacement Lab" filling cylindrical containers and cone cups to compare actual liquid volume against calculated capacity.	Master volume visual organizer grouping solids by structural family V = BH vs. V = ⅓BH vs. $V=4/3\pi r^2$	Solve volume problems using handwritten algebraic equations, digital spreadsheet calculators, or audio/video explanations of formula selection.
LT4	"Stack of Cards / Cavalieri's Principle Experiment" sliding a deck of cards horizontally to demonstrate why slanting a shape (oblique) preserves its total volume.	Color-coded 3D diagrams illustrating additive composite shapes (solid + solid) vs. subtractive composite shapes (solid - cutout).	Build and calculate complex volumes using 3D modeling software (e.g., Tinkercad), physical block assemblies, or structured multi-step calculation sheets.
LT5	"Container Redesign Challenge" working backward from a required liquid volume constraint (e.g., 500 mL) to determine ideal cylinder height and radius.	Step-by-step literal equation flowchart displaying inverse algebraic operations (cube roots, square roots, division by π to isolate target variables.	Calculate missing dimensions using written algebraic inverse steps, digital algebra solvers, or student-created instructional guides.
LT6	"Dollhouse & Giant Prop Analysis" investigating how surface area and volume scale dramatically when shrinking or enlarging 3D models.	Visual scale factor comparison matrix highlighting linear (k), surface area (k^2), and volume (k^3) growth relationships.	Solve scaling problems by filling out dimensional ratio tables, building interactive GeoGebra scaling models, or recording a screencast explanation.
LT7	"Gold Bar vs. Fake Metal Mystery" weighing mystery metal blocks and computing density to verify if an object is pure gold or brass.	Color-coded Density Triangle visual scaffold paired with unit conversion reference charts.	Solve real-world density problems via written multi-step calculations, a lab report summary of physical samples, or a video explanation of buoyancy/density.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can match common 2D shapes (rectangles, triangles, circles, trapezoids) to their area formulas and calculate area using visual equation guides.	I can calculate the areas of common 2D shapes using step-by-step formula templates and sentence frames.	I can select and apply area formulas to compute exact and rounded areas of common 2D shapes, providing complete written work.
LT2A	I can match 3D net diagrams of prisms and pyramids to their 2D faces and add face areas using visual templates.	I can calculate the surface area of polyhedra using 3D nets, surface area formulas, and step-by-step calculation frames.	I can independently compute the total and lateral surface areas of complex polyhedra using formulas or nets, explaining each calculation step.
LT3	I can match 3D solid shapes to their volume formulas and plug in given dimensions using visual formula reference cards.	I can calculate the volume of prisms, pyramids, cylinders, cones, and spheres using structured formula templates.	I can select and apply correct formulas to calculate exact and approximate volumes of various 3D solids, writing full algebraic steps.
LT4	I can break composite 3D shapes into simpler solids using color-coded diagrams and visual shape cards.	I can calculate the volume of composite and oblique solids by adding/subtracting component volumes using guided templates.	I can analyze and compute the volumes of composite, oblique, and non-rectangular base solids using Cavalieri's principle and multi-step formula integration.
LT5	I can identify the missing measurement (height, radius, or base area) on a 3D diagram and use a simplified formula card to find it.	I can solve for an unknown dimension (like height or radius) when given the total volume using step-by-step equation templates.	I can algebraically rearrange volume formulas to calculate unknown linear dimensions of 3D solids, justifying each algebraic step.
LT6	I can match scale factors to area changes and volume changes using visual comparison charts.	I can calculate how changing scale factor affects the area and volume of similar solids using ratio templates and sentence frames.	I can analyze and apply scale factor relationships to compute areas, volumes, or scale factors of dilated 2D and 3D figures with complete written work.
LT7	I can calculate density using a D = m/V formula triangle card and match units to visual labels.	I can solve word problems involving density, mass, and volume using structured calculation frames and sentence starters.	I can apply the density formula) to solve multi-step real-world problems involving mass, volume, and material composition, explaining conclusions in context.

Lesson Sequence	Learning Target	Success Criteria/Assessment
Section A	**Learning Target #1** Find areas of common shapes. **Learning Target #2A** ***ACC Only*** Find the surface areas of polyhedra (triangular and rectangular prisms, square pyramids). **Learning Target #3** Find the volumes of triangular and rectangular prisms, square pyramids, cylinders, cones, and spheres. **Learning Target #4** Find the volumes of more complex solids, including composite solids, oblique solids, and pyramids, cones, and prisms with non-rectangular bases. **Learning Target #5** Use volume formulas to calculate unknown measurements when given a volume.	**Lesson 1** • I can use formulas to find the areas of circles, parallelograms, and triangles. • I can find the area of a triangle using the Pythagorean Theorem to find the altitude of the triangle. • **ACC Only**: I can use trigonometry to find the areas of triangles and parallelograms given angles and side lengths. • **ACC Only:** I can find the surface areas of polyhedra whose faces are triangles, rectangles, and parallelograms. **Lesson 2** • I can recognize and name rectangular prisms, rectangular pyramids, cones, spheres, and cylinders. • I can use the formulas for the volumes of rectangular prisms, rectangular pyramids, cones, spheres, and cylinders. • I can find the volumes of composite solids. **Lesson 3** • I can work backwards with a volume formula to calculate an unknown measurement.

		• I can use the Pythagorean Theorem to solve for an unknown measurement to find the volume of a pyramid or cone. **Lesson 4** • I can calculate the volume of a generalized prism (V = Bh) or pyramid (V = ⅓Bh) given information about its base and its height. • I can calculate the volume of an oblique prism, cylinder, or pyramid using Cavalieri's principle. • I can explain why an oblique solid has the same volume as a non-oblique solid with the same length, width, and height.
Section B	**Learning Target #6** Understand the relationships between areas and volumes of dilated figures and scale factors and use that to calculate areas, volumes, and scale factors. **Learning Target #7** Solve problems involving density, mass, and volume.	**Lesson 5** • I can calculate the area of a new 2-dimensional figure after it has been dilated • I can explain that if a two-dimensional shape is dilated by a scale factor of k, its area is multiplied by k^2. • I can work backwards from an area scaling to find a scale factor. **Lesson 6** • I can calculate the volume of a new 3-dimensional figure after it has been dilated • I can explain that if a three-dimensional shape is dilated by a scale factor of k, its volume is multiplied by k^3. • I can work backwards from a volume scaling to find a scale factor. • **ACC Only:** I can calculate the surface area of a scaled figure. **Lesson 7** • I can calculate the density of an object given its mass and volume or dimensions. • I can calculate the mass or volume of an object given its density.
End of Unit Assessment		

Unit Title				
Unit 5 (iM U6): Coordinate Geometry (~9 blocks)				
Relevant Standards: Bold indicates priority				
HSA-CED.A.2	HSA-CED.A.4	HSA-REI.C.7	HSA-SSE.A.1.a	HSA-SSE.A.2
HSA-SSE.B.3	HSF-IF.C.7	HSF-IF.C.7.b	HSG-C.A.2	HSG-CO.A.1
HSG-CO.A.5	HSG-CO.C.9	HSG-CO.C.10	HSG-GMD.A.1	HSG-GPE.A.1
HSG-GPE.B.4	HSG-GPE.B.5	HSG-GPE.B.6	HSG-GPE.B.7	

Essential Question(s)	Enduring Understanding(s)
• How can algebra describe geometric figures on the coordinate plane? • What does slope tell us about the relationship between two lines? • How can coordinates be used to prove geometric properties and to calculate distance, midpoint, and area? • How can the equations of circles and lines tell us where they intersect?	• Coordinates connect algebra and geometry: distance, midpoint, and slope are geometric measures calculated from coordinates. • Slope describes the steepness and direction of a line and determines whether lines are parallel or perpendicular. • A circle can be described algebraically by its center and radius, which lets us solve problems about where circles and lines meet. • Coordinate methods can prove geometric claims, and the number of solutions to a system shows how a line and a circle intersect.
Demonstration of Learning	**Pacing for Unit**

Students will have access to a variety of the following:
• iM Checkpoints
• Formative assessments throughout unit
• Periodic quizzes to check progress
Common Assessment
• End of Unit Assessment
  ○ Part 1: Pear Assessment - more straightforward, one or two steps
  ○ Part 2: On paper, mult-step
	9 Blocks (80 minute lessons)

Family Overview (link below)	**Integration of Technology**
Stats & Geo Family Overview (2026)	• Desmos • Pear Assessment • iM v.360 Digital Applets
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Coordinate plane Slope Rise and run Point-slope form Parallel lines Perpendicular lines Midpoint formula Distance formula Equation of a circle Center and radius System of equations	N/A
Opportunities for Interdisciplinary Connections	**Anticipated misconceptions**
• GPS and mapping: Coordinates locate places on a map, and the distance formula estimates the straight-line distance between two locations. • Economics and business: Slope is a rate of change, such as the cost per mile for a rideshare or the price per pound at a store.	• Reversing rise and run, or mixing the order of x- and y-differences in slope. • Believing perpendicular lines have the same slope, or the same negative slope. • Forgetting the square root in the distance formula, or dropping a negative sign on a coordinate.

• Physics: On a position-time graph, slope is velocity, and the distance formula gives displacement in two dimensions. • Telecommunications and emergency services: A cell tower's coverage area is a circle, and overlapping circles help locate a phone. • Computer graphics and game design: Shapes are defined by coordinates, midpoints locate centers, and distance checks detect collisions.	• Averaging only one coordinate, or mixing x-values and y-values in the midpoint formula. • Writing a circle equation with the wrong sign on the center, or using r instead of r^2. • Assuming a line and a circle always intersect at two points.
Connections to Prior Units	**Connections to Future Units**
• Grade 8: slope and linear equations and graphs of linear relationships. • Grade 8: the Pythagorean Theorem, which the distance formula is built on. • Unit 1, Lesson 6: midpoints and perpendicular bisectors, now expressed with coordinates. • Unit 4 (Solid Geometry): area formulas, used for polygons on the coordinate plane in Lessons 4-6.	• Unit 6 (Circles): circle equations and tangent lines rely on the radius being perpendicular to the tangent, which uses the perpendicular slopes from this unit. • Unit 6 (Circles), Lesson 5 (ACC): finding the center of a circumscribed circle uses perpendicular bisectors on the coordinate plane. • Future courses (Algebra 2 and Precalculus): conic sections and systems of nonlinear equations extend the circle and line work. • Unit 8 (One Variable Statistics): limited direct link; coordinate-plane reasoning supports later work with scatter plots and linear models.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Ramp Steepness & Rate of Change Audit" evaluating skateboard ramps, roof pitches, or hill gradients to connect physical steepness to positive, negative, zero, or undefined slope values.	Color-coded rise-over-run visual scaffolds mapping graph stair-steps directly to ordered pair coordinates and slope-intercept equations.	Calculate slope using a choice of digital Desmos slope sliders, physical rise/run counting grids, or handwritten algebraic slope formulas.
LT2	"Rideshare Rate Comparison" comparing price-per-mile rates across different linear graphs, tables, and equations to identify which service has the steeper slope.	Multi-modal comparative matrix displaying the same line across four distinct formats: a coordinate graph grid, an (x, y) table, ordered pairs, and a solved equation.	Identify and compare slopes across varying formats by completing interactive matching cards, recording audio justifications, or solving written practice sets.
LT3	"GPS Route Tracker" fixing a known reference point on a coordinate map and tracking motion using a constant heading or slope direction.	Color-coded visual template for point-slope form with highlighted slots for the given point coordinates and slope.	Construct point-slope equations using drag-and-drop digital equation builders, handwritten substitution templates, or student-recorded screencasts.
LT4	"Architectural Grid Alignment Challenge" testing whether structural beams on a coordinate blueprint are parallel (equal slopes) or perpendicular (opposite reciprocal slopes).	Visual decision flowchart guiding algebraic rearrangement of standard form Ax + By = C to y = mx + b alongside visual slope comparison rules.	Sort equation pairs into parallel, perpendicular, or intersecting categories using physical sorting cards, Desmos graphing checks, or written algebraic proofs.
LT5	"Robotic Path Navigation" programming a drone flight path to move parallel or perpendicular to an existing boundary line through a specific waypoint coordinate.	Scaffolded step-by-step graphic organizer isolating the target slope (same or opposite reciprocal) and plugging it into a point-slope form scaffold.	Deliver line equations through handwritten multi-step algebraic work, interactive digital geometry software, or peer-led whiteboard demonstrations.
LT6	"Emergency Response Logistics" locating the exact geographic midpoint between two hospitals or calculating straight-line flight distances between emergency calls.	Dual-view reference card linking the distance formula directly to the Pythagorean Theorem alongside a visual coordinate-averaging model for midpoints.	Calculate distances and midpoints using physical grid tracing, step-by-step formula worksheets, or audio explanations of missing endpoint logic.
LT7	"5G Tower Coverage Audit" testing whether specific neighborhood coordinates fall inside, outside, or	Color-coded circle equation scaffold mapping center coordinates and radius directly to a graph visualization.	Write circle equations and test coordinate points via written algebraic substitution, digital GeoGebra circle

	directly on the circular perimeter of a cell tower zone.		tools, or video tutorial explanations.
LT8	"Radar Target Identification" decoding standard-form radar equations to locate storm centers and plot weather radii on a digital navigation grid.	Annotated sign-flip guide emphasizing why $(x - h)^2$ yields a h center coordinate, paired with visual step-by-step graphing directions.	Graph circles and extract features using handheld compasses on graph paper, interactive graphing apps (Desmos), or student-led visual presentations.
LT9A	"Property Land Survey Mystery" evaluating boundary coordinate plots to classify real estate parcels and compute total taxable land area.	Quadrilateral classification flowchart matching required coordinate checks (distance formula for side/diagonal lengths, slope formula for parallel/perpendicular sides).	Construct coordinate proofs and area calculations using structured multi-step proof templates, digital whiteboard walkthroughs, or formal written arguments.
LT10	"Asteroid Trajectory & Defense Tracking" modeling linear flight paths intersecting circular planetary defense shields to find exact collision points.	Multi-representation visual chart showing 0, 1 (tangent), or 2 intersection points graphically alongside algebraic substitution scaffolds.	Solve systems using algebraic substitution, digital Desmos intersection checks, or student-recorded video tutorials.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can find the slope (rise over run) from a graph or two points using visual templates and a slope formula card.	I can calculate the slope of a line from graphs, ordered pairs, and linear equations using step-by-step calculation frames.	I can determine and explain the slope of a line represented as a graph, pair of coordinates, or linear equation.
LT2	I can identify positive, negative, zero, or undefined slopes from graphs and equations using a visual reference guide.	I can find and compare slopes from graphs, ordered pairs, and equations using structured calculation templates.	I can evaluate and calculate the slope of a line from any given representation (graph, ordered pairs, or equation) with algebraic precision.
LT3	I can match a point and slope to their places in a point-slope formula template.	I can write and interpret the equation of a line in point-slope form using given points and slopes with sentence frames.	I can write, interpret, and convert equations of lines in point-slope form, explaining what the point and slope represent in context.
LT4	I can sort pairs of lines into parallel (same slope), perpendicular (opposite reciprocal), or neither using a visual checklist.	I can find slope from standard form ($Ax + By = C$) and determine if lines are parallel, perpendicular, or neither using structured templates.	I can convert standard-form equations to identify slopes and algebraically justify whether two lines are parallel, perpendicular, or neither.
LT5	I can write a new line equation using a target slope card and point-slope template with step-by-step visual prompts.	I can write the equation of a line parallel or perpendicular to a given line through a specific point using guided equation frames.	I can construct the equation of a line parallel or perpendicular to a given line through any given point, justifying my algebraic steps.
LT6	I can calculate distance and find midpoints on a grid using color-coded formula cards for distance and midpoint.	I can use the midpoint and distance formulas to calculate segment lengths, midpoints, and missing endpoints using step-by-step frames.	I can apply the distance and midpoint formulas algebraically to solve complex coordinate problems, including finding missing endpoints.
LT7	I can plug center and radius into a color-coded circle formula card.	I can write a circle's equation from its center and radius, and check if a point lies on it using a guided checklist.	I can write the equation of a circle given its center and radius, and algebraically test whether specific coordinate points lie on, inside, or outside the circle.
LT8	I can identify the center and radius from a circle equation and plot it on a grid using a visual step guide.	I can determine the center and radius from a circle equation and graph the circle using a coordinate template.	I can extract the center and radius from any standard-form circle equation and accurately graph the circle on the coordinate plane.
LT9A	I can calculate perimeter by counting grid units or using a distance formula template, and match shapes to property cards.	I can calculate area and perimeter from vertex coordinates and complete guided proofs to classify quadrilaterals using graphic organizers.	I can use coordinate geometry (distance, slope, midpoint) to calculate area and perimeter and write formal proofs classifying specific quadrilaterals.
LT10	I can identify intersection points of a line and a circle on a graph using visual markers and solution templates.	I can solve a system with a line and a circle graphically or algebraically using step-by-step substitution templates.	I can algebraically solve systems of equations involving a circle and a line, finding all intersection points and interpreting the solutions.

Lesson Sequence	Learning Target	Success Criteria/Assessment
Section A	**Learning Target #1** Determine the slope of a line from graphs, ordered pairs, and linear equations. **Learning Target #2** Determine the slope of a line from graphs, ordered pairs, and linear equations. **Learning Target #3** Write and interpret the equation of a line in point-slope form. **Learning Target #4** Find the slope of a line from an equation in standard form, and determine whether two lines are parallel, perpendicular, or neither. **Learning Target #5** Write the equation of a line that is parallel or perpendicular to a given line and passes through a given point. **Learning Target #6** Find the midpoint of a segment, find a missing endpoint from one endpoint and the midpoint, and calculate the distance between two points.	**Lesson 1 (iM Lesson 9)** • I can find the slope of the line segment between two points on a coordinate plane. • I can find the slope of the line segment between two points when given their coordinates. • I can write or interpret the equation of a line in point-slope form. **Lesson 2 (iM Lesson 10, 11, & 12)** • I can find the slope of a line from an equation in standard form. • I can determine whether two equations represent lines that are parallel, perpendicular, or neither. • Given the equation of a line and the coordinates of a point, I can write the equation of a line that is parallel or perpendicular to the given line and which passes through the given point. **Lesson 3 (iM Lesson 15)** • I can find the midpoint of a segment using the midpoint formula • I can find endpoint coordinates when given one endpoint and the midpoint • I can calculate the distance between two points on a graph or from their coordinates.
Section B	**Learning Target #7** Determine whether a point lies on a circle, and write the equation of a circle from its center and radius. **Learning Target #8** Find the center and radius of a circle from its equation, and graph a circle from its standard-form equation. **Learning Target #9A** ***ACC Only*** Find the area and perimeter of triangles and quadrilaterals from their vertex coordinates, and prove whether a quadrilateral is a square, rectangle, rhombus, parallelogram, or trapezoid **Learning Target #10** Solve a system of equations involving a circle and a line.	**Lesson 4 (iM Lesson 4)** • I can determine whether a point is on a circle with a given radius and center. • I can write the equation of a circle with a given radius and center • I can determine the radius and center of a circle when given its equation. **Lesson 5 (ACC Only) (iM Lesson 14 & 18)** • I can find the area and perimeter of quadrilaterals and triangles when given the coordinates of their vertices. • I can determine whether a shape is a square, rectangle, rhombus, parallelogram, or trapezoid, and if so, prove it. **Lesson 6 (iM Lesson 13)** • I can graph an equation of a circle given its equation in standard form. • I can find the solution to a system of equations involving a circle and a line. (Desmos can be introduced)
End of Unit Assessment		

Unit Title	
Unit 6 (iM U7): Circles (~8 blocks)	
Relevant Standards: Bold indicates priority	
HSA-SSE.A.1 HSA-SSE.A.1.b HSG-C.A.2 HSG-C.A.3 HSG-C.B.5 HSG-CO.A.2 HSG-MG.A.1 HSG-GPE.A.1 HSG-MG.A.3 HSG-SRT.C.8 HSG-SRT.B.5	
Essential Question(s)	**Enduring Understanding(s)**
• What relationships exist among angles, arcs, chords, and tangent lines in a circle? • How does the radius of a circle determine its arc lengths and sector areas? • How does the geometry of circles describe real objects such as wheels, gears, and arches? • What makes a point equidistant from the vertices or from the sides of a triangle?	• Angles in a circle are determined by the arcs they intercept: a central angle equals its arc, and an inscribed angle equals half its arc. • A tangent line is perpendicular to the radius at the point of tangency, connecting circle geometry to perpendicular relationships. • Arc length and sector area are fractions of the circumference and area of the whole circle, determined by the central angle. • The circumcenter and incenter are points of concurrency defined by perpendicular bisectors and angle bisectors, and they are equidistant from the vertices or the sides, respectively **(ACC).**
Demonstration of Learning	**Pacing for Unit**

Students will have access to a variety of the following:
• iM Checkpoints
• Formative assessments throughout unit
• Periodic quizzes to check progress
Common Assessment
• End of Unit Assessment
  ○ Part 1: Pear Assessment - more straightforward, one or two steps
  ○ Part 2: On paper, mult-step
	8 Blocks (80 minute lessons)

Family Overview (link below)	**Integration of Technology**
Stats & Geo Family Overview (2026)	• Desmos • Pear Assessment • iM v.360 Digital Applets
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Circle Chord Diameter Arc Central angle Inscribed angle Inscribed polygon Tangent line Secant Circumscribed circle Circumcenter (ACC) Incenter (ACC) Arc length Sector Segment of a circle Annulus	N/A
Opportunities for Interdisciplinary Connections	**Anticipated misconceptions**
• Engineering and mechanics: Gears, pulleys, and	• Thinking an inscribed angle equals its intercepted arc

bicycle wheels link rotations through arc length; a larger wheel travels farther per turn. • Architecture: Rotundas, arches, and rose windows use central and inscribed angles to create symmetric circular layouts. • Physics: Circular motion is often measured in radians, where arc length equals radius times angle, which previews radian measure. • Data visualization and food: Pie charts and pizza slices show sector area as a fraction of the whole circle. • Navigation and astronomy: Distances along Earth's surface are arc lengths on a great circle, computed with Earth's radius.	rather than half of it. • Confusing arc measure (degrees) with arc length (linear units), or skipping the fraction of the circle. • Believing any line that touches a circle is tangent, or that the radius need not be perpendicular to the tangent. • Thinking opposite angles of an inscribed quadrilateral are equal rather than supplementary. • Confusing the circumcenter (perpendicular bisectors) with the incenter (angle bisectors) **(ACC)**. • Computing segment area with the wrong triangle, or using the diameter where the radius is needed.
Connections to Prior Units	**Connections to Future Units**
• Unit 1: triangle and polygon angle sums and perpendicular bisectors, used for inscribed polygons and circumcenters. • Unit 2 (Similarity): scale factors on radii, which explain why arc length and sector area scale with the radius. • Unit 4 (Solid Geometry): the area of a circle, from the circular bases of cylinders and cones. • Unit 5 (Coordinate Geometry): circle equations (Lessons 4-6) and perpendicular slopes for tangent lines.	• Unit 7 (Conditional Probability): Venn diagrams are often drawn with circles, so region-based reasoning carries over. • Unit 8 (One Variable Statistics): pie charts depend on sector reasoning; a limited but useful link for data displays. • Future courses (Algebra 2 and Precalculus): radian measure, the unit circle, and conic sections extend this unit.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Ferris Wheel & Target Audit" analyzing physical circular structures (wheel spokes, outer rims, pie cuts) to connect real-world objects to geometric terms.	Color-coded visual diagram key displaying circle parts with symbol decoder cards.	Label circle features using interactive digital drag-and-drop matching cards, physical string-and-peg circle boards, or a video walkthrough.
LT2	"Theater Sightlines Investigation" analyzing why seats along the same circular row subtend the exact same stage angle (inscribed angle theorem).	Dynamic GeoGebra visual applet showing inscribed angles alongside color-coded formula guides.	Solve angle/arc puzzles using written algebraic steps, audio/video recordings explaining the 2:1 relationship, or digital whiteboard demonstrations.
LT3	"Codebreaker Circle Challenge" solving interconnected algebraic expressions around a circular lock dial to reveal mystery combination codes.	Color-coded equation template mapping linear expressions directly to their corresponding geometric circle relationships.	Demonstrate solutions using step-by-step written algebra sheets, interactive Desmos solvers, or peer explanation recorded on video.
LT4A	"Geometry Detective Case" investigating why inscribed angles subtending a diameter always form a right triangle (Thales's Theorem).	Scaffolded flowchart proof templates visualizing the logical connection from isosceles radius triangles to the final inscribed angle proof.	Complete two-column proofs using physical statement/reason cards, digital flowchart builders, or handwritten formal proofs.
LT5	"Satellite Orbit & Horizon Test" modeling signal transmission lines tangent to Earth's circular surface to find distance to the horizon.	Labeled right triangle diagram visual highlighting the mandatory right angle formed where a tangent line meets a radius at the point of tangency.	Calculate missing side lengths or angles using the Pythagorean Theorem, digital software constructions, or narrated video walkthroughs.
LT6	"Cyclic Quadrilateral Architectural Design" analyzing stained glass rose windows to uncover why opposite corners always sum to 180°	Color-coded opposite angle pairing scaffolds paired with highlighted intercepted arc overlays.	Solve for missing angles using written linear equations, interactive geometry applets, or oral justifications in a small group.
LT7A	"Cell Tower / Search & Rescue Location Challenge" finding the exact equidistant point (circumcenter) to build a station serving three cities.	Step-by-step visual compass-and-straightedge construction guide detailing perpendicular bisector intersection (circumcenter) and angle bisector properties.	Construct circumscribed circles using physical compass/straightedge paper folds, GeoGebra digital tools, or a narrated screencast construction guide.

LT8	"Pizza Crust & Sprinkler Coverage Audit" calculating crust length vs. slice area, or lawn area watered by a rotating sprinkler head.	Visual fraction-of-circle reference cards mapping central angle ratios directly to circumference and area formulas.	Compute arc lengths and sector/segment areas using structured formula calculation sheets, spreadsheet tools, or student-created video tutorials.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging
LT1	I can match circle parts (chords, arcs, central angles, radii, secants) to their correct symbols and names using visual reference cards and color-coded diagrams.	I can name and label chords, arcs, central angles, and circle segments using proper notation and sentence frames.	I can fluently identify, label, and distinguish all circle components using formal geometric notation in complex multi-step diagrams.
LT2	I can identify central and inscribed angles on a circle diagram and match them to visual formula cards.	I can calculate central and inscribed angle and arc measures using guided calculation frames and sentence starters.	I can analyze relationships between central and inscribed angles to determine missing angle and arc measures with full mathematical justifications.
LT3	I can set up simple algebraic equations for circle angles and arcs using color-coded diagram templates and formula cards.	I can solve multi-step algebraic equations to find unknown circle angle and arc measures using step-by-step calculation frames.	I can write, solve, and verify complex algebraic equations representing intersecting circle lines, angles, and arcs, explaining each step in writing.
LT4A	I can arrange cut-out proof steps in order to demonstrate an angle or arc relationship in a circle using visual clues.	I can complete missing statements and reasons in two-column circle proofs using a given reason bank and sentence starters.	I can independently construct formal geometric proofs (two-column or paragraph) to prove angle, arc, chord, and secant relationships in circles.
LT5	I can label right angles where a tangent line touches a radius using visual cards and solve for missing sides using Pythagorean Theorem templates.	I can calculate missing angles and side lengths created by tangent lines and radii using Pythagorean theorem templates and sentence frames.	I can apply tangent line properties (perpendicularity to radii, tangent segments from external points) to solve complex multi-step geometric problems with complete justifications.
LT6	I can identify opposite angles of a cyclic quadrilateral using color-coding and set them equal to 180° with a formula card.	I can set up and solve equations to find missing angles of inscribed quadrilaterals using supplementary angle rules and sentence starters.	I can explain why opposite angles of inscribed quadrilaterals are supplementary and calculate all unknown angles algebraically with written explanations.
LT7A	I can follow step-by-step visual picture cards to construct a circumscribed circle using a compass and straightedge.	I can construct a circumscribed circle and describe why perpendicular bisectors intersect at the circumcenter using sentence frames and guided templates.	I can execute geometric constructions with precision and write formal logical arguments explaining concurrency of perpendicular bisectors and the angle bisector theorem.
LT8	I can match geometric figures (sectors, segments, annuli) to their color-coded area/length formula cards and plug in given numbers.	I can calculate arc lengths, sector areas, segment areas, and annulus areas using step-by-step formula templates and sentence starters.	I can compute exact and rounded arc lengths, sector areas, segment areas, and annulus areas in complex composite figures, showing all algebraic steps.

Lesson Sequence	Learning Target	Success Criteria/Assessment
Section A	**Learning Target #1** Name chords, arcs, central angles, and segments of circles using correct notation. **Learning Target #2** Calculate central and inscribed angle measures and arc measures using the relationship between central and inscribed angles. **Learning Target #3**	**Lesson 1 (iM Lesson 1)** • I know what chords, arcs, and central angles are. • I can use correct notation to name segments, arcs, and angles related to circles. **Lesson 2 (iM Lesson 2)** • I can use the relationship between central and inscribed angles to calculate angle measures. • **ACC** I can prove angle and arc relationships in a circle. • I can use algebraic expressions along with angle and arc relationships to determine missing measures.

	Solve for unknown angle and arc measures when they are written as algebraic expressions. **Learning Target #4A** ***ACC Only*** Prove angle and arc relationships in a circle**.** **Learning Target #5** Use the relationship between tangent lines and radii to calculate angle measures and side lengths.	**Lesson 3 (iM Lesson 3)** ● I can use the relationship between tangent lines and radii to calculate angle measures. ● I can use the relationship between tangent lines and radii to calculate side lengths.
Section B	**Learning Target #6** Calculate missing angle measures of a quadrilateral inscribed in a circle using opposite angles and intercepted arcs. **Learning Target #7A** ***ACC Only*** Construct the circumscribed circle of a triangle, and explain why the perpendicular bisectors of its sides meet at one point and why any point on an angle bisector is equidistant from the rays that form the angle. **Learning Target #8** Calculate arc lengths, sector areas, segment areas, and annulus areas.	**Lesson 4 (iM Lesson 4)** ● I can use the relationship between opposite angles in a quadrilateral inscribed in circles to find missing angle measures. ● I can use arc measures and inscribed angles to calculate missing angle measures of an inscribed quadrilateral. **ACC Lesson 5 (iM Lesson 5 & 6)** ● I can construct the circumscribed circle of a triangle. ● I can explain why the perpendicular bisectors of a triangle's sides meet at a single point. ● I can explain why the angle bisectors of a triangle meet at a single point. ● I know any point on an angle bisector is equidistant from the rays that form the angle. **Lesson 6 (iM Lesson 8)** ● I can calculate lengths of arcs and areas of sectors in circles. ● I can calculate the area of a segment of a circle. ● I can calculate the area of the annulus of a circle.
End of Unit Assessment		

Unit Title	
Unit 7 (iM U8): Conditional Probability (~6 Blocks)	
Relevant Standards: Bold indicates priority	
HSS-CP.A.1 HSS-CP.A.2 HSS-CP.A.3 HSS-CP.A.4 HSS-CP.A.5 HSS-CP.B.6 HSS-CP.B.7 HSS-ID.B.5	
Essential Question(s)	**Enduring Understanding(s)**
• How does knowing that one event has occurred change the probability of another event? • How do we decide whether two events are independent? • How can two-way tables and Venn diagrams help us organize outcomes and calculate probabilities of combined events? • Why does it matter which group or condition a probability is measured within?	• Information about one event can change the probability of another, which is what conditional probability measures. • Two events are independent when P(A and B) = P(A) × P(B), and mutually exclusive events cannot both occur. • Two-way tables and Venn diagrams organize outcomes so that probabilities of "and," "or," and conditional events can be calculated. • Confusing which group a conditional probability refers to leads to incorrect conclusions in medicine, law, and everyday decisions.
Demonstration of Learning	**Pacing for Unit**

Students will have access to a variety of the following:
• iM Checkpoints
• Formative assessments throughout unit
• Periodic quizzes to check progress
Common Assessment
• End of Unit Assessment
  ○ Part 1: Pear Assessment - more straightforward, one or two steps
  ○ Part 2: On paper, mult-step
	6 Blocks (80 minute lessons)

Family Overview (link below)	**Integration of Technology**
Stats & Geo Family Overview (2026)	• Desmos • Pear Assessment • iM v.360 Digital Applets
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Sample space Event Two-way table Venn diagram Complement Union (or) Intersection (and) Addition Rule Mutually exclusive events Independent events Dependent events Conditional probability	N/A
Opportunities for Interdisciplinary Connections	**Anticipated misconceptions**
• Medicine: Screening tests produce false positives, so the chance that a positive result means disease depends on how common the disease is. • Law and justice: The prosecutor's fallacy confuses P(evidence given innocence) with P(innocence given evidence); discussing it builds conditional reasoning. • Sports analytics: Teams estimate win probability conditioned on the game state, such as the score or	• Confusing mutually exclusive events with independent events. • Reversing the condition, treating P(A | B) as equal to P(B | A). • Forgetting to subtract P(A and B) in the Addition Rule. • Assuming draws are independent when sampling without replacement. • Using the grand total instead of the row or column

the time remaining. • Genetics: Punnett squares model inheritance, and for independent genes the probabilities of combined traits multiply. • Weather and insurance: Forecasters and insurers estimate the probability of an event given observable conditions, such as cloud cover or risk factors.	total when reading a two-way table. • Listing outcomes incorrectly, such as treating HT and TH as the same outcome for two coins.
Connections to Prior Units	**Connections to Future Units**
• Grade 7: probability of simple and compound events, sample spaces, and relative frequency. • Grade 7: organized lists and tree diagrams for counting outcomes. • Grades 6-7: ratio and fraction reasoning, used to read part-to-whole relationships in two-way tables.	• Unit 8 (One Variable Statistics): relative frequency and comparing distributions across groups extend the two-way table reasoning from this unit. • Future courses (Statistics and Algebra 2): testing independence, binomial distributions, and Bayes' theorem build on conditional probability. • Course close: this unit completes the course's work on probability of combined events; no later unit in this course depends on it.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"School Survey Data Audit" analyzing real student survey data (e.g., favorite sports vs. grade level) to make data-driven predictions about school preferences.	Color-coded two-way table templates with highlighted row/column totals and ratio fraction scaffolds ($\frac{\text{cell total}}{\text{grand total}}$).	Calculate relative frequencies and estimated probabilities using a choice of digital spreadsheet tools, printed table cards, or a video walkthrough.
LT2	"Social Media App Preference Challenge" sorting student habits (e.g., uses TikTok, uses Instagram, both, or neither) into overlapping circles.	Dual-display visual templates mapping two-way table cells directly to corresponding regions of a Venn diagram.	Construct sample space diagrams and calculate event probabilities using drag-and-drop digital Venn diagram tools, physical sorting chips, or written probability statements.
LT3	“Game Show Prize Wheel" analyzing multi-stage game choices (e.g., spinning two wheels or picking doors) to calculate win odds.	Multi-modal graphic organizers displaying sample spaces via branch-by-branch tree diagrams, grid tables, and systematic ordered lists.	Map sample spaces and evaluate probabilities using interactive tree-diagram software, physical decision-branching cards, or handwritten systematic lists.
LT4	"Casino & Raffle Simulator" testing card drawing or marble pulling scenarios to analyze how keeping or returning items changes winning chances.	Physical/digital manipulative simulations paired with visual probability branch guides contrasting "with replacement" (constant totals) vs. "without replacement" (shrinking totals).	Model chance scenarios and submit calculated probabilities via digital probability simulators (Desmos/Excel), physical card/dice lab reports, or student-led video demonstrations.
LT5	"Overlapping Ticket Raffle Mystery" determining the odds of winning a prize if you hold tickets that fit multiple winning criteria (e.g., red tickets OR even-numbered tickets).	Color-coded Addition Rule formula card paired with a visual grid showing why double-counted overlap must be subtracted.	Compute compound event probabilities using structured algebraic calculation templates, interactive Desmos models, or verbal explanations of the overlap correction.
LT6	"Weather & Sports Win Investigation" analyzing real sports data to test if winning games is independent of playing in rain vs. clear weather.	Visual decision tree flowchart contrasting Independent Events vs. Dependent Events.	Classify event pairs as independent or dependent and calculate their probabilities using written calculation sheets, digital tree diagrams, or audio/video presentations.
LT7	"Medical Test Accuracy & Prosecutor's Fallacy Case" evaluating how a positive medical test result changes the actual probability of having a rare condition.	Restricted-row/column two-way table scaffolds highlighting the "given" condition sub-population as the new reduced denominator.	Solve conditional probability problems using written formula steps, interactive two-way table highlight apps, or peer-taught instructional screencasts.

Supporting Multilingual/English Learners (*CELP standards*)

	Emerging	Expanding	Bridging

LT1	I can point to numbers in a two-way table and fill in a fraction template with visual supports to estimate probability.	I can calculate relative frequencies from a two-way table and estimate probabilities using structured calculation steps and sentence frames.	I can calculate and interpret relative frequencies from two-way tables to estimate experimental probabilities and justify conclusions in writing.
LT2	I can sort visual data cards into a Venn diagram or two-way table to identify outcomes and find simple probabilities using color guides.	I can represent sample spaces using two-way tables and Venn diagrams to calculate probabilities of events using sentence starters.	I can construct two-way tables and Venn diagrams to represent complex sample spaces and analyze event probabilities with full written explanations.
LT3	I can complete a tree diagram or list of outcomes using visual templates to count total outcomes and calculate simple probabilities.	I can organize sample spaces using tree diagrams, lists, or tables to calculate probabilities of chance experiments using sentence frames.	I can systematically generate complete sample spaces using multiple representations (tree diagrams, tables, lists) to calculate and prove exact probabilities.
LT4	I can use picture cards and physical objects (dice, cards, colored blocks) to model drawing with or without replacement using visual guides.	I can model real-world chance experiments (with and without replacement) and calculate probabilities using structured problem templates.	I can evaluate and model complex real-world chance scenarios (with and without replacement) and mathematically explain how replacement alters outcomes.
LT5	I can plug given probabilities into a color-coded formula card for compound events.	I can apply the Addition Rule to calculate compound event probabilities using guided calculation templates and sentence frames.	I can explain and apply the Addition Rule to calculate probabilities of overlapping and mutually exclusive events.
LT6	I can identify if two events are independent or dependent using visual scenario cards and multiply given fractions with formula templates.	I can distinguish between independent and dependent events and calculate their probabilities using multiplication rule templates and sentence starters.	I can analyze, differentiate, and calculate probabilities for independent and dependent events, mathematically justifying why dependency alters probability.
LT7	I can highlight the restricted row or column on a two-way table for a "given that" statement using visual highlight overlays.	I can calculate conditional probabilities from two-way tables or formulas using step-by-step frames and sentence starters.	I can calculate, interpret, and explain conditional probabilities in real-world contexts with full written justifications.

Lesson Sequence	Learning Target	Success Criteria/Assessment
Section A	**Learning Target #1** Use information in a two-way table to find relative frequencies and to estimate probability. **Learning Target #2** Use two-way tables and Venn diagrams to represent the sample space and find probabilities of events. **Learning Target #3** Find the sample space for a chance experiment, and organize outcomes using lists, tables, or tree diagrams to calculate probabilities. **Learning Target #4** Model real-world chance situations, such as dice, cards, and drawing with and without replacement, using probability.	**Lesson 1 (iM Lesson 4 & 5)** • I can use information in a two-way table to find relative frequencies and to estimate probability. • I can use tables and Venn diagrams to represent sample space and to find probabilities. • NOTE: Lesson 5 needs to be redesigned with more emphasis on finding probability from Venn diagrams. **Lesson 2 (iM Lesson 2 & 3)** • I can find the sample space for chance experiments. • I can use sample space to calculate probability. • I can model situations using probability. • I can create organized lists, tables, or tree diagrams and use them to calculate probabilities.
Section B	**Learning Target #5** Calculate the probability of a compound event using the Addition Rule.	**Lesson 3 (iM Lesson 6)** • I can use the addition rule to find probabilities. **Lesson 4 (iM Lesson 7 & 8)** • **ACC** I can calculate probabilities for dependent

	Learning Target #6 Calculate probabilities for dependent and independent events. **Learning Target #7** Calculate conditional probabilities, such as the probability of one event given that another has occurred.	and independent events. ● I can calculate conditional probabilities. ● NOTE: lesson 7 warm up and practice problems, de-emphasize notation
End of Unit Assessment		

Unit Title	
Unit 8 (iM A1 U1): One Variable Statistics (~ 8 blocks)	
Relevant Standards: Bold indicates priority	
HSS-ID.A.1 HSS-ID.A.2 HSS-ID.A.3	
Essential Question(s)	**Enduring Understanding(s)**
• How can we describe the shape, center, and spread of a distribution? • Which measures of center and spread best describe a data set, and why? • How do outliers affect our summary of data? • What can data tell us about a population, and what can it not tell us?	• The shape of a distribution, whether symmetric or skewed, guides which measures of center and spread are appropriate. • The mean and standard deviation are sensitive to outliers and skew; the median and IQR are resistant to them. • Histograms and box plots display the same data in different ways and are used to compare distributions. • Outliers are identified by comparing data to quartile-based fences, and they can signal important or unusual cases to investigate.
Demonstration of Learning	**Pacing for Unit**

Students will have access to a variety of the following:
• iM Checkpoints
• Formative assessments throughout unit
• Periodic quizzes to check progress
Common Assessment
• End of Unit Assessment
  ○ Part 1: Pear Assessment - more straightforward, one or two steps
  ○ Part 2: On paper, mult-step
	8 Blocks (80 minute lessons)

Family Overview (link below)	**Integration of Technology**
Stats & Geo Family Overview (2026)	• Desmos • Pear Assessment • iM v.360 Digital Applets
Unit-specific Vocabulary	**Aligned Unit Materials, Resources, and Technology (beyond core resources)**
Distribution Histogram Box plot Five-number summary Quartile Interquartile range (IQR) Outlier Symmetric distribution Skewed left or skewed right Mean Median Standard deviation Range	N/A
Opportunities for Interdisciplinary Connections	**Anticipated misconceptions**
• Public health: Box plots compare vaccination rates or disease incidence across regions, and outliers flag communities that need follow-up. • Economics: Household income is skewed right, which is why the median is often reported instead of the mean. • Environmental science: Daily rainfall or river-flow data includes outliers from extreme storms, and students	• Drawing histogram bars with gaps, like a bar graph, or using categories instead of continuous intervals. • Taking one middle value as the median when there is an even number of data values. • Reversing the mean-median relationship for skewed data. • Using mean and standard deviation to describe skewed data with outliers.

compare typical values with spread. • Sports: Points per game for two teams can be compared with box plots, and standard deviation measures consistency. • Civics and social studies: Census data on age, income, or population density across districts is displayed with histograms and summarized with distributions.	• Thinking standard deviation is the average of the deviations from the mean. • Calculating outlier fences from the mean or the range instead of the quartiles.
Connections to Prior Units	**Connections to Future Units**
• Unit 7 (Conditional Probability): relative frequency and two-way tables, used to compare groups. • Grade 6: statistical questions, dot plots, and histograms, with summaries using median and IQR. • Grade 7: mean absolute deviation as a measure of variability; standard deviation extends this idea.	• Future courses (Algebra 2 and Statistics): normal distributions, z-scores, and standard deviation as a unit of measure. • Future courses (AP Statistics): sampling distributions, confidence intervals, and comparing two groups. • Course close: this is the final unit in the course; box plot and standard deviation skills apply to later data work.

Differentiation through *Universal Design for Learning*

	Engagement	Representation	Action & Expression
LT1	"Class Reaction Time / Height Census" collecting real-time student data to construct personalized data distributions.	Step-by-step graphic organizer mapping Five-Number Summary values directly to color-coded box plot whiskers and box boundaries.	Construct histograms and box plots using a choice of digital tools (Desmos/Google Sheets), graph paper with physical templates, or an oral presentation explaining quartile boundaries.
LT2	“Real-World Data Shape Mystery" comparing real data graphs (e.g., household income vs. standardized test scores) to see how real-life phenomena create distinct visual distributions.	Visual vocabulary matrix matching distribution curve shapes (symmetric, skewed left/right, uniform, bimodal, bell-shaped) to annotated image cards.	Classify data set distributions by completing physical sorting cards, recording audio commentary explaining symmetry/skew, or writing shape analysis paragraphs.
LT3	"Athlete Performance & Salary Audit" analyzing professional sports stats or salary structures to calculate typical performance metrics.	Dual-column reference sheet displaying manual calculation formulas alongside step-by-step calculator and spreadsheet guides.	Compute summary statistics and generate graphs using spreadsheet software, handheld graphing calculators, or step-by-step written work.
LT4	"The Billionaire Enters the Room" simulation observing how adding an extreme salary value drastically pulls the average while keeping the median stable.	Interactive dynamic dot plot slider demonstrating how dragging a single extreme data point shifts the mean balancing point while the median stays anchored.	Explain the impact of extreme values using a written Claim-Evidence-Reasoning (CER) response, a recorded video demonstration of a data applet, or a small-group presentation.
LT5	“Consistency in Manufacturing Challenge" evaluating quality control graphs from two factories to determine which machine produces more consistent product sizes.	Side-by-side visual spread guide contrasting narrow/clustered distributions (low standard deviation/IQR) with wide/dispersed distributions (high standard deviation/IQR).	Rank data set graphs from least to most variable using a drag-and-drop digital ranking board, written justification cards, or an oral argument.
LT6	"Anomalous Weather Detection" investigating extreme temperature or rainfall records to mathematically confirm whether a climate event qualifies as a statistical outlier.	Step-by-step Outlier Fence decision template with color-coded upper and lower boundary thresholds.	Identify outliers and analyze their statistical impact through written algebraic fence calculations, digital Desmos box plot flags, or peer explanation screencasts.
LT7	"Real Estate Strategy Audit" determining whether a home buyer or seller should report median/IQR or mean/standard deviation to accurately represent local housing prices.	Visual decision flowchart mapping distribution characteristics.	Draft a written statistical recommendation memo, record an oral presentation defending measure selection, or create an annotated decision infographic.

Supporting Multilingual/English Learners (*CELP standards*)			
	Emerging	**Expanding**	**Bridging**
LT1	I can plot data on a pre-labeled histogram grid and match min, Q1, median, Q3, and max to a color-coded box plot template.	I can create a histogram and find the five-number summary to construct a box plot using step-by-step guides and sentence frames.	I can represent numerical data using histograms and calculate the five-number summary to construct and label a complete box plot independently.
LT2	I can match distribution graphs to picture cards labeled symmetric, skewed, uniform, bimodal, and bell-shaped using a visual word bank.	I can describe the shape of a distribution graph using vocabulary sentence frames ("This distribution is [skewed/bimodal] because...").	I can analyze and classify the shape of data distributions using statistical vocabulary (symmetric, skewed, uniform, bimodal, bell-shaped) with written justifications.
LT3	I can calculate mean, median, and IQR using color-coded formula sheets and enter data into graphing technology using visual step cards.	I can calculate mean, median, and interquartile range (IQR) and use technology to display graphs and statistics using guided prompts.	I can calculate mean, median, and IQR manually and using technology, explaining how software generates statistical summary graphs and values.
LT4	I can point out high or low extreme values on a plot and use visual cards showing if the mean shifts left or right compared to the median.	I can describe how extreme values pull the mean away from the median using distribution shape diagrams and cause-and-effect sentence frames.	I can evaluate and explain in writing how extreme values and distribution skewness impact the position of the mean relative to the median.
LT5	I can line up graph cards from narrowest (least spread) to widest (most spread) using visual spread guides.	I can arrange data graphs in order of variability (using standard deviation or IQR) using structured comparison templates and sentence starters.	I can analyze graphical representations of data to order distributions by variability and justify my ranking using standard deviation and IQR.
LT6	I can plug values into a1.5*IQR formula template to circle outliers and match cards showing which statistics change.	I can calculate the 1.5*IQR rule to find outliers and describe their effect on mean, median, IQR, and standard deviation using sentence frames.	I can calculate outliers using the 1.5*IQR rule and explain in detail how outliers affect resistant and non-resistant measures of center and spread.
LT7	I can use a decision flowchart to choose between mean/standard deviation (symmetric) and median/IQR (skewed/outliers).	I can select the best measure of center (mean vs. median) and spread (IQR vs. standard deviation) based on graph shape using sentence starters.	I can choose and justify in writing the most appropriate measures of center and spread for a dataset based on shape, symmetry, and presence of outliers.

Lesson Sequence	**Learning Target**	**Success Criteria/Assessment**
Section A	**Learning Target #1** Represent numerical data with a histogram, and find the five-number summary of a data set and create a box plot. **Learning Target #2** Describe the shape of a distribution using the terms symmetric, skewed, uniform, bimodal, and bell shaped. **Learning Target #3** Calculate the mean, median, and interquartile range of a data set, and use technology to create graphs and calculate statistics.	**Lesson 1 (iM Lesson 2 & 3)** • I can represent data with a histogram. • I can find the five number summary for data and create a box plot. • NOTE: Fix intervals in frequency tables, looking for exposure to creation not 100% proficiency, will revisit with technology in Lesson 3 **Lesson 2 (iM Lesson 4)** • I can use the terms “symmetric”, “skewed” “uniform”,”bimoldal”, and “bell shaped” to describe the shape of a distribution. **Lesson 3 (iM Lesson 5 & 9)** • I can calculate mean, median, and interquartile range for a set of data. • I can use technology to create graphic representations of data and calculate statistics. • NOTE: Spend 10 minutes calculating by hand then transition to technology
Section B	**Learning Target #4** Describe how an extreme value affects the mean and median, and use the shape of a distribution to compare the mean and median.	**Lesson 4 (iM Lesson 10)** • I can describe how an extreme value will affect the mean and median. • I can use the shape of a distribution to compare the mean and median.

	Learning Target #5 Arrange data sets in order of variability, using standard deviation or IQR, from graphic representations. **Learning Target #6** Identify outliers using 1.5 × IQR, and describe how an outlier affects the mean, median, IQR, or standard deviation. **Learning Target #7** Choose and justify measures of center and spread that fit a distribution's shape and any outliers.	**Lesson 5 (iM Lesson 11 & 12)** ● I can arrange data sets in order of variability given graphic representations (using standard deviation or IQR). **Lesson 6 (iM Lesson 14)** ● I can find values that are outliers (using 1.5*IQR). ● I can tell how an outlier will impact mean, median, IQR, or standard deviation.
End of Unit Assessment		

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

