









HS Modern World History

Maine Virtual Academy

UNITS (8/8 SELECTED)

	SUGGESTED DURATION
 Unit 1: Ancient Civilizations Up to 300 BCE	<i>26 teaching days</i>
 Unit 2: Trading Empires 300 BCE - 600 CE	<i>13 teaching days</i>
 Unit 3: Reorganization and Conquest 600-1350 CE	<i>17 teaching days</i>
 Unit 4: Revitalized Empires - 1350-1600 CE	<i>22 teaching days</i>
 Unit 5: Age of Exploration (1500-1750 CE)	<i>27 teaching days</i>
 Unit 6: Age of Revolution (1750-1850 CE)	<i>18 teaching days</i>
 Unit 7: World At War (1850-1945 CE)	<i>5 teaching days</i>
 Unit 8: Globalization (1945-Present)	<i>26 teaching days</i>

Unit 1: Ancient Civilizations Up to 300 BCE

HS Modern World History

UNIT SUMMARY

Students will explore the early seeds of democracy from ancient history, Enlightenment philosophies, and developments in national governments. Students will develop an understanding of philosophical and political expectations for democratic systems of government and how societal changes result in advancing democratic ideals.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.CG.1.F1
Explaining that the study of government includes the structures, functions, institutions, and forms of government.
9-12.CG.1.F2
Explaining how and why democratic institutions and interpretations of democratic ideals and constitutional principles change over time.
9-12.CG.1.F3
Describing the purpose, structures, and processes of the American political system.
9-12.H.1.D2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the world and the implications for the present and future.
9-12.H.1.D3
Tracing and critiquing the roots and evolution of democratic ideals and constitutional principles in the history of the world using historical sources.
9-12.H.1.D4
Making a decision related to the classroom, school, community, civic organization, Maine, United States, or international entity by applying appropriate and relevant social studies knowledge and skills, including research skills, ethical reasoning skills, and other relevant information.
9-12.H.1.F1
By explaining that history includes the study of the past based on the examination of a variety of primary and secondary sources and how history can help one better understand and make informed decisions about the present and future.
9-12.H.1.F2

Unit 1: Ancient Civilizations Up to 300 BCE

HS Modern World History

Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.

9-12.H.1.F3

Tracing and critiquing the roots and evolution of democratic ideals and constitutional principles in the history of the United States using historical sources.

9-12.PFE.3.F1

Comparing a variety of economic systems and strategies of economic development.

National Common Core - Grade 11-12 - History/Social Studies

RH.11-12.1.

Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.

RH.11-12.2.

Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.

RH.11-12.5.

Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.

National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)

CCSS.ELA-LITERACY.WHST.11-12.2

Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

CCSS.ELA-LITERACY.WHST.11-12.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.WHST.11-12.10

Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Unit 1: Ancient Civilizations Up to 300 BCE

HS Modern World History

CCSS.ELA-LITERACY.WHST.11-12.9

Draw evidence from informational texts to support analysis, reflection, and research.

Unit 1: Ancient Civilizations Up to 300 BCE

HS Modern World History

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

1.01-1.05 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms from the textbook reading assignment.

Bill of Rights Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will interpret the U.S. Bill of Rights through defining specific rights afforded by the first ten amendments to the U.S. Constitution.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.H.1.D3
Tracing and critiquing the roots and evolution of democratic ideals and constitutional principles in the history of the world using historical sources.
National Common Core - Grade 11-12 - History/Social Studies
RH.11-12.2.
Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)
CCSS.ELA-LITERACY.WHST.11-12.9
Draw evidence from informational texts to support analysis, reflection, and research.

1.06-1.10 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

Unit 1: Ancient Civilizations Up to 300 BCE

HS Modern World History

Industrial Revolution Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1

Description: Students will identify significant changes from the First Industrial Revolution and explore how these changes impacted people directly.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.H.1.F2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.
National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)
CCSS.ELA-LITERACY.WHST.11-12.2
Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
CCSS.ELA-LITERACY.WHST.11-12.4
Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.WHST.11-12.10
Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

1.11-1.15 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U2L1 Second Industrial Revolution Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Unit 1: Ancient Civilizations Up to 300 BCE

HS Modern World History

Assessment Level (DOK): DOK1

Description: Students will identify advancements made during and significant figures from the Second Industrial Revolution.

U2L2 Socioeconomic Systems Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1

Description: Students will define significant socio-economic systems and describe the impact of industrialization on Maine.

1.15-1.20 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U2L4 Germany Unites Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1

Description: Students will define and describe key terms relating to the unification and industrialization of Germany.

Unit 2: Trading Empires 300 BCE - 600 CE

HS Modern World History

UNIT SUMMARY

Students will examine the time period of the Second Industrial Revolution with emphasis on economic and social philosophies as well as technological changes. Students will explore how these changes result in cultural shifts in Maine, the United States, and globally.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.H.1.F2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.
9-12.H.1.F3
Tracing and critiquing the roots and evolution of democratic ideals and constitutional principles in the history of the United States using historical sources.
9-12.CG.1.F2
Explaining how and why democratic institutions and interpretations of democratic ideals and constitutional principles change over time.
9-12.CG.2.F3
Evaluating how people influence government and work for the common good, including voting, writing to legislators, performing community service, and engaging in civil disobedience.
9-12.H.2.F2
Identifying and analyzing major turning points and events in the history of Native Americans and various historical and recent immigrant groups in the United States, making use of primary and secondary sources.
9-12.PFE.3.F1
Comparing a variety of economic systems and strategies of economic development.
National Common Core - Grade 11-12 - History/Social Studies
RH.11-12.3.
Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
RH.11-12.4.

Unit 2: Trading Empires 300 BCE - 600 CE

HS Modern World History

Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines

National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)

CCSS.ELA-LITERACY.WHST.11-12.2

Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

CCSS.ELA-LITERACY.WHST.11-12.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.WHST.11-12.10

Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Unit 2: Trading Empires 300 BCE - 600 CE

HS Modern World History

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

2.01-2.05 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U2L7 Assignment on Africa

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1

Description: Students will identify and describe key facts about slavery as they relate to Africa.

U3L2 WWI Sides Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1

Description: Students will identify political alliances of World War I and describe conditions of the Ottoman Empire during this period.

2.06-2.11 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U3L3 A Long War Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1

Description: Students will describe technological advances used and the role of various people during the war.

2.12-2.15 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

Unit 2: Trading Empires 300 BCE - 600 CE

HS Modern World History

U3L5 Propaganda and Political Cartoons Assignment

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will interpret propaganda used during World War I and consider the influence of propaganda on the population.

Unit 3: Reorganization and Conquest 600-1350 CE

HS Modern World History

UNIT SUMMARY

Students will study the causes, events, and results of World War I as they relate to economics, social structure, and international relations. Students will explore primary source materials to gain a deeper understanding of the context for war and resulting geo-political alignment throughout the world.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.CG.1.F2
Explaining how and why democratic institutions and interpretations of democratic ideals and constitutional principles change over time.
9-12.CG.1.F3
Describing the purpose, structures, and processes of the American political system.
9-12.G.1.F2
Evaluating and developing a well-supported position about the impact of change on the physical and cultural environment.
9-12.H.1.F2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.
9-12.H.1.F3
Tracing and critiquing the roots and evolution of democratic ideals and constitutional principles in the history of the United States using historical sources.
National Common Core - Grade 11-12 - History/Social Studies
RH.11-12.3.
Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)
CCSS.ELA-LITERACY.WHST.11-12.2
Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

Unit 3: Reorganization and Conquest 600-1350 CE

HS Modern World History

CCSS.ELA-LITERACY.WHST.11-12.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.WHST.11-12.10

Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Unit 3: Reorganization and Conquest 600-1350 CE

HS Modern World History

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

3.01-3.04 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

Russian Revolution Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will identify important events and figures from the period of the Russian Revolution and Civil War.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.H.1.F2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.
National Common Core - Grade 11-12 - History/Social Studies
RH.11-12.3.
Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)
CCSS.ELA-LITERACY.WHST.11-12.2
Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
CCSS.ELA-LITERACY.WHST.11-12.4
Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.WHST.11-12.10

Unit 3: Reorganization and Conquest 600-1350 CE

HS Modern World History

Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

End of WWI Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will identify terms and respond to prompts relating to the changes in political influence following World War I.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.CG.1.F2
Explaining how and why democratic institutions and interpretations of democratic ideals and constitutional principles change over time.
9-12.CG.1.F3
Describing the purpose, structures, and processes of the American political system.
9-12.G.1.F2
Evaluating and developing a well-supported position about the impact of change on the physical and cultural environment.
9-12.H.1.F2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.
9-12.H.1.F3
Tracing and critiquing the roots and evolution of democratic ideals and constitutional principles in the history of the United States using historical sources.
National Common Core - Grade 11-12 - History/Social Studies
RH.11-12.3.
Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects

Unit 3: Reorganization and Conquest 600-1350 CE

HS Modern World History

(ELA)
CCSS.ELA-LITERACY.WHST.11-12.2
Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
CCSS.ELA-LITERACY.WHST.11-12.4
Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.WHST.11-12.10
Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

3.05-3.09 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U4L1 Dadaism and Surrealism Art Piece

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK2

Description: Students will engage in the creation of artwork following the philosophies used by Dada or surrealist artists. Students will reflect on the process through a description of how these techniques represented the thinking of artists at this time.

3.10-3.13 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

Unit 4: Revitalized Empires - 1350-1600 CE

HS Modern World History

UNIT SUMMARY

Students will explore the period between the two World Wars, including significant cultural and societal changes, economic shifts, and post-war efforts to rebuild. Students will study shifting political ideologies in Europe as well as independence movements in parts of Asia and Africa.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.H.1.F2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.
9-12.PFE.3.F1
Comparing a variety of economic systems and strategies of economic development.
National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)
CCSS.ELA-LITERACY.WHST.11-12.2
Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
CCSS.ELA-LITERACY.WHST.11-12.4
Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.WHST.11-12.10
Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
CCSS.ELA-LITERACY.WHST.11-12.9
Draw evidence from informational texts to support analysis, reflection, and research.

Unit 4: Revitalized Empires - 1350-1600 CE

HS Modern World History

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

U4L3 Independence in Middle East Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will identify and describe changes in political power and boundaries of Europe and the Middle East following World War I

4.01-4.04 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U4L4 The Great Depression MC Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will answer true/false questions about the American response to the Great Depression.

4.05-4.08 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U5L1 WWII Begins Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will identify the countries included in the key alliances leading to World War II along with important vocabulary terms from this period of history.

U5L2 WWII Leaders Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Unit 4: Revitalized Empires - 1350-1600 CE

HS Modern World History

Description: Students will identify leaders and ideologies, and describe actions taken that lead to global conflict.

4.09-4.13 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U5L3 Ending WWII

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will identify and describe key events from World War II and describe the effects of war on key nations involved in the conflict.

Unit 5: Age of Exploration (1500-1750 CE)

HS Modern World History

UNIT SUMMARY

Students will study the causes, events, and impact of World War II as they relate to economics, social structure, and international relations. Students will explore how World War II impacted nations and drove changes to geopolitical ideals.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.H.1.F2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.
National Common Core - Grade 11-12 - History/Social Studies
RH.11-12.2.
Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
RH.11-12.3.
Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
RH.11-12.9.
Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.
RH.11-12.10.
By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.
National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)
CCSS.ELA-LITERACY.WHST.11-12.2
Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
CCSS.ELA-LITERACY.WHST.11-12.4
Produce clear and coherent writing in which the development, organization, and style are appropriate to task,

Unit 5: Age of Exploration (1500-1750 CE)

HS Modern World History

purpose, and audience.

CCSS.ELA-LITERACY.WHST.11-12.9

Draw evidence from informational texts to support analysis, reflection, and research.

CCSS.ELA-LITERACY.WHST.11-12.10

Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Unit 5: Age of Exploration (1500-1750 CE)

HS Modern World History

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

5.01-5.04 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U6L1 The Cold War Begins Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will identify and describe significant U.S. policies following World War II.

U6L2 The Soviet Union Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will identify the primary social and economic policies at conflict during the Cold War. Students will describe soviet government and Hungarian reactions to this system.

U6L3 Transitions in Asia Assignment

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will identify changes in Japan and China following World War II and describe facts learned about the Korean War.

5.05-5.07 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U6L4 China Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Unit 5: Age of Exploration (1500-1750 CE)

HS Modern World History

Description: Students will identify and define terms relating to the Cultural Revolution in China.

U6L5 Crisis in Cuba Assignment

Assessment Type: Summative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will identify significant figures and events relating to Cuba during the Cold War. Students will reflect on regions of the world where the Cold War saw heightening conflict.

5.08-5.10 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

5.11-5.13 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U7L1 Technological Revolution Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will identify significant changes during the Technological Revolution and describe contributions by significant figures of the time.

U7L2 Decolonization in India Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will identify Mohandas Gandhi and describe his methods for promoting independence in India. Students will describe key events and consequences of Indian independences.

Unit 6: Age of Revolution (1750-1850 CE)

HS Modern World History

UNIT SUMMARY

Students will explore the early years of the Cold War beginning with the aftermath of World War II. Students will examine conflicts of economic and political ideologies, particularly as they relate to those of the United States and Soviet Union. Students will explore how these conflicts impact and influence other regions of the world.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.H.1.F2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.
9-12.H.1.F3
Tracing and critiquing the roots and evolution of democratic ideals and constitutional principles in the history of the United States using historical sources.
9-12.H.2.F2
Identifying and analyzing major turning points and events in the history of Native Americans and various historical and recent immigrant groups in the United States, making use of primary and secondary sources.
9-12.PFE.3.F1
Comparing a variety of economic systems and strategies of economic development.
National Common Core - Grade 11-12 - History/Social Studies
RH.11-12.1.
Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
RH.11-12.3.
Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
RH.11-12.9.
Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.
RH.11-12.10.

Unit 6: Age of Revolution (1750-1850 CE)

HS Modern World History

By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.

National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)

CCSS.ELA-LITERACY.WHST.11-12.2

Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

CCSS.ELA-LITERACY.WHST.11-12.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.WHST.11-12.9

Draw evidence from informational texts to support analysis, reflection, and research.

CCSS.ELA-LITERACY.WHST.11-12.10

Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Unit 6: Age of Revolution (1750-1850 CE)

HS Modern World History

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

6.01-6.04 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U7L3 Independence in Indochina Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will identify Ho Chi Minh and his contributions to Vietnam. Students will identify African nations that gained independence and countries who opposed this change.

U7L4 Conflict in Middle East Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will identify political divisions in the Middle East and describe important movements and organizations and their political ideologies.

6.05-6.08 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U7L6 Back to the Middle East Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will identify political and cultural groups in the Middle East, describe changes in political boundaries following the Six-Day War, and describe the impact of limited water resources in the region.

U8L1 The Vietnam War Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Unit 6: Age of Revolution (1750-1850 CE)

HS Modern World History

Assessment Level (DOK): DOK1

Description: Students will identify Ngo Dinh Diem in Vietnam and describe why the United States became involved in the Vietnam War.

6.09-6.12 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U8L2 1960s Culture Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will identify significant events from the United States stemming from cultural changes in the United States.

Unit 7: World At War (1850-1945 CE)

HS Modern World History

UNIT SUMMARY

Students will explore broad changes in the world during the middle of the 20th century including the technological revolution, decolonization and independence movements, as well as cultural conflicts in Asia. This unit will expand themes discussed while providing additional context for further study.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.H.1.F2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.
National Common Core - Grade 11-12 - History/Social Studies
RH.11-12.3.
Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
RH.11-12.5.
Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.
RH.11-12.7.
Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.
RH.11-12.10.
By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.
National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)
CCSS.ELA-LITERACY.WHST.11-12.2
Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
CCSS.ELA-LITERACY.WHST.11-12.4
Produce clear and coherent writing in which the development, organization, and style are appropriate to task,

Unit 7: World At War (1850-1945 CE)

HS Modern World History

purpose, and audience.

CCSS.ELA-LITERACY.WHST.11-12.9

Draw evidence from informational texts to support analysis, reflection, and research.

CCSS.ELA-LITERACY.WHST.11-12.10

Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Unit 7: World At War (1850-1945 CE)

HS Modern World History

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

7.01-7.05 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U8L4 Proxy Wars Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will identify proxy wars in various locations and describe their common link to Cold War ideologies.

7.06-7.09 Textbook Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will define important terms and concepts from the textbook reading assignment.

U9L1 Extremism Grows Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will identify and describe how extremism rises as a tactic used in response to outside influence in the Middle East.

U9L2 Making Sense of Iran Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will identify and describe significant people and events relating to conflict in Iran.

Unit 8: Globalization (1945-Present)

HS Modern World History

UNIT SUMMARY

Students will explore the period of the late-Cold War beginning with the Vietnam War and ending with the dissolution of the Soviet Union. Students will also examine significant shifts in culture, economics, and government that lead to contemporary issues.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.H.1.F2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.
9-12.H.1.F3
Tracing and critiquing the roots and evolution of democratic ideals and constitutional principles in the history of the United States using historical sources.
9-12.H.2.F1
Identifying and critiquing issues characterized by unity and diversity in the history of the United States, and describing their effects, using primary and secondary sources.
9-12.H.2.F2
Identifying and analyzing major turning points and events in the history of Native Americans and various historical and recent immigrant groups in the United States, making use of primary and secondary sources.
National Common Core - Grade 11-12 - History/Social Studies
RH.11-12.9.
Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.
RH.11-12.10.
By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.
National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)
CCSS.ELA-LITERACY.WHST.11-12.2
Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments,

Unit 8: Globalization (1945-Present)

HS Modern World History

or technical processes.

CCSS.ELA-LITERACY.WHST.11-12.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.WHST.11-12.9

Draw evidence from informational texts to support analysis, reflection, and research.

CCSS.ELA-LITERACY.WHST.11-12.10

Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Unit 8: Globalization (1945-Present)

HS Modern World History

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

The War on Terror Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will identify and describe conditions relating to the Iraq War.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.H.1.F2
Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.
National Common Core - Grade 11-12 - Literacy in History/Social Studies, Science, & Technical Subjects (ELA)
CCSS.ELA-LITERACY.WHST.11-12.2
Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
CCSS.ELA-LITERACY.WHST.11-12.4
Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.WHST.11-12.10
Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Algeria and Libya Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will identify dates and key figures of Algerian and Libyan independence.

STANDARDS

Maine - Grade 9-12 - Social Studies
9-12.H.1.F2

Unit 8: Globalization (1945-Present)







HS Modern World History

Analyzing and critiquing major historical eras: major enduring themes, turning points, events, consequences, and people in the history of the United States and the implications for the present and future.

HS Modern World History

Maine Virtual Academy

School Year 2024-2025 (Aug 26, 2024 - Jun 13, 2025)

UNIT	# OF TEACHING DAYS	DATES
 Unit 1: Ancient Civilizations Up to 300 BCE	26 teaching days	Aug 26 - Oct 4, 2024
 Unit 2: Trading Empires 300 BCE - 600 CE	13 teaching days	Oct 7 - Oct 29, 2024
 Unit 3: Reorganization and Conquest 600-1350 CE	17 teaching days	Oct 30 - Nov 22, 2024
 Unit 4: Revitalized Empires - 1350-1600 CE	22 teaching days	Nov 25, 2024 - Jan 8, 2025
 Unit 5: Age of Exploration (1500-1750 CE)	27 teaching days	Jan 17 - Mar 4, 2025
 Unit 6: Age of Revolution (1750-1850 CE)	18 teaching days	Mar 5 - Apr 1, 2025
 Unit 7: World At War (1850-1945 CE)	5 teaching days	Apr 2 - Apr 15, 2025
 Unit 8: Globalization (1945-Present)	26 teaching days	Apr 28 - Jun 13, 2025

August

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26 Unit 1: Ancient Ci...	27 Unit 1: Ancient Ci...	28 Unit 1: Ancient Ci...	29 Unit 1: Ancient Ci...	30 Unit 1: Ancient Ci...	31

September

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Labor Day	3 Unit 1: Ancient Ci...	4 Unit 1: Ancient Ci...	5 Unit 1: Ancient Ci...	6 Unit 1: Ancient Ci...	7
8	9 Unit 1: Ancient Ci...	10 Fall NWEA Testing	11 Fall NWEA Testing	12 Fall NWEA Testing	13 Unit 1: Ancient Ci...	14
15	16 Unit 1: Ancient Ci...	17 Unit 1: Ancient Ci...	18 Unit 1: Ancient Ci...	19 Unit 1: Ancient Ci...	20 Unit 1: Ancient Ci...	21
22	23 Unit 1: Ancient Ci...	24 Unit 1: Ancient Ci...	25 Unit 1: Ancient Ci...	26 Unit 1: Ancient Ci...	27 Unit 1: Ancient Ci...	28
29	30 Unit 1: Ancient Ci...	1 Unit 1: Ancient Ci...	2 Unit 1: Ancient Ci...	3 Unit 1: Ancient Ci...	4 Unit 1: Ancient Ci...	5

October

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30 Unit 1: Ancient Ci...	1 Unit 1: Ancient Ci...	2 Unit 1: Ancient Ci...	3 Unit 1: Ancient Ci...	4 Unit 1: Ancient Ci...	5
6	7 Maine Through Year (Tentative)	8 Maine Through Year (Tentative)	9 Maine Through Year (Tentative)	10 Unit 2: Trading E...	11 Unit 2: Trading E...	12
13	14 Indigenous Peoples' Day	15 Unit 2: Trading E...	16 Unit 2: Trading E...	17 Unit 2: Trading E...	18 Unit 2: Trading E...	19
20	21 Unit 2: Trading E...	22 Unit 2: Trading E...	23 Unit 2: Trading E...	24 Unit 2: Trading E...	25 Unit 2: Trading E...	26
27	28 Unit 2: Trading E...	29 Unit 2: Trading E...	30 Unit 3: Reorganiz...	31 Unit 3: Reorganiz...	1 Unit 3: Reorganiz...	2

November

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28 Unit 2: Trading E...	29 Unit 2: Trading E...	30 Unit 3: Reorganiz...	31 Unit 3: Reorganiz...	1 Unit 3: Reorganiz...	2
3	4 Unit 3: Reorganiz...	5 Unit 3: Reorganiz...	6 Unit 3: Reorganiz...	7 Unit 3: Reorganiz...	8 Unit 3: Reorganiz...	9
10	11 Veterans Day	12 Unit 3: Reorganiz...	13 Unit 3: Reorganiz...	14 Unit 3: Reorganiz...	15 Unit 3: Reorganiz...	16
17	18 Unit 3: Reorganiz...	19 Unit 3: Reorganiz...	20 Unit 3: Reorganiz...	21 Unit 3: Reorganiz...	22 Unit 3: Reorganiz...	23
24	25 Unit 4: Revitalize...	26 Unit 4: Revitalize...	27 Thanksgiving	28 Thanksgiving	29 Thanksgiving	30

December

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Unit 4: Revitalize...	3 Unit 4: Revitalize...	4 Unit 4: Revitalize...	5 Unit 4: Revitalize...	6 Unit 4: Revitalize...	7
8	9 Unit 4: Revitalize...	10 Unit 4: Revitalize...	11 Unit 4: Revitalize...	12 Unit 4: Revitalize...	13 Unit 4: Revitalize...	14
15	16 Unit 4: Revitalize...	17 Unit 4: Revitalize...	18 Unit 4: Revitalize...	19 Unit 4: Revitalize...	20 Unit 4: Revitalize...	21
22	23 Winter Break	24 Winter Break	25 Winter Break	26 Winter Break	27 Winter Break	28 Winter Break
29 Winter Break	30 Winter Break	31 Winter Break	1 New Year's Day	2 Unit 4: Revitalize...	3 Unit 4: Revitalize...	4

January

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29 Winter Break	30 Winter Break	31 Winter Break	1 New Year's Day	2 Unit 4: Revitalize...	3 Unit 4: Revitalize...	4
5	6 Unit 4: Revitalize...	7 Unit 4: Revitalize...	8 Unit 4: Revitalize...	9	10	11
12	13	14 Winter NWEA Testing	15 Winter NWEA Testing	16 Winter NWEA Testing	17 Unit 5: Age of Ex...	18
19	20 Martin Luther King, Jr. Day	21 Unit 5: Age of Ex...	22 Unit 5: Age of Ex...	23 Unit 5: Age of Ex...	24 Unit 5: Age of Ex...	25
26	27 Unit 5: Age of Ex...	28 Unit 5: Age of Ex...	29 Unit 5: Age of Ex...	30 Unit 5: Age of Ex...	31 Unit 5: Age of Ex...	1

February

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
26	27 Unit 5: Age of Ex...	28 Unit 5: Age of Ex...	29 Unit 5: Age of Ex...	30 Unit 5: Age of Ex...	31 Unit 5: Age of Ex...	1
2	3 Unit 5: Age of Ex...	4 Unit 5: Age of Ex...	5 Unit 5: Age of Ex...	6 Unit 5: Age of Ex...	7 Unit 5: Age of Ex...	8
9	10 Unit 5: Age of Ex...	11 Unit 5: Age of Ex...	12 Unit 5: Age of Ex...	13 Unit 5: Age of Ex...	14 Unit 5: Age of Ex...	15
16	17 Presidents' Day	18 February Break	19 February Break	20 February Break	21 February Break	22
23	24 Unit 5: Age of Ex...	25 Unit 5: Age of Ex...	26 Unit 5: Age of Ex...	27 Unit 5: Age of Ex...	28 Unit 5: Age of Ex...	1

March

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
23	24 Unit 5: Age of Ex...	25 Unit 5: Age of Ex...	26 Unit 5: Age of Ex...	27 Unit 5: Age of Ex...	28 Unit 5: Age of Ex...	1
2	3 Unit 5: Age of Ex...	4 Unit 5: Age of Ex...	5 Unit 6: Age of Re...	6 Unit 6: Age of Re...	7 Unit 6: Age of Re...	8
9	10 Unit 6: Age of Re...	11 Unit 6: Age of Re...	12 Unit 6: Age of Re...	13 Unit 6: Age of Re...	14 Unit 6: Age of Re...	15
16	17 Unit 6: Age of Re...	18 Unit 6: Age of Re...	19 Unit 6: Age of Re...	20 March Break	21 March Break	22
23	24 Unit 6: Age of Re...	25 Unit 6: Age of Re...	26 Unit 6: Age of Re...	27 Unit 6: Age of Re...	28 Unit 6: Age of Re...	29
30	31 Unit 6: Age of Re...	1 Unit 6: Age of Re...	2 Unit 7: World At ...	3 Unit 7: World At ...	4 Unit 7: World At ...	5

April

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
30	31 Unit 6: Age of Re...	1 Unit 6: Age of Re...	2 Unit 7: World At ...	3 Unit 7: World At ...	4 Unit 7: World At ...	5
6	7 MEA Science (HS)	8 MEA Science (HS)	9 MEA Science (HS)	10 MEA Science (HS)	11 MEA Science (HS)	12
13	14 Unit 7: World At ...	15 Unit 7: World At ...	16	17	18 April Vacation	19 April Vacation
20 April Vacation	21 April Vacation	22 April Vacation	23 April Vacation	24 April Vacation	25 April Vacation	26
27	28 Unit 8: Globalizati...	29 Spring NWEA Testing	30 Spring NWEA Testing	1 Spring NWEA Testing	2 Unit 8: Globalizati...	3

May

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28 Unit 8: Globalizati...	29 Spring NWEA Testing	30 Spring NWEA Testing	1 Spring NWEA Testing	2 Unit 8: Globalizati...	3
4	5 Unit 8: Globalizati...	6 Unit 8: Globalizati...	7 Unit 8: Globalizati...	8 Unit 8: Globalizati...	9 Unit 8: Globalizati...	10
11	12 MEA (ELA & Math)	13 MEA (ELA & Math)	14 MEA (ELA & Math)	15 MEA (ELA & Math)	16 MEA (ELA & Math)	17
18	19 Unit 8: Globalizati...	20 Unit 8: Globalizati...	21 Unit 8: Globalizati...	22 Unit 8: Globalizati...	23 Unit 8: Globalizati...	24
25	26 Memorial Day	27 Unit 8: Globalizati...	28 Unit 8: Globalizati...	29 Unit 8: Globalizati...	30 Unit 8: Globalizati...	31

June




















SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Unit 8: Globalizati...	3 Unit 8: Globalizati...	4 Unit 8: Globalizati...	5 Unit 8: Globalizati...	6 Unit 8: Globalizati...	7
8	9 Unit 8: Globalizati...	10 Unit 8: Globalizati...	11 Unit 8: Globalizati...	12 Unit 8: Globalizati...	13 Unit 8: Globalizati...	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

Ind Study Physics

Maine Virtual Academy

UNITS (19/19 SELECTED)

SUGGESTED DURATION

 Unit 1: Introduction to Physics and Motion in 1-D	<i>16 teaching days</i>
 Unit 2: Forces in 1-D and 2-D	<i>12 teaching days</i>
 Unit 3: Two Dimensional and Rotational Motion	<i>14 teaching days</i>
 Unit 4: Gravitation	<i>9 teaching days</i>
 Unit 5: Momentum	<i>5 teaching days</i>
 Unit 6: Machines and Work	<i>7 teaching days</i>
 Unit 7: Energy	<i>5 teaching days</i>
 Unit 8: Thermal Energy and The States of Matter	<i>10 teaching days</i>
 Unit 9: Waves	<i>5 teaching days</i>
 Unit 10: The Physics of Light	<i>5 teaching days</i>
 Unit 11: Refraction and Lenses	<i>8 teaching days</i>
 Unit 12: Static Charge	<i>5 teaching days</i>
 Unit 13: Electric Current and Circuits	<i>2 teaching days</i>
 Unit 14: Quantum Theory	<i>14 teaching days</i>
 Unit 15: Magnetism	<i>5 teaching days</i>
 Unit 16: Nuclear Chemistry, Fission, and Fusion	<i>5 teaching days</i>
 Unit 17: Physics Project	<i>11 teaching days</i>
 Unit 18: Semester 1 Exam	<i>5 teaching days</i>
 Unit 19: Semester 2 Exam	<i>14 teaching days</i>

Unit 1: Introduction to Physics and Motion in 1-D

Ind Study Physics

UNIT SUMMARY

Students will learn how to calculate using significant figures. Students will learn how to break vectors into components and how to add and subtract them. We'll learn how to calculate velocity using displacement and time. Students will learn about acceleration and how to calculate acceleration based on starting velocity and final velocity. Students will learn how to interpret a graph of position versus time and how to calculate velocity based on the graph.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-3.

Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Unit 1: Introduction to Physics and Motion in 1-D

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

Vectors Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

Unit 1: Introduction to Physics and Motion in 1-D

Ind Study Physics

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-3.

Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Section 3 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

Section 4 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship

Unit 1: Introduction to Physics and Motion in 1-D

Ind Study Physics

among the net force on a macroscopic object, its mass, and its acceleration.

Section 5 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

Time Graphs Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

Module 1 Exam

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Evaluating understanding of key concepts through a comprehensive assessment, including multiple-choice, fill-in-the-blank, and true/false questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

Unit 1: Introduction to Physics and Motion in 1-D

Ind Study Physics

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Unit 2: Forces in 1-D and 2-D

Ind Study Physics

UNIT SUMMARY

Students will learn the definition of a force and the mathematical relationship between force and acceleration. Students will learn the mathematical relationship between mass acceleration and weight forces. Students will learn about Newton's third law and the definition of a normal force. Students will learn about frictional forces and the difference between static and kinetic friction. Students will learn about equilibrium and how to calculate forces on an inclined plane.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-3.

Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Unit 2: Forces in 1-D and 2-D

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-2.
Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Section 1 Free Body Diagram

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-2.
Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.
HS-PS2-3.

Unit 2: Forces in 1-D and 2-D

Ind Study Physics

Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Exploring Gravity Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Unit 2: Forces in 1-D and 2-D

Ind Study Physics

HS-PS2-3.

Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Normal Forces Explanation

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-3.

Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

Section 3 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Unit 2: Forces in 1-D and 2-D

Ind Study Physics

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Section 4 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

Why Won't It Go? Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-3.

Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

Unit 2: Forces in 1-D and 2-D

Ind Study Physics

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Section 5 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Module 2 Exam

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Evaluating understanding of key concepts through a comprehensive assessment, including multiple-choice, fill-in-the-blank, and true/false questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship

Unit 2: Forces in 1-D and 2-D

Ind Study Physics

among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-3.

Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Unit 3: Two Dimensional and Rotational Motion

Ind Study Physics

UNIT SUMMARY

Students how to separate and calculate the components of projectile motion. Students will learn about centripetal acceleration. Students will learn that an object moving in a circular motion is under constant acceleration. Students will learn about relative velocity and reference frames. Students will learn about angular displacement and angular velocity and how they are mathematically related. Kids will learn about torque and how Newton's second law is related to rotational motion.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Unit 3: Two Dimensional and Rotational Motion

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-2.
Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Parabolas Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-2.

Unit 3: Two Dimensional and Rotational Motion

Ind Study Physics

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Winding Up! Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

Unit 3: Two Dimensional and Rotational Motion

Ind Study Physics

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Section 3 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Slow and Fast? Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship

Unit 3: Two Dimensional and Rotational Motion

Ind Study Physics

among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Section 4 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Projectile Motion Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Unit 3: Two Dimensional and Rotational Motion

Ind Study Physics

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Section 5 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Balancing Torque Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

Unit 3: Two Dimensional and Rotational Motion

Ind Study Physics

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Module 3 Exam

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Evaluating understanding of key concepts through a comprehensive assessment, including multiple-choice, fill-in-the-blank, and true/false questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Unit 4: Gravitation

Ind Study Physics

UNIT SUMMARY

Students will learn about kepler's law and how to calculate the orbit of planets. Students will learn about the universal law of gravitation and how to calculate gravitational forces between two objects. Students will learn about relativity and Einstein's model of gravity.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS1-4.

Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

Unit 4: Gravitation

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Spin Me Right Round Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Unit 4: Gravitation

Ind Study Physics

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Out of This World Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Gravitational Force Lab

Assessment Type: Formative

Unit 4: Gravitation

Ind Study Physics

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Section 3 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Planetary Orbit Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided

Unit 4: Gravitation

Ind Study Physics

worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Module 4 Exam

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description:

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Unit 5: Momentum

Ind Study Physics

UNIT SUMMARY

Students will learn about momentum and how to calculate momentum. Students will learn about how momentum is transferred in a closed system. Students will learn the difference between elastic and in elastic collisions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-3.

Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

HS-PS2-2.

Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

Unit 5: Momentum

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-2.
Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.
HS-PS2-3.
Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-2.
Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.
HS-PS2-3.
Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

Unit 5: Momentum

Ind Study Physics

Momentum Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-2.
Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.
HS-PS2-3.
Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

Car Crash Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-3.
Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Unit 6: Machines and Work

Ind Study Physics

UNIT SUMMARY

Will learn the definition of work and how it is calculated using force and distance. Students will learn about mechanical efficiency and how it applies to various simple machines. Students will learn the uses and applications in real world applications.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS3-1.

Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known

HS-PS3-2.

Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

HS-PS3-3.

Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

Unit 6: Machines and Work

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS3-1.
Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS3-1.

Unit 6: Machines and Work

Ind Study Physics

Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known

HS-PS3-2.

Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

HS-PS3-3.

Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

Using Simple Machines Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS3-1.

Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known

HS-PS3-2.

Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

HS-PS3-3.

Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

Unit 6: Machines and Work

Ind Study Physics

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

Levers Lab

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description:

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS3-1.

Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known

HS-PS3-2.

Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

HS-PS3-3.

Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

Module 5 and 6 Exam

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Evaluating understanding of key concepts through a comprehensive assessment, including multiple-choice, fill-in-the-blank, and true/false questions.

STANDARDS

Unit 6: Machines and Work

Ind Study Physics

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-1.

Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS3-1.

Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known

HS-PS3-2.

Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

HS-PS3-3.

Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

Unit 7: Energy

Ind Study Physics

UNIT SUMMARY

Students will learn how to identify types of energy. Students will learn how to distinguish between potential energy and kinetic energy period. The students will learn about conservation of energy and how to apply it two mathematical problems related to the transfer between potential and kinetic energy. Students will learn how energy is transferred in inelastic and elastic collisions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS3-1.
Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
HS-PS3-4.
Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).
HS-PS3-5.
Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Unit 7: Energy

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS3-1.
Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
HS-PS3-4.
Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).
HS-PS3-5.
Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Identifying Types of Energy Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems

Unit 7: Energy

Ind Study Physics

that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS3-1.
Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
HS-PS3-4.
Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).
HS-PS3-5.
Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

Up and Down We Go! Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems

Unit 7: Energy

Ind Study Physics

that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS3-1.
Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

Semester 1 Exam

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Evaluating understanding of key concepts through a comprehensive assessment, including multiple-choice, fill-in-the-blank, and true/false questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS3-1.
Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another

Unit 7: Energy

Ind Study Physics

form of energy.

HS-PS3-4.

Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).

HS-PS3-5.

Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Unit 8: Thermal Energy and The States of Matter

Ind Study Physics

UNIT SUMMARY

Students will learn about thermal energy and how it is transferred through different materials. Students will learn how to calculate the rate of heat transfer between different types of materials and how to calculate specific heat of materials. Students will learn the mathematical relationships between the simple gas laws as well as the properties in the ideal gas law and how properties of gases affect one another.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS3-2.

Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

HS-PS1-4.

Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.

Unit 8: Thermal Energy and The States of Matter

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

Phase Changes Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

Unit 8: Thermal Energy and The States of Matter

Ind Study Physics

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

Phase Change Lab

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description:

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

Unit 8: Thermal Energy and The States of Matter

Ind Study Physics

Section 3 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

Gas Law Problem Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

Unit 8: Thermal Energy and The States of Matter

Ind Study Physics

Unit 8 Exam

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Evaluating understanding of key concepts through a comprehensive assessment, including multiple-choice, fill-in-the-blank, and true/false questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

Unit 9: Waves

Ind Study Physics

UNIT SUMMARY

Students will learn about simple harmonic motion and the mathematical relationships between properties of pendulums and springs. Students will learn the relationship between frequency speed amplitude and period of waves. Students will learn how to interpret a graph of a wave and identify characteristics of waves based on a graph.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS4-1.

Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-PS4-2.

Evaluate questions about the advantages of using a digital transmission and storage of information.

HS-PS4-3.

Evaluate the claims, evidence, and reasoning behind behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

HS-PS4-4.

Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

HS-PS4-5.

Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Unit 9: Waves

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS4-1.
Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.
HS-PS4-2.
Evaluate questions about the advantages of using a digital transmission and storage of information.
HS-PS4-3.
Evaluate the claims, evidence, and reasoning behind behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.
HS-PS4-4.
Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.
HS-PS4-5.
Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Harmonic Motion Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Unit 9: Waves

Ind Study Physics

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS4-1.

Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

Waves Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS4-1.

Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-PS4-2.

Evaluate questions about the advantages of using a digital transmission and storage of information.

HS-PS4-3.

Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

HS-PS4-4.

Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

HS-PS4-5.

Unit 9: Waves

Ind Study Physics

Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Unit 10: The Physics of Light

Ind Study Physics

UNIT SUMMARY

Students will learn about the physics of light and its mathematical properties. Students will learn how light is affected by prisms and lenses. Students will learn about the electromagnetic spectrum and how different wavelengths cause different colors.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS4-1.

Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-PS4-3.

Evaluate the claims, evidence, and reasoning behind behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

HS-PS4-4.

Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

Unit 10: The Physics of Light

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS4-1.
Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.
HS-PS4-3.
Evaluate the claims, evidence, and reasoning behind behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.
HS-PS4-4.
Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

All The Colors of The Rainbow Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS4-1.
Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.
HS-PS4-3.

Unit 10: The Physics of Light

Ind Study Physics

Evaluate the claims, evidence, and reasoning behind behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

Module 9 and 10 Exam

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Evaluating understanding of key concepts through a comprehensive assessment, including multiple-choice, fill-in-the-blank, and true/false questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS4-1.

Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-PS4-3.

Evaluate the claims, evidence, and reasoning behind behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

HS-PS4-4.

Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

Unit 11: Refraction and Lenses

Ind Study Physics

UNIT SUMMARY

Students will learn about refraction and how to apply snell's law to determine if light is reflected or refracted.

Students will learn about how light and images are manipulated by concave and convex lenses. Students will learn how lenses are used to correct the vision and about the working anatomy of the eye.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS4-1.

Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-PS4-5.

Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Unit 11: Refraction and Lenses

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS4-1.
Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.
HS-PS4-5.
Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Refraction of Light Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS4-1.
Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.
HS-PS4-5.
Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Unit 11: Refraction and Lenses

Ind Study Physics

Fishing Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS4-1.
Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.
HS-PS4-5.
Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS4-1.
Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.
HS-PS4-5.
Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Lens Lab

Assessment Type: Formative

Unit 11: Refraction and Lenses

Ind Study Physics

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS4-5.
Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.
HS-PS4-1.
Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

Section 3 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS4-5.
Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Eyes and Vision Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

Unit 11: Refraction and Lenses

Ind Study Physics

HS-PS4-5.

Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Unit 12: Static Charge

Ind Study Physics

UNIT SUMMARY

Students will learn about coulomb's law and how to mathematically calculate the charge of particles. Since we'll learn about the attraction of static electric charges and how they are calculated mathematically. Students will learn about materials that are able to conduct charges and also able to insulate.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

HS-PS2-6.

Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Unit 12: Static Charge

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.
Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.
Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Unit 12: Static Charge

Ind Study Physics

Attraction Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.
Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Unit 12 Exam

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Evaluating understanding of key concepts through a comprehensive assessment, including multiple-choice, fill-in-the-blank, and true/false questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.
Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Unit 13: Electric Current and Circuits

Ind Study Physics

UNIT SUMMARY

Students will learn about the components of circuits including resistors, capacitors, and power sources. Students will learn how to calculate resistance using ohm's law. Students will learn how to calculate amperage and voltage for circuits based on their components. Students will learn the difference between parallel and series circuits.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
HS-PS3-5.
Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.
HS-PS2-5.
Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.

Unit 13: Electric Current and Circuits

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
HS-PS3-5.
Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Keep The Lights On Assignment

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge and applying concepts learned in lecture to real-world problems that require critical thinking.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
HS-PS3-5.
Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Unit 13: Electric Current and Circuits

Ind Study Physics

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
HS-PS3-5.
Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.
HS-PS2-5.
Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.

Circuits Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
HS-PS3-5.
Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces

Unit 13: Electric Current and Circuits

Ind Study Physics

between objects and the changes in energy of the objects due to the interaction.

HS-PS2-5.

Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.

Unit 13 Exam

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Evaluating understanding of key concepts through a comprehensive assessment, including multiple-choice, fill-in-the-blank, and true/false questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS3-3.

Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

HS-PS3-5.

Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

HS-PS2-5.

Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.

Unit 14: Quantum Theory

Ind Study Physics

UNIT SUMMARY

Students will learn about quantum theory and its component theories. Students will learn about particle wave duality and how this affects the transmission of light. Students will understand proofs and concepts of quantum theory and other “theories of everything.” Students will learn how quantum theory influences models of chemistry and physics.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS4-3.

Evaluate the claims, evidence, and reasoning behind behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

HS-PS4-4.

Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

HS-PS4-5.

Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Unit 14: Quantum Theory

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Quantum Theory Project

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description:

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS4-3.
Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.
HS-PS4-4.
Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.
HS-PS4-5.
Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Unit 15: Magnetism

Ind Study Physics

UNIT SUMMARY

Students will learn how magnetic fields are created and how they affect particles. Students will learn how electricity can be generated using magnetic fields. Students will learn about magnets in their properties. Students will learn what materials can be made into magnets. Students will learn about the earth's magnetic field and how it affects objects on earth. Students will learn how to create electromagnetism using electricity moving through coils.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS2-4.

Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

HS-PS3-5.

Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

HS-PS2-6.

Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Unit 15: Magnetism

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.
Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
HS-PS3-5.
Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Magnetism Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.

Unit 15: Magnetism

Ind Study Physics

Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

HS-PS3-5.

Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Unit 16: Nuclear Chemistry, Fission, and Fusion

Ind Study Physics

UNIT SUMMARY

Students will learn about types of radiation and how energy is released through each process of radiation. Students will learn how atoms can be split through various processes to create energy. Students will learn about the structure of atoms and how isotopes differ in structure. Students will learn how matter and energy are related using the theory of relativity. Students will learn the difference between nuclear fusion and nuclear fission and how each process is used to create energy.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences

HS-PS1-8.

Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

HS-PS1-7.

Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.

Unit 16: Nuclear Chemistry, Fission, and Fusion

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Section 1 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-7.
Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
HS-PS1-8.
Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

Isotope Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-7.
Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
HS-PS1-8.
Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

Unit 16: Nuclear Chemistry, Fission, and Fusion

Ind Study Physics

Section 2 Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Assessing knowledge of concepts in section using multiple choice, true or false, and/or multi-select questions.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-7.
Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
HS-PS1-8.
Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

Nuclear Reaction Lab

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Reinforcing procedural knowledge by interacting with virtual lab activities and completing guided worksheets to apply scientific concepts and skills.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-7.
Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
HS-PS1-8.
Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

Unit 17: Physics Project

Ind Study Physics

UNIT SUMMARY

Students will explore a concept of their choice and learn about the physics concepts involved in the concept. Students will create a project that represents discovery of the concept, major advancements in the concept, an explanation of the concept, and how the technology or concept applies in the real world.

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS1-5.
Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.
HS-PS1-8.
Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-3.
Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.
Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination

Unit 17: Physics Project

Ind Study Physics

of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

HS-PS3-3.

Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

HS-PS4-4.

Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

HS-PS4-5.

Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

HS-PS4-3.

Evaluate the claims, evidence, and reasoning behind behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

Unit 17: Physics Project

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Physics Project

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description:

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS1-5.
Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.
HS-PS1-8.
Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-3.
Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.
Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Unit 17: Physics Project

Ind Study Physics

HS-PS3-2.

Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

HS-PS3-3.

Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

HS-PS4-3.

Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

HS-PS4-4.

Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

HS-PS4-5.

Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Unit 18: Semester 1 Exam

Ind Study Physics

UNIT SUMMARY

Summative assessment on all topics taught in Semester 1 (through Unit 7).

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-2.
Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.
HS-PS2-3.
Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS3-1.
Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

Unit 18: Semester 1 Exam

Ind Study Physics

HS-PS3-4.

Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).

HS-PS3-5.

Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Unit 18: Semester 1 Exam

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Semester 1 Exam

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Summative assessment on all topics taught in Semester 1 (through Unit 7).

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS2-1.
Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-2.
Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.
HS-PS2-3.
Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS3-1.
Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).

Unit 18: Semester 1 Exam

Ind Study Physics

HS-PS3-3.

Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

HS-PS3-4.

Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).

HS-PS3-5.

Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Unit 19: Semester 2 Exam

Ind Study Physics

UNIT SUMMARY

Summative assessment on all topics taught in Semester 1 (through Unit 16).

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS1-7.
Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
HS-PS1-8.
Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-5.
Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.
HS-PS2-6.
Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

Unit 19: Semester 2 Exam

Ind Study Physics

HS-PS3-5.

Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

HS-PS4-1.

Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-PS4-2.

Evaluate questions about the advantages of using a digital transmission and storage of information.

HS-PS4-3.

Evaluate the claims, evidence, and reasoning behind behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

HS-PS4-4.

Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

HS-PS4-5.

Communicate technical information about about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Unit 19: Semester 2 Exam

Ind Study Physics

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Semester 2 Exam

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description:

STANDARDS

Next Generation Science (NGSS) - High School - Physical Sciences
HS-PS1-4.
Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
HS-PS3-2.
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
HS-PS3-5.
Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.
HS-PS1-7.
Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
HS-PS1-8.
Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
HS-PS2-4.
Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

Unit 19: Semester 2 Exam

Ind Study Physics

HS-PS2-5.

Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.

HS-PS2-6.

Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

HS-PS4-1.

Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-PS4-2.

Evaluate questions about the advantages of using a digital transmission and storage of information.

HS-PS4-3.

Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

HS-PS4-4.

Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.
















HS-PS4-5.


Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Ind Study Physics

Maine Virtual Academy

School Year 2024-2025 (Aug 26, 2024 - Jun 13, 2025)

UNIT	# OF TEACHING DAYS	DATES
 Unit 1: Introduction to Physics and Motion in 1-D	16 teaching days	Aug 26 - Sep 20, 2024
 Unit 2: Forces in 1-D and 2-D	12 teaching days	Sep 23 - Oct 11, 2024
 Unit 3: Two Dimensional and Rotational Motion	14 teaching days	Oct 14 - Nov 1, 2024
 Unit 4: Gravitation	9 teaching days	Nov 4 - Nov 15, 2024
 Unit 5: Momentum	5 teaching days	Nov 18 - Nov 22, 2024
 Unit 6: Machines and Work	7 teaching days	Nov 25 - Dec 6, 2024
 Unit 7: Energy	5 teaching days	Dec 9 - Dec 13, 2024
 Unit 8: Thermal Energy and The States of Matter	10 teaching days	Feb 3 - Feb 14, 2025
 Unit 9: Waves	5 teaching days	Feb 17 - Feb 28, 2025
 Unit 10: The Physics of Light	5 teaching days	Mar 3 - Mar 7, 2025
 Unit 11: Refraction and Lenses	8 teaching days	Mar 10 - Mar 19, 2025
 Unit 12: Static Charge	5 teaching days	Mar 24 - Mar 28, 2025
 Unit 13: Electric Current and Circuits	2 teaching days	Apr 28 - May 2, 2025
 Unit 14: Quantum Theory	14 teaching days	Mar 24 - Apr 17, 2025
 Unit 15: Magnetism	5 teaching days	May 5 - May 9, 2025

 Unit 16: Nuclear Chemistry, Fission, and Fusion	5 teaching days	May 12 - May 23, 2025
 Unit 17: Physics Project	11 teaching days	Jan 13 - Jan 31, 2025
 Unit 18: Semester 1 Exam	5 teaching days	Dec 16 - Dec 20, 2024
 Unit 19: Semester 2 Exam	14 teaching days	May 26 - Jun 13, 2025

August

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26 Unit 1: Introductio...	27 Unit 1: Introductio...	28 Unit 1: Introductio...	29 Unit 1: Introductio...	30 Unit 1: Introductio...	31

September

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Labor Day	3 Unit 1: Introductio...	4 Unit 1: Introductio...	5 Unit 1: Introductio...	6 Unit 1: Introductio...	7
8	9 Unit 1: Introductio...	10 Fall NWEA Testing	11 Fall NWEA Testing	12 Fall NWEA Testing	13 Unit 1: Introductio...	14
15	16 Unit 1: Introductio...	17 Unit 1: Introductio...	18 Unit 1: Introductio...	19 Unit 1: Introductio...	20 Unit 1: Introductio...	21
22	23 Unit 2: Forces in ...	24 Unit 2: Forces in ...	25 Unit 2: Forces in ...	26 Unit 2: Forces in ...	27 Unit 2: Forces in ...	28
29	30 Unit 2: Forces in ...	1 Unit 2: Forces in ...	2 Unit 2: Forces in ...	3 Unit 2: Forces in ...	4 Unit 2: Forces in ...	5

October

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30 Unit 2: Forces in ...	1 Unit 2: Forces in ...	2 Unit 2: Forces in ...	3 Unit 2: Forces in ...	4 Unit 2: Forces in ...	5
6	7 Maine Through Year (Tentative)	8 Maine Through Year (Tentative)	9 Maine Through Year (Tentative)	10 Unit 2: Forces in ...	11 Unit 2: Forces in ...	12
13	14 Indigenous Peoples' Day	15 Unit 3: Two Dime...	16 Unit 3: Two Dime...	17 Unit 3: Two Dime...	18 Unit 3: Two Dime...	19
20	21 Unit 3: Two Dime...	22 Unit 3: Two Dime...	23 Unit 3: Two Dime...	24 Unit 3: Two Dime...	25 Unit 3: Two Dime...	26
27	28 Unit 3: Two Dime...	29 Unit 3: Two Dime...	30 Unit 3: Two Dime...	31 Unit 3: Two Dime...	1 Unit 3: Two Dime...	2

November

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28 Unit 3: Two Dime...	29 Unit 3: Two Dime...	30 Unit 3: Two Dime...	31 Unit 3: Two Dime...	1 Unit 3: Two Dime...	2
3	4 Unit 4: Gravitation	5 Unit 4: Gravitation	6 Unit 4: Gravitation	7 Unit 4: Gravitation	8 Unit 4: Gravitation	9
10	11 Veterans Day	12 Unit 4: Gravitation	13 Unit 4: Gravitation	14 Unit 4: Gravitation	15 Unit 4: Gravitation	16
17	18 Unit 5: Momentum	19 Unit 5: Momentum	20 Unit 5: Momentum	21 Unit 5: Momentum	22 Unit 5: Momentum	23
24	25 Unit 6: Machines ...	26 Unit 6: Machines ...	27 Thanksgiving	28 Thanksgiving	29 Thanksgiving	30

December

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Unit 6: Machines ...	3 Unit 6: Machines ...	4 Unit 6: Machines ...	5 Unit 6: Machines ...	6 Unit 6: Machines ...	7
8	9 Unit 7: Energy	10 Unit 7: Energy	11 Unit 7: Energy	12 Unit 7: Energy	13 Unit 7: Energy	14
15	16 Unit 18: Semeste...	17 Unit 18: Semeste...	18 Unit 18: Semeste...	19 Unit 18: Semeste...	20 Unit 18: Semeste...	21
22	23 Winter Break	24 Winter Break	25 Winter Break	26 Winter Break	27 Winter Break	28 Winter Break
29 Winter Break	30 Winter Break	31 Winter Break	1 New Year's Day	2	3	4

January

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29 Winter Break	30 Winter Break	31 Winter Break	1 New Year's Day	2	3	4
5	6	7	8	9	10	11
12	13 Unit 17: Physics ...	14 Winter NWEA Testing	15 Winter NWEA Testing	16 Winter NWEA Testing	17 Unit 17: Physics ...	18
19	20 Martin Luther King, Jr. Day	21 Unit 17: Physics ...	22 Unit 17: Physics ...	23 Unit 17: Physics ...	24 Unit 17: Physics ...	25
26	27 Unit 17: Physics ...	28 Unit 17: Physics ...	29 Unit 17: Physics ...	30 Unit 17: Physics ...	31 Unit 17: Physics ...	1

February

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
26	27 Unit 17: Physics ...	28 Unit 17: Physics ...	29 Unit 17: Physics ...	30 Unit 17: Physics ...	31 Unit 17: Physics ...	1
2	3 Unit 8: Thermal E...	4 Unit 8: Thermal E...	5 Unit 8: Thermal E...	6 Unit 8: Thermal E...	7 Unit 8: Thermal E...	8
9	10 Unit 8: Thermal E...	11 Unit 8: Thermal E...	12 Unit 8: Thermal E...	13 Unit 8: Thermal E...	14 Unit 8: Thermal E...	15
16	17 Presidents' Day	18 February Break	19 February Break	20 February Break	21 February Break	22
23	24 Unit 9: Waves	25 Unit 9: Waves	26 Unit 9: Waves	27 Unit 9: Waves	28 Unit 9: Waves	1

March

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
23	24 Unit 9: Waves	25 Unit 9: Waves	26 Unit 9: Waves	27 Unit 9: Waves	28 Unit 9: Waves	1
2	3 Unit 10: The Phy...	4 Unit 10: The Phy...	5 Unit 10: The Phy...	6 Unit 10: The Phy...	7 Unit 10: The Phy...	8
9	10 Unit 11: Refractio...	11 Unit 11: Refractio...	12 Unit 11: Refractio...	13 Unit 11: Refractio...	14 Unit 11: Refractio...	15
16	17 Unit 11: Refractio...	18 Unit 11: Refractio...	19 Unit 11: Refractio...	20 March Break	21 March Break	22
23	24 Unit 12: Static Ch... Unit 14: Quantum...	25 Unit 12: Static Ch... Unit 14: Quantum...	26 Unit 12: Static Ch... Unit 14: Quantum...	27 Unit 12: Static Ch... Unit 14: Quantum...	28 Unit 12: Static Ch... Unit 14: Quantum...	29
30	31 Unit 14: Quantum...	1 Unit 14: Quantum...	2 Unit 14: Quantum...	3 Unit 14: Quantum...	4 Unit 14: Quantum...	5

April

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
30	31 Unit 14: Quantum...	1 Unit 14: Quantum...	2 Unit 14: Quantum...	3 Unit 14: Quantum...	4 Unit 14: Quantum...	5
6	7 MEA Science (HS)	8 MEA Science (HS)	9 MEA Science (HS)	10 MEA Science (HS)	11 MEA Science (HS)	12
13	14 Unit 14: Quantum...	15 Unit 14: Quantum...	16 Unit 14: Quantum...	17 Unit 14: Quantum...	18 April Vacation	19 April Vacation
20 April Vacation	21 April Vacation	22 April Vacation	23 April Vacation	24 April Vacation	25 April Vacation	26
27	28 Unit 13: Electric ...	29 Spring NWEA Testing	30 Spring NWEA Testing	1 Spring NWEA Testing	2 Unit 13: Electric ...	3

May

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28 Unit 13: Electric ...	29 Spring NWEA Testing	30 Spring NWEA Testing	1 Spring NWEA Testing	2 Unit 13: Electric ...	3
4	5 Unit 15: Magnetism	6 Unit 15: Magnetism	7 Unit 15: Magnetism	8 Unit 15: Magnetism	9 Unit 15: Magnetism	10
11	12 MEA (ELA & Math)	13 MEA (ELA & Math)	14 MEA (ELA & Math)	15 MEA (ELA & Math)	16 MEA (ELA & Math)	17
18	19 Unit 16: Nuclear ...	20 Unit 16: Nuclear ...	21 Unit 16: Nuclear ...	22 Unit 16: Nuclear ...	23 Unit 16: Nuclear ...	24
25	26 Memorial Day	27 Unit 19: Semeste...	28 Unit 19: Semeste...	29 Unit 19: Semeste...	30 Unit 19: Semeste...	31

June

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Unit 19: Semeste...	3 Unit 19: Semeste...	4 Unit 19: Semeste...	5 Unit 19: Semeste...	6 Unit 19: Semeste...	7
8	9 Unit 19: Semeste...	10 Unit 19: Semeste...	11 Unit 19: Semeste...	12 Unit 19: Semeste...	13 Unit 19: Semeste...	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

HS Pre-Calculus


Maine Virtual Academy

UNITS (10/10 SELECTED)


 Unit 1: Equations and Inequalities


 Unit 2: Coordinates and Conics


 Unit 3: Vectors and Matrices

 Unit 4: Complex Numbers

 Unit 5: Functions

 Unit 6: Sequences and Series

 Unit 7: Combinatorics and Probability

 Unit 8: Statistics

 Unit 9: Intro to Calculus

 Unit 10: Special Topics

SUGGESTED DURATION

16 teaching days

16 teaching days

19 teaching days

12 teaching days

18 teaching days

15 teaching days

15 teaching days

13 teaching days

9 teaching days

26 teaching days

Unit 1: Equations and Inequalities

HS Pre-Calculus

UNIT SUMMARY

Students study equations and inequalities by working with different types of representations: algebraic forms, graphs, and solution space sets. They learn and practice techniques for solving several categories of equations and inequalities, including polynomial, radical, logarithmic, and rational forms.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSA.SSE.A.2
Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, allowing for it to be recognized as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
HSA.SSE.B.3a
Rewrite a quadratic expression (such as by factoring) to reveal the zeros of the function it defines.
HSA.SSE.B.3b
Rewrite a quadratic expression (such as by completing the square) to reveal the maximum or minimum value of the function it defines.
AR.A.7
Create equations and/or inequalities that describe numbers or relationships.
HSA.CED.A.1
Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
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.3

Unit 1: Equations and Inequalities

HS Pre-Calculus

Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods such as lobsters, blueberries, and potatoes.

HSA.CED.A.4

Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .

AR.A.8

Understand solving equations as a process of reasoning and explain the reasoning.

HSA.REI.A.1

Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.

HSA.REI.A.2

Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

AR.A.9

Solve equations and inequalities in one variable.

HSA.REI.B.3

Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

AR.A.11

Represent and solve equations and inequalities graphically.

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.

HSA.REI.D.11

Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are

Unit 1: Equations and Inequalities

HS Pre-Calculus

linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

HSA.REI.D.12

Graph the solutions of a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set of a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

HSF.BF.B.5

Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.

AR.A.17

Construct and compare linear, quadratic, and exponential models and solve problems.

HSF.LE.A.4

For exponential models, express as a logarithm the solution to $ab^ct = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.

AR.A.4

Understand the relationship between zeros and factors of polynomials.

HSA.APR.B.3

Identify zeros of polynomials of degree three or higher when suitable factorizations (in factored form or easily factorable) are available, and use the zeros to construct a rough graph of the function defined by the polynomial.

AR.A.10

Solve systems of equations.

HSA.REI.C.5

Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

HSA.REI.C.6

Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

HSA.REI.C.7

Unit 1: Equations and Inequalities

HS Pre-Calculus

Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the point(s) of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.

HSF.IF.C.7c

Graph polynomial functions of degree three or higher, identifying zeros when suitable factorizations (in factored form or easily factorable) are available, and showing end behavior.

Maine - High School - Mathematics - Quantitative Reasoning (2020)

QR.A.1

Extend the properties of exponents to rational exponents.

HSN.RN.A.1

Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5(1/3)^3$ to hold, so $(5^{1/3})^3$ must equal 5.

HSN.RN.A.2

Rewrite expressions involving radicals and rational exponents using the properties of exponents.

Unit 1: Equations and Inequalities

HS Pre-Calculus

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Lesson 1.01 - Factoring Techniques

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Factoring quadratics is reviewed, focusing on how factored forms relate to their graphs and how to convert between them. Students learn and use difference of squares and u-substitution factoring techniques to break down polynomials into simpler factors.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSA.SSE.A.2
Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, allowing for it to be recognized as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
HSA.SSE.B.3a
Rewrite a quadratic expression (such as by factoring) to reveal the zeros of the function it defines.
HSA.SSE.B.3b
Rewrite a quadratic expression (such as by completing the square) to reveal the maximum or minimum value of the function it defines.
HSA.REI.D.10
Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.
HSF.IF.C.7c
Graph polynomial functions of degree three or higher, identifying zeros when suitable factorizations (in factored form or easily factorable) are available, and showing end behavior.

Unit 1: Equations and Inequalities

HS Pre-Calculus

HSA.APR.B.3

Identify zeros of polynomials of degree three or higher when suitable factorizations (in factored form or easily factorable) are available, and use the zeros to construct a rough graph of the function defined by the polynomial.

AR.A.4

Understand the relationship between zeros and factors of polynomials.

Lesson 1.02 - Polynomial Inequalities

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Compound inequalities are reviewed, and students are introduced to solving inequalities by breaking them into separate cases. These skills are applied to inequalities involving factored form polynomials, where solutions are found by identifying key values and testing intervals between them.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.2

Write expressions in equivalent forms to reveal information and to solve problems.

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.

HSA.SSE.B.3a

Rewrite a quadratic expression (such as by factoring) to reveal the zeros of the function it defines.

HSA.SSE.A.2

Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, allowing for it to be recognized as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

HSA.CED.A.1

Create equations and inequalities in one variable and use them to solve problems. Include equations arising from

Unit 1: Equations and Inequalities

HS Pre-Calculus

linear and quadratic functions, and simple rational and exponential functions.

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.

AR.A.8

Understand solving equations as a process of reasoning and explain the reasoning.

HSA.REI.A.1

Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.

AR.A.9

Solve equations and inequalities in one variable.

HSA.REI.D.12

Graph the solutions of a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set of a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

HSA.REI.D.11

Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.

AR.A.11

Represent and solve equations and inequalities graphically.

Lesson 1.03 - Sets and Solution Spaces

Assessment Type: Formative

Unit 1: Equations and Inequalities

HS Pre-Calculus

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK4

Description: Students are introduced to set symbols and notation and practice using them to describe solution spaces. Concepts include working with sets, intervals, subsets, set inclusion, intersection, union, Cartesian product, and set builder notation. Reasoning skills are emphasized through logic-based problem solving.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSA.REI.D.10
Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.
HSA.REI.D.12
Graph the solutions of a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set of a system of linear inequalities in two variables as the intersection of the corresponding half-planes.
HSA.CED.A.3
Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods such as lobsters, blueberries, and potatoes.
HSA.REI.D.11
Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
HSA.CED.A.4
Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For

Unit 1: Equations and Inequalities

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example, rearrange Ohm's law $V = IR$ to highlight resistance R .

AR.A.8

Understand solving equations as a process of reasoning and explain the reasoning.

HSA.REI.A.1

Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.

AR.A.9

Solve equations and inequalities in one variable.

AR.A.11

Represent and solve equations and inequalities graphically.

HSA.REI.C.7

Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the point(s) of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.

AR.A.10

Solve systems of equations.

HSA.REI.C.5

Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

HSA.REI.C.6

Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

Lesson 1.04 - Radical Equations and Inequalities

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Simplifying radical expressions and using rational exponents is reviewed. Students solve radical equations of increasing complexity by developing and applying problem-solving techniques. These skills are

Unit 1: Equations and Inequalities

HS Pre-Calculus

extended to radical inequalities, where solutions often involve restricted domains and result in compound inequalities.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
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.3
Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods such as lobsters, blueberries, and potatoes.
AR.A.8
Understand solving equations as a process of reasoning and explain the reasoning.
HSA.REI.A.1
Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.
HSA.REI.A.2
Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
AR.A.9
Solve equations and inequalities in one variable.
AR.A.11
Represent and solve equations and inequalities graphically.

Unit 1: Equations and Inequalities

HS Pre-Calculus

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.

HSA.REI.D.11

Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

Maine - High School - Mathematics - Quantitative Reasoning (2020)

QR.A.1

Extend the properties of exponents to rational exponents.

HSN.RN.A.1

Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5(1/3)^3$ to hold, so $(5^{1/3})^3$ must equal 5.

HSN.RN.A.2

Rewrite expressions involving radicals and rational exponents using the properties of exponents.

Lesson 1.05 - Logarithmic Equations and Inequalities

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Properties of logarithms are reviewed and applied to combine and simplify logarithmic expressions. Students solve logarithmic equations, then extend these skills to logarithmic inequalities. In both cases, they apply domain restrictions and use solution techniques that build on previously learned algebra skills.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.2

Write expressions in equivalent forms to reveal information and to solve problems.

HSA.SSE.B.3

Unit 1: Equations and Inequalities

HS Pre-Calculus

Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

HSA.CED.A.1

Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

AR.A.8

Understand solving equations as a process of reasoning and explain the reasoning.

HSA.REI.A.1

Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.

HSA.REI.A.2

Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

AR.A.9

Solve equations and inequalities in one variable.

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.

HSA.REI.D.11

Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

HSF.LE.A.4

For exponential models, express as a logarithm the solution to $abct = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.

Maine - High School - Mathematics - Quantitative Reasoning (2020)

Unit 1: Equations and Inequalities

HS Pre-Calculus

QR.A.1

Extend the properties of exponents to rational exponents.

Lesson 1.06 - Rational Equations and Inequalities

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students review the behavior and key features of rational functions, including how to find zeros and vertical asymptotes from factored forms. They practice solving rational equations by clearing denominators or combining rational expressions. These methods are then extended to rational inequalities, where students test intervals or use case-based approaches to determine solutions.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

HSA.SSE.A.2

Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, allowing for it to be recognized as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.

AR.A.2

Write expressions in equivalent forms to reveal information and to solve problems.

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.

AR.A.4

Understand the relationship between zeros and factors of polynomials.

HSA.APR.B.3

Identify zeros of polynomials of degree three or higher when suitable factorizations (in factored form or easily factorable) are available, and use the zeros to construct a rough graph of the function defined by the polynomial.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

HSA.CED.A.1

Unit 1: Equations and Inequalities

HS Pre-Calculus

Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

AR.A.9

Solve equations and inequalities in one variable.

HSA.REI.A.2

Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

AR.A.11

Represent and solve equations and inequalities graphically.

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.

HSA.REI.D.11

Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

Unit 1 Review and Exam

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK4

Description: A full class session is dedicated to reviewing the skills and concepts from this unit. Another session is used for a summative exam, assessing students on all covered material.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

HSA.SSE.A.2

Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, allowing for it to be recognized as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.

AR.A.2

Unit 1: Equations and Inequalities

HS Pre-Calculus

Write expressions in equivalent forms to reveal information and to solve problems.

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.

HSA.SSE.B.3a

Rewrite a quadratic expression (such as by factoring) to reveal the zeros of the function it defines.

HSA.SSE.B.3b

Rewrite a quadratic expression (such as by completing the square) to reveal the maximum or minimum value of the function it defines.

AR.A.4

Understand the relationship between zeros and factors of polynomials.

HSA.APR.B.3

Identify zeros of polynomials of degree three or higher when suitable factorizations (in factored form or easily factorable) are available, and use the zeros to construct a rough graph of the function defined by the polynomial.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

HSA.CED.A.1

Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

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.3

Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods such as lobsters, blueberries, and potatoes.

HSA.CED.A.4

Unit 1: Equations and Inequalities

HS Pre-Calculus

Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .

AR.A.8

Understand solving equations as a process of reasoning and explain the reasoning.

HSA.REI.A.1

Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.

HSA.REI.A.2

Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

AR.A.9

Solve equations and inequalities in one variable.

HSA.REI.B.3

Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

AR.A.10

Solve systems of equations.

HSA.REI.C.5

Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

HSA.REI.C.6

Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

HSA.REI.C.7

Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the point(s) of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.

AR.A.11

Unit 1: Equations and Inequalities

HS Pre-Calculus

Represent and solve equations and inequalities graphically.

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.

HSA.REI.D.11

Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

HSA.REI.D.12

Graph the solutions of a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set of a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

HSF.IF.C.7c

Graph polynomial functions of degree three or higher, identifying zeros when suitable factorizations (in factored form or easily factorable) are available, and showing end behavior.

HSF.BF.B.5

Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.

AR.A.17

Construct and compare linear, quadratic, and exponential models and solve problems.

HSF.LE.A.4

For exponential models, express as a logarithm the solution to $abct = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.

Maine - High School - Mathematics - Quantitative Reasoning (2020)

QR.A.1

Extend the properties of exponents to rational exponents.

HSN.RN.A.1

Unit 1: Equations and Inequalities

HS Pre-Calculus

Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5(1/3)^3$ to hold, so $(5^{1/3})^3$ must equal 5.

HSN.RN.A.2

Rewrite expressions involving radicals and rational exponents using the properties of exponents.

Unit 2: Coordinates and Conics

HS Pre-Calculus

UNIT SUMMARY

Students expand their understanding of coordinate systems beyond the standard Cartesian plane. They work with polar and three-dimensional coordinate systems, then study conic sections (the curves formed by slicing a cone). Students learn the definitions, properties, and equations of parabolas, circles, ellipses, and hyperbolas, and practice graphing them and solving related systems of equations.

STANDARDS

Maine - High School - Mathematics - Geometric Reasoning (2020)
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.
GR.A.1
Experiment with transformations in the plane.
GR.A.11
Translate between the geometric description and the equation for a conic section.
HSG.GPE.A.2
Derive the equation of a parabola given a focus and directrix.
HSG.GPE.A.3
Derive the equations of ellipses and hyperbolas given the foci and directrix, using the fact that the sum or difference of distances from the foci is constant.
GR.A.12
Use coordinates to prove simple geometric theorems algebraically.
HSG.GPE.B.4
Use coordinates to prove simple geometric theorems algebraically including the distance formula and its relationship to the Pythagorean Theorem. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.
Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.2

Unit 2: Coordinates and Conics

HS Pre-Calculus

Write expressions in equivalent forms to reveal information and to solve problems.

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.

HSA.SSE.B.3a

Rewrite a quadratic expression (such as by factoring) to reveal the zeros of the function it defines.

HSA.SSE.B.3b

Rewrite a quadratic expression (such as by completing the square) to reveal the maximum or minimum value of the function it defines.

AR.A.3

Perform arithmetic operations on polynomials.

HSA.APR.A.1b

Factor and/or expand polynomial expressions, identify and combine like terms, and apply the Distributive Property.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

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. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .

HSA.REI.B.4

Solve quadratic equations in one variable.

HSA.REI.B.4a

Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.

HSA.REI.B.4b.i

Unit 2: Coordinates and Conics

HS Pre-Calculus

Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation.

HSA.REI.B.4b.ii

Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .

AR.A.10

Solve systems of equations.

HSA.REI.C.5

Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

HSA.REI.C.7

Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the point(s) of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.

AR.A.11

Represent and solve equations and inequalities graphically.

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.

HSF.IF.C.8

Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

HSF.IF.C.8a

Use the process of factoring and completing the square in a quadratic function to show zeros, maximum and minimum values, and symmetry of the graph, and interpret these in terms of a context.

HSF.TF.A.1

Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.

HSF.TF.A.2

Unit 2: Coordinates and Conics

HS Pre-Calculus

Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.

Unit 2: Coordinates and Conics

HS Pre-Calculus

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Lesson 2.01 - Polar Coordinates

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students begin by reviewing unit circle trigonometry, focusing on angles and coordinate pairs. They learn how to write points in polar form, using a distance from the origin and an angle of rotation. Students convert between polar and rectangular (Cartesian) coordinates and work with polar equations, graphing basic polar curves and identifying their key features.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
AR.A.7
Create equations and/or inequalities that describe numbers or relationships.
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. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .
HSA.REI.B.4
Solve quadratic equations in one variable.
HSF.TF.A.2
Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.

Unit 2: Coordinates and Conics

HS Pre-Calculus

HSF.TF.A.1

Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.

Lesson 2.02 - 3D Coordinates

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students are introduced to three-dimensional Cartesian coordinates, identifying points using ordered triples. They learn how to graph points and interpret locations in 3D space. Students also work with simple 3D equations, including midpoints, distance formula, planes, and spheres, and explore how equations describe shapes in three dimensions.

STANDARDS

Maine - High School - Mathematics - Geometric Reasoning (2020)

HSG.GPE.B.4

Use coordinates to prove simple geometric theorems algebraically including the distance formula and its relationship to the Pythagorean Theorem. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.

GR.A.12

Use coordinates to prove simple geometric theorems algebraically.

Maine - High School - Mathematics - Algebraic Reasoning (2020)

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.

HSF.IF.C.8

Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

AR.A.11

Represent and solve equations and inequalities graphically.

HSA.CED.A.2

Unit 2: Coordinates and Conics

HS Pre-Calculus

Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

Lesson 2.03 - Intro to Conic Sections

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK4

Description: Students are introduced to conic sections through both distance-based and geometric definitions. First, situations in which conic sections arise as solutions are explored. Then students study how slicing a cone at different angles creates circles, parabolas, ellipses, and hyperbolas. Standard forms of conic section equations are introduced, along with how to recognize each type from its equation.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.2

Write expressions in equivalent forms to reveal information and to solve problems.

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.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

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.

AR.A.11

Represent and solve equations and inequalities graphically.

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two

Unit 2: Coordinates and Conics

HS Pre-Calculus

variables is a solution to the equation.

Maine - High School - Mathematics - Geometric Reasoning (2020)

GR.A.11

Translate between the geometric description and the equation for a conic section.

GR.A.1

Experiment with transformations in the plane.

HSG.GPE.A.3

Derive the equations of ellipses and hyperbolas given the foci and directrix, using the fact that the sum or difference of distances from the foci is constant.

HSG.GPE.A.2

Derive the equation of a parabola given a focus and directrix.

GR.A.12

Use coordinates to prove simple geometric theorems algebraically.

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.

Lesson 2.04 - Parabolas

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn the properties of parabolas, including vertex, axis of symmetry, focus, and directrix. They graph parabolas from both standard and vertex forms and practice identifying key features. Completing the square is introduced as a method for converting quadratic equations into vertex form for graphing and analysis.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.2

Write expressions in equivalent forms to reveal information and to solve problems.

HSA.SSE.B.3

Unit 2: Coordinates and Conics

HS Pre-Calculus

Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

HSA.SSE.B.3a

Rewrite a quadratic expression (such as by factoring) to reveal the zeros of the function it defines.

HSA.SSE.B.3b

Rewrite a quadratic expression (such as by completing the square) to reveal the maximum or minimum value of the function it defines.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

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. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .

HSA.REI.B.4

Solve quadratic equations in one variable.

HSA.REI.B.4a

Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.

HSA.REI.B.4b.i

Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation.

AR.A.11

Represent and solve equations and inequalities graphically.

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate

Unit 2: Coordinates and Conics

HS Pre-Calculus

plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.

HSF.IF.C.8

Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

HSF.IF.C.8a

Use the process of factoring and completing the square in a quadratic function to show zeros, maximum and minimum values, and symmetry of the graph, and interpret these in terms of a context.

Maine - High School - Mathematics - Geometric Reasoning (2020)

HSG.GPE.A.2

Derive the equation of a parabola given a focus and directrix.

GR.A.11

Translate between the geometric description and the equation for a conic section.

Lesson 2.05 - Ellipses

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students study the properties of ellipses, including major and minor axes, vertices, co-vertices, and foci. They learn how to write and graph equations of ellipses in standard form, and use completing the square to rewrite general form equations. The concept of eccentricity is introduced to describe the shape of an ellipse.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.2

Write expressions in equivalent forms to reveal information and to solve problems.

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.

HSA.APR.A.1b

Unit 2: Coordinates and Conics

HS Pre-Calculus

Factor and/or expand polynomial expressions, identify and combine like terms, and apply the Distributive Property.

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.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

HSA.CED.A.4

Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .

AR.A.11

Represent and solve equations and inequalities graphically.

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.

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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.A.3

Derive the equations of ellipses and hyperbolas given the foci and directrix, using the fact that the sum or difference of distances from the foci is constant.

GR.A.11

Translate between the geometric description and the equation for a conic section.

Lesson 2.06 - Hyperbolas

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Unit 2: Coordinates and Conics

HS Pre-Calculus

Description: Students examine the properties of hyperbolas, including vertices, foci, asymptotes, and eccentricity. They learn how to graph hyperbolas from standard form equations and interpret their key features.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
HSA.APR.A.1b
Factor and/or expand polynomial expressions, identify and combine like terms, and apply the Distributive Property.
AR.A.7
Create equations and/or inequalities that describe numbers or relationships.
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. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .
AR.A.11
Represent and solve equations and inequalities graphically.
HSA.REI.D.10
Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.
HSF.IF.C.8
Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

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HS Pre-Calculus

Maine - High School - Mathematics - Geometric Reasoning (2020)

GR.A.11

Translate between the geometric description and the equation for a conic section.

HSG.GPE.A.3

Derive the equations of ellipses and hyperbolas given the foci and directrix, using the fact that the sum or difference of distances from the foci is constant.

Lesson 2.07 - Systems of Conic Equations

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK4

Description: Students learn to solve systems involving two conic section equations by substitution and elimination. They practice identifying points of intersection between lines, circles, parabolas, ellipses, and hyperbolas. Techniques involve combining algebraic skills with graphing and equation manipulation.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.2

Write expressions in equivalent forms to reveal information and to solve problems.

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.

AR.A.3

Perform arithmetic operations on polynomials.

HSA.APR.A.1b

Factor and/or expand polynomial expressions, identify and combine like terms, and apply the Distributive Property.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

HSA.CED.A.2

Create equations in two or more variables to represent relationships between quantities; graph equations on

Unit 2: Coordinates and Conics

HS Pre-Calculus

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. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .

HSA.REI.B.4

Solve quadratic equations in one variable.

HSA.REI.B.4a

Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.

HSA.REI.B.4b.i

Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation.

HSA.REI.B.4b.ii

Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .

AR.A.10

Solve systems of equations.

HSA.REI.C.5

Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

HSA.REI.C.7

Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the point(s) of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.

AR.A.11

Represent and solve equations and inequalities graphically.

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two

Unit 2: Coordinates and Conics

HS Pre-Calculus

variables is a solution to the equation.

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GR.A.11

Translate between the geometric description and the equation for a conic section.

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.A.2

Derive the equation of a parabola given a focus and directrix.

HSG.GPE.A.3

Derive the equations of ellipses and hyperbolas given the foci and directrix, using the fact that the sum or difference of distances from the foci is constant.

Unit 2 Review and Exam

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK4

Description: A full class session is dedicated to reviewing the skills and concepts from this unit. Another session is used for a summative exam, assessing students on all covered material.

STANDARDS

Maine - High School - Mathematics - Geometric Reasoning (2020)

GR.A.11

Translate between the geometric description and the equation for a conic section.

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.A.2

Derive the equation of a parabola given a focus and directrix.

HSG.GPE.A.3

Unit 2: Coordinates and Conics

HS Pre-Calculus

Derive the equations of ellipses and hyperbolas given the foci and directrix, using the fact that the sum or difference of distances from the foci is constant.

GR.A.12

Use coordinates to prove simple geometric theorems algebraically.

HSG.GPE.B.4

Use coordinates to prove simple geometric theorems algebraically including the distance formula and its relationship to the Pythagorean Theorem. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.2

Write expressions in equivalent forms to reveal information and to solve problems.

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.

HSA.SSE.B.3a

Rewrite a quadratic expression (such as by factoring) to reveal the zeros of the function it defines.

HSA.SSE.B.3b

Rewrite a quadratic expression (such as by completing the square) to reveal the maximum or minimum value of the function it defines.

AR.A.3

Perform arithmetic operations on polynomials.

HSA.APR.A.1b

Factor and/or expand polynomial expressions, identify and combine like terms, and apply the Distributive Property.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

HSA.CED.A.2

Unit 2: Coordinates and Conics

HS Pre-Calculus

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. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .

HSA.REI.B.4

Solve quadratic equations in one variable.

HSA.REI.B.4a

Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.

HSA.REI.B.4b.i

Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation.

HSA.REI.B.4b.ii

Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .

AR.A.10

Solve systems of equations.

HSA.REI.C.5

Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

HSA.REI.C.7

Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the point(s) of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.

AR.A.11

Represent and solve equations and inequalities graphically.

HSA.REI.D.10

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate

Unit 2: Coordinates and Conics

HS Pre-Calculus

plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.

HSF.IF.C.8

Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

HSF.IF.C.8a

Use the process of factoring and completing the square in a quadratic function to show zeros, maximum and minimum values, and symmetry of the graph, and interpret these in terms of a context.

HSF.TF.A.2

Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.

Unit 3: Vectors and Matrices

HS Pre-Calculus

UNIT SUMMARY

Students are introduced to vectors and matrices as tools for working with quantities involving both magnitude and direction, and for organizing and transforming data. They learn operations with vectors, including sums, scalar multiplication, dot products, and projections. Students also study matrices as a way to represent systems of equations and geometric transformations. Techniques for multiplying matrices, finding determinants, and calculating inverses are practiced, and students apply these methods to solve systems of equations in both two and three variables.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.10
Solve systems of equations.
HSA.REI.C.8
Represent a system of linear equations as a single matrix equation in a vector variable.
HSA.REI.C.9
Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).
AR.A.8
Understand solving equations as a process of reasoning and explain the reasoning.
AR.A.21
Prove and apply trigonometric identities.
Maine - High School - Mathematics - Geometric Reasoning (2020)
GR.A.1
Experiment with transformations in the plane.
HSG.CO.A.2
Represent transformations in the plane using, e.g., transparencies and/or 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 (e.g., translation versus horizontal stretch).
HSG.SRT.D.9

Unit 3: Vectors and Matrices

HS Pre-Calculus

Derive the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.

Maine - High School - Mathematics - Quantitative Reasoning (2020)

QR.A.7

Represent and model with vector quantities.

HSN.VM.A.1

Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments and use appropriate symbols for vectors and their magnitudes (e.g., v , $|v|$, $\|v\|$, v).

HSN.VM.A.2

Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.

HSN.VM.A.3

Solve problems involving velocity and other quantities that can be represented by vectors.

QR.A.8

Perform operations on vectors.

HSN.VM.B.4

Add and subtract vectors.

HSN.VM.B4a

Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.

HSN.VM.B4b

Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.

HSN.VM.B4c

Understand vector subtraction $v - w$ as $v + (-w)$, where $-w$ is the additive inverse of w , with the same magnitude as w and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.

HSN.VM.B.5

Unit 3: Vectors and Matrices

HS Pre-Calculus

Multiply a vector by a scalar.
HSN.VM.B5a
Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.
HSN.VM.B5b
Compute the magnitude of a scalar multiple cv using $\ cv\ = c v$. Compute the direction of cv knowing that when $ c v \neq 0$, the direction of cv is either along v (for $c > 0$) or against v (for $c < 0$).
QR.A.9
Perform operations on matrices and use matrices in applications.
HSN.VM.C.6
Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
HSN.VM.C.7
Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.
HSN.VM.C.8
Add, subtract, and multiply matrices of appropriate dimensions.
HSN.VM.C.9
Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.
HSN.VM.C.10
Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.
HSN.VM.C.11
Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.
HSN.VM.C.12
Work with 2×2 matrices as a transformations of the plane, and interpret the absolute value of the determinant in

Unit 3: Vectors and Matrices

HS Pre-Calculus

terms of area.

Unit 3: Vectors and Matrices

HS Pre-Calculus

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Lesson 3.01 - Intro to Vectors

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students are introduced to vectors as quantities with both magnitude and direction. They practice adding and subtracting vectors graphically and algebraically, and learn how to multiply a vector by a scalar. Column notation for vectors is introduced and used for organizing and simplifying calculations.

STANDARDS

Maine - High School - Mathematics - Quantitative Reasoning (2020)
QR.A.7
Represent and model with vector quantities.
HSN.VM.A.2
Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.
HSN.VM.A.3
Solve problems involving velocity and other quantities that can be represented by vectors.
QR.A.8
Perform operations on vectors.
HSN.VM.B.4
Add and subtract vectors.
HSN.VM.B4a
Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.
HSN.VM.B4c
Understand vector subtraction $v - w$ as $v + (-w)$, where $-w$ is the additive inverse of w , with the same magnitude as w and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.
HSN.VM.B.5

Unit 3: Vectors and Matrices

HS Pre-Calculus

Multiply a vector by a scalar.

HSN.VM.B5a

Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.

Lesson 3.02 - Vector Dot Product

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn how to find the magnitude of a vector and write unit vectors. The dot product is introduced both algebraically and using a trigonometric identity involving the angle between vectors. Students practice computing dot products and interpreting their meaning in terms of angles and orthogonality.

STANDARDS

Maine - High School - Mathematics - Quantitative Reasoning (2020)

QR.A.7

Represent and model with vector quantities.

HSN.VM.A.1

Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments and use appropriate symbols for vectors and their magnitudes (e.g., v , $|v|$, $\|v\|$, v).

QR.A.8

Perform operations on vectors.

HSN.VM.A.3

Solve problems involving velocity and other quantities that can be represented by vectors.

HSN.VM.B.4

Add and subtract vectors.

HSN.VM.B4b

Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.

HSN.VM.B5b

Compute the magnitude of a scalar multiple cv using $\|cv\| = |c|v$. Compute the direction of cv knowing that when

Unit 3: Vectors and Matrices

HS Pre-Calculus

$|c|v \neq 0$, the direction of cv is either along v (for $c > 0$) or against v (for $c < 0$).

Maine - High School - Mathematics - Geometric Reasoning (2020)

HSG.SRT.D.9

Derive the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.21

Prove and apply trigonometric identities.

Lesson 3.03 - Vector Projection

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students use parametric equations to describe vector paths and learn how to project one vector onto another. They apply vector projections to practical problems, such as finding the nearest point on a given line to a specified point, reinforcing connections between vector algebra and geometry.

STANDARDS

Maine - High School - Mathematics - Quantitative Reasoning (2020)

QR.A.7

Represent and model with vector quantities.

HSN.VM.A.1

Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments and use appropriate symbols for vectors and their magnitudes (e.g., v , $|v|$, $\|v\|$, v).

HSN.VM.A.2

Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.

HSN.VM.A.3

Solve problems involving velocity and other quantities that can be represented by vectors.

QR.A.8

Unit 3: Vectors and Matrices

HS Pre-Calculus

Perform operations on vectors.

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HSG.CO.A.2

Represent transformations in the plane using, e.g., transparencies and/or 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 (e.g., translation versus horizontal stretch).

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AR.A.21

Prove and apply trigonometric identities.

Lesson 3.04 - Intro to Matrices

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students are introduced to matrices as rectangular arrays of numbers used to organize data and represent systems. They practice matrix addition, subtraction, and scalar multiplication. Connections are made between vector equations and matrix equations, using matrices to simplify systems of linear relationships.

STANDARDS

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QR.A.9

Perform operations on matrices and use matrices in applications.

HSN.VM.C.7

Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.

HSN.VM.C.6

Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.

HSN.VM.C.8

Add, subtract, and multiply matrices of appropriate dimensions.

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Unit 3: Vectors and Matrices

HS Pre-Calculus

AR.A.8

Understand solving equations as a process of reasoning and explain the reasoning.

Lesson 3.05 - Matrices as Transformations

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn how to multiply a matrix by a vector, interpreting the result as a geometric transformation in a plane or space. Common transformation matrices are identified, and students create transformation matrices from transformed basis vectors.

STANDARDS

Maine - High School - Mathematics - Geometric Reasoning (2020)

GR.A.1

Experiment with transformations in the plane.

HSG.CO.A.2

Represent transformations in the plane using, e.g., transparencies and/or 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 (e.g., translation versus horizontal stretch).

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QR.A.7

Represent and model with vector quantities.

HSN.VM.C.8

Add, subtract, and multiply matrices of appropriate dimensions.

QR.A.9

Perform operations on matrices and use matrices in applications.

HSN.VM.C.6

Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.

HSN.VM.C.7

Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.

Unit 3: Vectors and Matrices

HS Pre-Calculus

HSN.VM.C.11

Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.

HSN.VM.C12

Work with 2×2 matrices as a transformations of the plane, and interpret the absolute value of the determinant in terms of area.

Lesson 3.06 - Matrix Multiplication

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students practice multiplying matrices of compatible dimensions, beginning with vectors and extending to full matrix products. The concept of transformation composition is introduced, showing how successive transformations can be combined by multiplying their matrices. Students interpret the meaning of resulting matrices in context.

STANDARDS

Maine - High School - Mathematics - Geometric Reasoning (2020)

GR.A.1

Experiment with transformations in the plane.

HSG.CO.A.2

Represent transformations in the plane using, e.g., transparencies and/or 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 (e.g., translation versus horizontal stretch).

Maine - High School - Mathematics - Quantitative Reasoning (2020)

HSN.VM.C.11

Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.

HSN.VM.C12

Work with 2×2 matrices as a transformations of the plane, and interpret the absolute value of the determinant in terms of area.

QR.A.7

Unit 3: Vectors and Matrices

HS Pre-Calculus

Represent and model with vector quantities.
QR.A.9
Perform operations on matrices and use matrices in applications.
HSN.VM.C.6
Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
HSN.VM.C.8
Add, subtract, and multiply matrices of appropriate dimensions.
HSN.VM.C.9
Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.
HSN.VM.C.10
Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.

Lesson 3.07 - Determinant and Cross Product

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn how to calculate the determinant of a 2x2 matrix and use it to determine matrix invertibility and transformation properties. The cross product of two vectors in three dimensions is introduced, including its geometric meaning and trigonometric properties. Students practice finding cross products and interpreting results as perpendicular vectors using the right-hand rule.

STANDARDS

Maine - High School - Mathematics - Geometric Reasoning (2020)
GR.A.1
Experiment with transformations in the plane.
HSG.CO.A.2
Represent transformations in the plane using, e.g., transparencies and/or geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare

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HS Pre-Calculus

transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

Maine - High School - Mathematics - Quantitative Reasoning (2020)

QR.A.7

Represent and model with vector quantities.

QR.A.9

Perform operations on matrices and use matrices in applications.

HSN.VM.C.6

Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.

HSN.VM.C.8

Add, subtract, and multiply matrices of appropriate dimensions.

HSN.VM.C.12

Work with 2×2 matrices as a transformations of the plane, and interpret the absolute value of the determinant in terms of area.

HSN.VM.C.11

Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.

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AR.A.21

Prove and apply trigonometric identities.

Lesson 3.08 - 2x2 Matrix Inverse

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn how to find the inverse of a 2x2 matrix. They use inverses to solve systems of two linear equations, applying matrix multiplication and properties of inverse matrices.

STANDARDS

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Unit 3: Vectors and Matrices

HS Pre-Calculus

AR.A.10
Solve systems of equations.
HSA.REI.C.8
Represent a system of linear equations as a single matrix equation in a vector variable.
HSA.REI.C.9
Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).
AR.A.8
Understand solving equations as a process of reasoning and explain the reasoning.
Maine - High School - Mathematics - Geometric Reasoning (2020)
GR.A.1
Experiment with transformations in the plane.
Maine - High School - Mathematics - Quantitative Reasoning (2020)
QR.A.9
Perform operations on matrices and use matrices in applications.

Lesson 3.09 - 3x3 Matrix Inverse

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students extend their skills to finding the determinant and inverse of a 3x3 matrix. They use these tools to solve systems of three linear equations by representing them as matrix equations.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.10
Solve systems of equations.
HSA.REI.C.8
Represent a system of linear equations as a single matrix equation in a vector variable.

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HS Pre-Calculus

HSA.REI.C.9
Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).
AR.A.8
Understand solving equations as a process of reasoning and explain the reasoning.
Maine - High School - Mathematics - Quantitative Reasoning (2020)
QR.A.7
Represent and model with vector quantities.
QR.A.9
Perform operations on matrices and use matrices in applications.

Unit 3 Review and Exam

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK4

Description: A full class session is dedicated to reviewing the skills and concepts from this unit. Another session is used for a summative exam, assessing students on all covered material.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.10
Solve systems of equations.
HSA.REI.C.8
Represent a system of linear equations as a single matrix equation in a vector variable.
HSA.REI.C.9
Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).
AR.A.21
Prove and apply trigonometric identities.

Unit 3: Vectors and Matrices

HS Pre-Calculus

Maine - High School - Mathematics - Geometric Reasoning (2020)
GR.A.1
Experiment with transformations in the plane.
HSG.CO.A.2
Represent transformations in the plane using, e.g., transparencies and/or 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 (e.g., translation versus horizontal stretch).
HSG.SRT.D.9
Derive the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
Maine - High School - Mathematics - Quantitative Reasoning (2020)
QR.A.7
Represent and model with vector quantities.
HSN.VM.A.1
Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments and use appropriate symbols for vectors and their magnitudes (e.g., v , $ v $, $\ v\ $, v).
HSN.VM.A.2
Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.
HSN.VM.A.3
Solve problems involving velocity and other quantities that can be represented by vectors.
QR.A.8
Perform operations on vectors.
HSN.VM.B.4
Add and subtract vectors.
HSN.VM.B4a

Unit 3: Vectors and Matrices

HS Pre-Calculus

Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.

HSN.VM.B4b

Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.

HSN.VM.B4c

Understand vector subtraction $v - w$ as $v + (-w)$, where $-w$ is the additive inverse of w , with the same magnitude as w and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.

HSN.VM.B.5

Multiply a vector by a scalar.

HSN.VM.B5a

Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.

HSN.VM.B5b

Compute the magnitude of a scalar multiple cv using $\|cv\| = |c|v\|$. Compute the direction of cv knowing that when $|c|v \neq 0$, the direction of cv is either along v (for $c > 0$) or against v (for $c < 0$).

QR.A.9

Perform operations on matrices and use matrices in applications.

HSN.VM.C.6

Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.

HSN.VM.C.7

Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.

HSN.VM.C.8

Add, subtract, and multiply matrices of appropriate dimensions.

HSN.VM.C.9

Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.

Unit 3: Vectors and Matrices

HS Pre-Calculus

HSN.VM.C.10

Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.

HSN.VM.C.11

Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.

HSN.VM.C.12

Work with 2×2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.

Unit 4: Complex Numbers

HS Pre-Calculus

UNIT SUMMARY

Students extend their number system knowledge by working with complex numbers, which include both real and imaginary parts. They perform operations with complex numbers, plot them on the complex plane, and explore how multiplication and division affect magnitude and direction. Students learn to use polar form, apply Euler's formula, and find powers and roots of complex numbers. These skills are then applied to factoring and solving polynomials with complex solutions.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSA.SSE.A.2
Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, allowing for it to be recognized as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
HSA.REI.B.4b.ii
Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .
HSA.SSE.B.3a
Rewrite a quadratic expression (such as by factoring) to reveal the zeros of the function it defines.
AR.A.4
Understand the relationship between zeros and factors of polynomials.
AR.A.8
Understand solving equations as a process of reasoning and explain the reasoning.
HSA.REI.B.4b.i
Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation.
AR.A.21

Unit 4: Complex Numbers

HS Pre-Calculus

Prove and apply trigonometric identities.

Maine - High School - Mathematics - Quantitative Reasoning (2020)

QR.A.1

Extend the properties of exponents to rational exponents.

QR.A.4

Perform arithmetic operations with complex numbers.

HSN.CN.A.1

Know there is a complex number i (which is a non-real number) such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.

HSN.CN.A.2

Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.

HSN.CN.A.3

Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.

QR.A.5

Represent complex numbers and their operations on the complex plane.

HSN.CN.B.4

Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.

HSN.CN.B.5

Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)^3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120° .

HSN.CN.B.6

Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.

Unit 4: Complex Numbers

HS Pre-Calculus

QR.A.6

Use complex numbers in polynomial identities and equations.

HSN.CN.C.7

Solve quadratic equations with real coefficients that have complex solutions.

HSN.CN.C.8

Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.

HSN.CN.C.9

Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.

Unit 4: Complex Numbers

HS Pre-Calculus

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Lesson 4.01 - Complex Number Operations

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn how to add, subtract, and multiply complex numbers, combining real and imaginary parts. They practice working with powers of i , using the cyclical pattern of its values. Division of complex numbers is introduced, with students learning to multiply by the complex conjugate to simplify expressions.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
Maine - High School - Mathematics - Quantitative Reasoning (2020)
QR.A.4
Perform arithmetic operations with complex numbers.
HSN.CN.A.1
Know there is a complex number i (which is a non-real number) such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.
HSN.CN.A.2
Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.

Lesson 4.02 - The Complex Plane

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students plot complex numbers on the complex plane and practice performing operations graphically. They learn about complex conjugates and how to find the absolute value (modulus) of a complex number. Students also examine how multiplication affects a point's position by changing its distance from the origin and its angle.

Unit 4: Complex Numbers

HS Pre-Calculus

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
Maine - High School - Mathematics - Quantitative Reasoning (2020)
QR.A.4
Perform arithmetic operations with complex numbers.
QR.A.5
Represent complex numbers and their operations on the complex plane.
HSN.CN.B.4
Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.
HSN.CN.B.5
Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)^3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120° .
HSN.CN.B.6
Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.

Lesson 4.03 - Euler's Formula

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn how to write complex numbers in polar form and use this to simplify operations involving powers and products. Euler's formula is introduced, connecting exponential, trigonometric, and complex

Unit 4: Complex Numbers

HS Pre-Calculus

number concepts. Students apply this formula to find powers of complex numbers and further relate polar form to rectangular form.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
AR.A.21
Prove and apply trigonometric identities.
Maine - High School - Mathematics - Quantitative Reasoning (2020)
QR.A.1
Extend the properties of exponents to rational exponents.
QR.A.4
Perform arithmetic operations with complex numbers.
HSN.CN.B.5
Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)^3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120° .
HSN.CN.B.4
Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.
QR.A.5
Represent complex numbers and their operations on the complex plane.

Unit 4: Complex Numbers

HS Pre-Calculus

Lesson 4.04 - Complex Roots of Polynomials

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK4

Description: Students extend their use of polar form and exponential properties to calculate fractional powers and roots of complex numbers. They learn to factor polynomials with complex solutions and find all complex roots, including those involving imaginary and real parts.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSA.SSE.A.2
Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, allowing for it to be recognized as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
HSA.REI.B.4b.ii
Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .
HSA.REI.B.4b.i
Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation.
HSA.SSE.B.3a
Rewrite a quadratic expression (such as by factoring) to reveal the zeros of the function it defines.
AR.A.4
Understand the relationship between zeros and factors of polynomials.
AR.A.8
Understand solving equations as a process of reasoning and explain the reasoning.

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Maine - High School - Mathematics - Quantitative Reasoning (2020)
QR.A.1
Extend the properties of exponents to rational exponents.
QR.A.4
Perform arithmetic operations with complex numbers.
HSN.CN.B.5
Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)^3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120° .
QR.A.5
Represent complex numbers and their operations on the complex plane.
HSN.CN.B.4
Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.
HSN.CN.C.7
Solve quadratic equations with real coefficients that have complex solutions.
QR.A.6
Use complex numbers in polynomial identities and equations.
HSN.CN.C.8
Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.
HSN.CN.C.9
Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.

Unit 4 Review and Exam

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK4

Unit 4: Complex Numbers

HS Pre-Calculus

Description: A full class session is dedicated to reviewing the skills and concepts from this unit. Another session is used for a summative exam, assessing students on all covered material.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSA.SSE.A.2
Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, allowing for it to be recognized as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
HSA.SSE.B.3a
Rewrite a quadratic expression (such as by factoring) to reveal the zeros of the function it defines.
AR.A.4
Understand the relationship between zeros and factors of polynomials.
AR.A.8
Understand solving equations as a process of reasoning and explain the reasoning.
HSA.REI.B.4b.i
Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation.
HSA.REI.B.4b.ii
Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .
AR.A.21
Prove and apply trigonometric identities.
Maine - High School - Mathematics - Quantitative Reasoning (2020)
QR.A.1

Unit 4: Complex Numbers

HS Pre-Calculus

Extend the properties of exponents to rational exponents.
QR.A.4
Perform arithmetic operations with complex numbers.
HSN.CN.A.1
Know there is a complex number i (which is a non-real number) such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.
HSN.CN.A.2
Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.
QR.A.5
Represent complex numbers and their operations on the complex plane.
HSN.CN.A.3
Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.
HSN.CN.B.4
Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.
HSN.CN.B.5
Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)^3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120° .
HSN.CN.B.6
Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.
QR.A.6
Use complex numbers in polynomial identities and equations.
HSN.CN.C.7

Unit 4: Complex Numbers

HS Pre-Calculus

Solve quadratic equations with real coefficients that have complex solutions.

HSN.CN.C.8

Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.

HSN.CN.C.9

Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.

Unit 5: Functions

HS Pre-Calculus

UNIT SUMMARY

Students build on their understanding of functions by exploring how changing inputs and outputs affects a function's graph and behavior. They learn to shift, stretch, and compress functions, determine domain and range, and work with inverse functions. Students study exponential and trigonometric functions in depth, including how to write their equations and graph them. Real-world modeling applications are used to connect these function types to continuous growth and periodic behavior.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

HSA.SSE.B.3c

Use the properties of exponents to transform expressions for exponential functions. For example, the expression $1.15t$ can be rewritten as $(1.151/12)^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.

AR.A.12

Understand the concept of a function and use function notation.

HSF.IF.A.1

Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.

HSF.IF.A.2

Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

AR.A.13

Interpret functions that arise in applications in terms of the context.

HSF.IF.B.4

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

HSF.IF.B.5

Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the

Unit 5: Functions

HS Pre-Calculus

positive integers would be an appropriate domain for the function.

AR.A.14

Analyze functions using different representations.

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

HSF.IF.C.7b.i

Graph square root and piecewise-defined functions, (including step functions and absolute value functions), as well as show and describe key features of the graph.

HSF.IF.C.7b.ii

Graph cube root functions, as well as show and describe key features of the graph.

HSF.IF.C.7d

Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.

HSF.IF.C.7e.i

Graph exponential functions, showing intercepts and end behavior, and

HSF.IF.C.7e.ii

Graph logarithmic functions, showing intercepts and end behavior and trigonometric functions, showing period, midline, and amplitude.

HSF.IF.C.8b

Use the properties of exponents to interpret expressions for exponential functions. For example, apply the properties to financial situations such as identifying appreciation and depreciation rate for the value of a house or car sometime after its initial purchase: $V_n = P(1 + r)^n$.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1

Write a function that describes a relationship between two quantities.

Unit 5: Functions

HS Pre-Calculus

HSF.BF.A.1a
Determine an explicit expression, a recursive process, or steps for calculation from a context.
HSF.BF.A.1b
Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.
AR.A.16
Build new functions from existing functions.
HSF.BF.B.3
Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.
HSF.BF.B.4
Find inverse functions.
HSF.BF.B.4a
Solve an equation of the form $f(x) = c$ (where c represents the output value of the function) for a simple function f that has an inverse and write an expression for the inverse. For example, if $f(x) = 2x^3$, then solving $f(x) = c$ leads to $x = (c/2)^{1/3}$, which is the general formula for finding an input from a specific output, c , for this function.
HSF.BF.B.4b
Verify by composition that one function is the inverse of another.
HSF.BF.B.4c
Read values of an inverse function from a graph or a table, given that the function has an inverse.
HSF.BF.B.4d
Produce an invertible function from a non-invertible function by restricting the domain.
AR.A.17
Construct and compare linear, quadratic, and exponential models and solve problems.

Unit 5: Functions

HS Pre-Calculus

HSF.LE.A.1

Distinguish between situations that can be modeled with linear functions and with exponential functions.

HSF.LE.A.1c

Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.

AR.A.18

Interpret expressions for function in terms of the situation they model.

HSF.LE.B.5

Interpret the parameters in a linear or exponential function in terms of a context.

AR.A.20

Model periodic phenomena with trigonometric functions.

HSF.TF.B.5

Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.

Maine - High School - Mathematics - Quantitative Reasoning (2020)

HSN.Q.A.2

Define appropriate quantities for the purpose of descriptive modeling. Example: If a town in Aroostook county with a population of 1254 people is projected to double in size every 105 years, what will the population be 315 years from now? ★

Unit 5: Functions

HS Pre-Calculus

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Lesson 5.01 - Function Transformations

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn how translating a function shifts its graph horizontally or vertically. They also study how multiplying inputs and outputs stretches or compresses a graph. Both graphical and algebraic methods are used, and students practice identifying transformations from given equations.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.12
Understand the concept of a function and use function notation.
HSF.IF.A.1
Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.
HSF.IF.A.2
Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
AR.A.13
Interpret functions that arise in applications in terms of the context.
HSF.IF.B.4
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.
HSF.IF.B.5
Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.
AR.A.14

Unit 5: Functions

HS Pre-Calculus

Analyze functions using different representations.

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

HSF.IF.C.7b.i

Graph square root and piecewise-defined functions, (including step functions and absolute value functions), as well as show and describe key features of the graph.

HSF.IF.C.7b.ii

Graph cube root functions, as well as show and describe key features of the graph.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1

Write a function that describes a relationship between two quantities.

HSF.BF.A.1a

Determine an explicit expression, a recursive process, or steps for calculation from a context.

HSF.BF.A.1b

Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

AR.A.16

Build new functions from existing functions.

HSF.BF.B.3

Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

Unit 5: Functions

HS Pre-Calculus

Lesson 5.02 - Domain and Range

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students determine the domain and range of functions by analyzing their graphs and equations. Techniques are practiced for identifying allowable input and output values, with attention to discontinuities, asymptotes, and restricted domains. Set notation and interval notation are both used.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.12
Understand the concept of a function and use function notation.
HSF.IF.A.1
Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.
HSF.IF.A.2
Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
HSF.IF.B.4
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.
AR.A.13
Interpret functions that arise in applications in terms of the context.
HSF.IF.B.5
Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.
HSF.IF.C.7b.i

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Graph square root and piecewise-defined functions, (including step functions and absolute value functions), as well as show and describe key features of the graph.

HSF.IF.C.7b.ii

Graph cube root functions, as well as show and describe key features of the graph.

HSF.IF.C.7d

Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

AR.A.14

Analyze functions using different representations.

Lesson 5.03 - Inverse Functions

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students explore function composition and how to test whether two functions are inverses of each other. They practice evaluating compositions and graphing functions alongside their inverses. Algebraic techniques for solving and writing inverse functions are introduced and applied.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.12

Understand the concept of a function and use function notation.

HSF.IF.A.1

Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.

AR.A.14

Analyze functions using different representations.

Unit 5: Functions

HS Pre-Calculus

HSF.BF.B.4b
Verify by composition that one function is the inverse of another.
HSF.BF.B.4
Find inverse functions.
HSF.BF.B.4a
Solve an equation of the form $f(x) = c$ (where c represents the output value of the function) for a simple function f that has an inverse and write an expression for the inverse. For example, if $f(x) = 2x^3$, then solving $f(x) = c$ leads to $x = (c/2)^{1/3}$, which is the general formula for finding an input from a specific output, c , for this function.
HSF.BF.B.4c
Read values of an inverse function from a graph or a table, given that the function has an inverse.
HSF.BF.B.4d
Produce an invertible function from a non-invertible function by restricting the domain.
HSF.IF.A.2
Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

Lesson 5.04 - Exponential Functions

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn to write exponential functions based on given rates of change and initial values. They graph exponential growth and decay functions and analyze their domain, range, and asymptotic behavior. The concept of continuous compounding is introduced with applications to finance and population growth.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSA.SSE.B.3c
Use the properties of exponents to transform expressions for exponential functions. For example, the expression $1.15t$ can be rewritten as $(1.151/12)^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.
AR.A.12

Unit 5: Functions

HS Pre-Calculus

Understand the concept of a function and use function notation.

HSF.IF.A.2

Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

HSF.IF.B.4

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

AR.A.14

Analyze functions using different representations.

HSF.IF.C.7e.i

Graph exponential functions, showing intercepts and end behavior, and

HSF.IF.C.8b

Use the properties of exponents to interpret expressions for exponential functions. For example, apply the properties to financial situations such as identifying appreciation and depreciation rate for the value of a house or car sometime after its initial purchase: $V_n = P(1 + r)^n$.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1

Write a function that describes a relationship between two quantities.

HSF.BF.A.1a

Determine an explicit expression, a recursive process, or steps for calculation from a context.

HSF.LE.A.1

Distinguish between situations that can be modeled with linear functions and with exponential functions.

AR.A.17

Construct and compare linear, quadratic, and exponential models and solve problems.

Unit 5: Functions

HS Pre-Calculus

HSF.LE.A.1c

Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.

AR.A.18

Interpret expressions for function in terms of the situation they model.

HSF.LE.B.5

Interpret the parameters in a linear or exponential function in terms of a context.

Maine - High School - Mathematics - Quantitative Reasoning (2020)

HSN.Q.A.2

Define appropriate quantities for the purpose of descriptive modeling. Example: If a town in Aroostook county with a population of 1254 people is projected to double in size every 105 years, what will the population be 315 years from now? ★

Lesson 5.05 - Trigonometric Functions

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students review the properties of sine, cosine, and tangent functions, including period, frequency, amplitude, midline, vertical shift, and phase shift. They practice graphing these functions and identifying key features. Writing trigonometric equations to model periodic situations is introduced, connecting graphical features to properties and equations.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.12

Understand the concept of a function and use function notation.

AR.A.13

Interpret functions that arise in applications in terms of the context.

HSF.IF.B.4

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key

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HS Pre-Calculus

features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

AR.A.14

Analyze functions using different representations.

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

HSF.IF.C.7e.ii

Graph logarithmic functions, showing intercepts and end behavior and trigonometric functions, showing period, midline, and amplitude.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1

Write a function that describes a relationship between two quantities.

AR.A.16

Build new functions from existing functions.

HSF.BF.B.3

Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

AR.A.20

Model periodic phenomena with trigonometric functions.

AR.A.18

Interpret expressions for function in terms of the situation they model.

HSF.TF.B.5

Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.

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Maine - High School - Mathematics - Quantitative Reasoning (2020)

HSN.Q.A.2

Define appropriate quantities for the purpose of descriptive modeling. Example: If a town in Aroostook county with a population of 1254 people is projected to double in size every 105 years, what will the population be 315 years from now? ★

Unit 5 Review and Exam

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK4

Description: A full class session is dedicated to reviewing the skills and concepts from this unit. Another session is used for a summative exam, assessing students on all covered material.

Unit 6: Sequences and Series

HS Pre-Calculus

UNIT SUMMARY

Students explore sequences and series as ordered lists of numbers and the sums of their terms. They learn to describe sequences with formulas, use summation notation, and evaluate both finite and infinite series. The unit introduces arithmetic and geometric series in detail, along with techniques like partial fraction decomposition to break down fractions and evaluating telescoping series. Students conclude the unit by learning proof by induction, a method for proving statements, and applying it to sequences and sums.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSA.SSE.B.4
Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, Watermilfoil in one Maine lake triples in the number of plants each week during the summer when boat propellers are not cleared when exiting the lake. If the lake has 20 plants at the beginning of the season, how many plants will exist at the end of the 12-week summer season? What is the general formula for Watermilfoil growth for this lake?
AR.A.6
Rewrite rational expressions.
HSF.IF.A.3
Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.
HSF.BF.A.1a
Determine an explicit expression, a recursive process, or steps for calculation from a context.
HSF.BF.A.2
Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.
HSF.LE.A.2
Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).
AR.A.1
Interpret the structure of expressions.

Unit 6: Sequences and Series

HS Pre-Calculus

AR.A.2

Write expressions in equivalent forms to reveal information and to solve problems.

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.

AR.A.8

Understand solving equations as a process of reasoning and explain the reasoning.

HSA.REI.A.1

Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.LE.A.1b

Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.

HSF.LE.A.1c

Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.

HSF.LE.A.1

Distinguish between situations that can be modeled with linear functions and with exponential functions.

HSF.LE.A.1a

Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.

AR.A.17

Construct and compare linear, quadratic, and exponential models and solve problems.

HSA.APR.D.7

Understand that rational expressions form a system analogous to the rational numbers, closed under addition,

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HS Pre-Calculus

subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.

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ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Lesson 6.01 - Sequences

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students learn to identify sequences by their patterns and behavior. They practice writing both explicit formulas, which give the terms directly, and recursive formulas, which define each term based on the one before it. Numeric and algebraic examples are used for practice.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.A.3
Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.
AR.A.15
Build a function that models a relationship between two quantities.
HSF.BF.A.1a
Determine an explicit expression, a recursive process, or steps for calculation from a context.
HSF.BF.A.2
Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.
AR.A.17

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Construct and compare linear, quadratic, and exponential models and solve problems.
HSF.LE.A.1
Distinguish between situations that can be modeled with linear functions and with exponential functions.
HSF.LE.A.1a
Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.
HSF.LE.A.1b
Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.
HSF.LE.A.1c
Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
HSF.LE.A.2
Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

Lesson 6.02 - Summation Notation

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students are introduced to series as the sum of sequence terms. They learn the structure and meaning of summation notation, writing series using this notation and interpreting given notation. Simple numeric and algebraic series are used to build familiarity.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
HSA.SSE.B.3

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Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

HSF.IF.A.3

Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1a

Determine an explicit expression, a recursive process, or steps for calculation from a context.

HSA.REI.A.1

Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.

HSA.SSE.B.4

Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, Watermilfoil in one Maine lake triples in the number of plants each week during the summer when boat propellers are not cleared when exiting the lake. If the lake has 20 plants at the beginning of the season, how many plants will exist at the end of the 12-week summer season? What is the general formula for Watermilfoil growth for this lake?

Lesson 6.03 - Arithmetic Series

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn to evaluate arithmetic series, where terms increase or decrease by a constant amount. They practice calculating the sum of arithmetic series using both summation notation and the arithmetic series formula. Numeric and application-based problems are both used.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.1

Interpret the structure of expressions.

Unit 6: Sequences and Series

HS Pre-Calculus

AR.A.2

Write expressions in equivalent forms to reveal information and to solve problems.

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.A.3

Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1a

Determine an explicit expression, a recursive process, or steps for calculation from a context.

HSF.BF.A.2

Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

AR.A.17

Construct and compare linear, quadratic, and exponential models and solve problems.

HSF.LE.A.1

Distinguish between situations that can be modeled with linear functions and with exponential functions.

HSF.LE.A.1a

Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.

HSF.LE.A.1b

Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.

HSF.LE.A.2

Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a

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description of a relationship, or two input-output pairs (include reading these from a table).

Lesson 6.04 - Geometric Series

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students work with series where each term is multiplied by a constant ratio. They evaluate both finite and infinite geometric series, using appropriate formulas. The concept of convergence is introduced for infinite series.

Numeric and application-based problems are both used.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
HSA.SSE.B.4
Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, Watermilfoil in one Maine lake triples in the number of plants each week during the summer when boat propellers are not cleared when exiting the lake. If the lake has 20 plants at the beginning of the season, how many plants will exist at the end of the 12-week summer season? What is the general formula for Watermilfoil growth for this lake?
HSF.IF.A.3
Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.
AR.A.15
Build a function that models a relationship between two quantities.

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HSF.BF.A.1a
Determine an explicit expression, a recursive process, or steps for calculation from a context.
HSF.BF.A.2
Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.
AR.A.17
Construct and compare linear, quadratic, and exponential models and solve problems.
HSF.LE.A.1
Distinguish between situations that can be modeled with linear functions and with exponential functions.
HSF.LE.A.1a
Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.
HSF.LE.A.1c
Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
HSF.LE.A.2
Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

Lesson 6.05 - Partial Fraction Decomposition

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK4

Description: Students learn to break down rational expressions into simpler fractions using partial fraction decomposition. They practice with linear factors, powers of linear factors, and irreducible quadratic factors in denominators. Decomposed forms are verified by combining terms.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.

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AR.A.2

Write expressions in equivalent forms to reveal information and to solve problems.

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.

AR.A.6

Rewrite rational expressions.

AR.A.8

Understand solving equations as a process of reasoning and explain the reasoning.

HSA.APR.D.7

Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.

HSA.REI.A.1

Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.

Lesson 6.06 - Telescoping Series

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students are introduced to telescoping series, where most terms cancel when expanded. They apply partial fraction decomposition to rewrite series and identify cancellation patterns. Telescoping series of a variety of forms are evaluated exactly. The convergence of telescoping series is determined algebraically, and also understood numerically with plots.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.1

Interpret the structure of expressions.

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AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
AR.A.6
Rewrite rational expressions.
AR.A.8
Understand solving equations as a process of reasoning and explain the reasoning.
HSA.REI.A.1
Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.
HSF.IF.A.3
Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.
AR.A.15
Build a function that models a relationship between two quantities.
HSF.BF.A.1a
Determine an explicit expression, a recursive process, or steps for calculation from a context.

Lesson 6.07 - Proof by Induction

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK4

Description: Students learn proof by induction as a method to prove statements about sequences and series. They practice the steps involved, being setting up the base case, assuming the statement for $n = k$, and proving it for $n = k+1$. Problems involve deriving and proving formulas for number patterns and summations.

STANDARDS

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Maine - High School - Mathematics - Algebraic Reasoning (2020)	
AR.A.1	Interpret the structure of expressions.
AR.A.2	Write expressions in equivalent forms to reveal information and to solve problems.
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.
AR.A.8	Understand solving equations as a process of reasoning and explain the reasoning.
HSA.REI.A.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.
HSF.IF.A.3	Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.
AR.A.15	Build a function that models a relationship between two quantities.
HSF.BF.A.1a	Determine an explicit expression, a recursive process, or steps for calculation from a context.
HSF.BF.A.2	Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

Unit 6 Review and Exam

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Unit 6: Sequences and Series

HS Pre-Calculus

Assessment Level (DOK): DOK4

Description: A full class session is dedicated to reviewing the skills and concepts from this unit. Another session is used for a summative exam, assessing students on all covered material.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
AR.A.2
Write expressions in equivalent forms to reveal information and to solve problems.
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.
HSA.SSE.B.4
Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, Watermilfoil in one Maine lake triples in the number of plants each week during the summer when boat propellers are not cleared when exiting the lake. If the lake has 20 plants at the beginning of the season, how many plants will exist at the end of the 12-week summer season? What is the general formula for Watermilfoil growth for this lake?
AR.A.6
Rewrite rational expressions.
HSA.APR.D.7
Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.
AR.A.8
Understand solving equations as a process of reasoning and explain the reasoning.
HSA.REI.A.1
Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.

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HSF.IF.A.3

Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1a

Determine an explicit expression, a recursive process, or steps for calculation from a context.

HSF.BF.A.2

Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

AR.A.17

Construct and compare linear, quadratic, and exponential models and solve problems.

HSF.LE.A.1

Distinguish between situations that can be modeled with linear functions and with exponential functions.

HSF.LE.A.1a

Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.

HSF.LE.A.1b

Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.

HSF.LE.A.1c

Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.

HSF.LE.A.2

Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

Unit 7: Combinatorics and Probability

HS Pre-Calculus

UNIT SUMMARY

Students are introduced to counting methods and probability models. Students learn how to count possible outcomes using permutations, combinations, and factorial operations. These counting strategies are applied to probability problems, including those involving compound events and conditional probability. The unit includes related topics such as Pascal's Triangle, the Binomial Theorem, and traditional probability paradoxes. Students develop strategies for organizing and solving probability problems using probability tables, probability trees, and applying Bayes' Theorem.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSA.APR.C.5
Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
HSA.APR.A.1b
Factor and/or expand polynomial expressions, identify and combine like terms, and apply the Distributive Property.
HSF.BF.A.1a
Determine an explicit expression, a recursive process, or steps for calculation from a context.
Maine - High School - Mathematics - Statistical Reasoning (2020)
SR.A.6
Understand independence and conditional probability and use them to interpret data.

Unit 7: Combinatorics and Probability

HS Pre-Calculus

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 A and B 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 $P(A \text{ and } B)/P(B)$, 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. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.

HSS.CP.A.5

Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.

SR.A.7

Use the rules of probability to compute probabilities of compound events in a uniform probability model.

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, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.

HSS.CP.B.8

Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B|A) = P(B)P(A|B)$, and

Unit 7: Combinatorics and Probability

HS Pre-Calculus

interpret the answer in terms of the model.

HSS.CP.B.9

Use permutations and combinations to compute probabilities of compound events and solve problems.

Unit 7: Combinatorics and Probability

HS Pre-Calculus

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Lesson 7.01 - Permutations

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students learn the concept of a factorial and use it to count the number of ways to arrange objects in order. Permutations are introduced as ordered arrangements, with practice problems involving arranging distinct and repeated objects in different positions.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.

Lesson 7.02 - Combinations

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn to calculate combinations, where order does not matter. Mixed counting problems are introduced, helping students decide whether to use exponents, factorials, permutations, or combinations in a given situation, with practice applying formulas to real-world scenarios.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.

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HS Pre-Calculus

HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.

Lesson 7.03 - Pascal's Triangle

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students are introduced to Pascal's Triangle as a tool for counting paths and finding combinations. The relationship between entries in the triangle and combinatorial properties is explored.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
HSF.BF.A.1a
Determine an explicit expression, a recursive process, or steps for calculation from a context.

Unit 7: Combinatorics and Probability

HS Pre-Calculus

Lesson 7.04 - Binomial Theorem

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn to expand powers of binomials using the Binomial Theorem. Pascal's Triangle is used to find coefficients, as well as using combination calculations in a column grouped notation. Students practice expanding higher-degree binomials and identifying terms within expansions.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSA.APR.C.5
Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
HSA.APR.A.1b
Factor and/or expand polynomial expressions, identify and combine like terms, and apply the Distributive Property.

Lesson 7.05 - Intro to Probability

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students are introduced to basic probability definitions, including outcomes, events, and sample spaces. Probability tables are introduced as tools for organizing possible outcomes and calculating simple probabilities.

Unit 7: Combinatorics and Probability

HS Pre-Calculus

STANDARDS

Maine - High School - Mathematics - Statistical Reasoning (2020)
SR.A.6
Understand independence and conditional probability and use them to interpret data.
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).
Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.

Lesson 7.06 - Conditional Probability

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students work with compound events, learning to calculate probabilities for events that depend on other events occurring. Two-way tables are used to organize outcomes and find conditional probabilities. Students practice interpreting probabilities in context.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.

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Maine - High School - Mathematics - Statistical Reasoning (2020)
SR.A.6
Understand independence and conditional probability and use them to interpret data.
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 A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.
HSS.CP.A.5
Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.
SR.A.7
Use the rules of probability to compute probabilities of compound events in a uniform probability model.
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.8
Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.

Lesson 7.07 - Probability Problems

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students apply the addition rule to find probabilities for multiple events. Probability trees are introduced to organize compound events, and Bayes' Theorem is introduced for finding conditional probabilities using complementary and dependent event scenarios.

STANDARDS

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Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
Maine - High School - Mathematics - Statistical Reasoning (2020)
SR.A.6
Understand independence and conditional probability and use them to interpret data.
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.3
Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, 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. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.
HSS.CP.A.5
Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.

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SR.A.7

Use the rules of probability to compute probabilities of compound events in a uniform probability model.

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, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.

HSS.CP.B.8

Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B|A) = P(B)P(A|B)$, and interpret the answer in terms of the model.

Lesson 7.08 - Probability Paradoxes

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK4

Description: Students revisit Bayes' Theorem and apply it to probability paradoxes and unexpected problems. A variety of classic and modern probability conundrums are explored, helping students build reasoning skills and deepen their understanding of conditional probability.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.1

Interpret the structure of expressions.

HSA.SSE.A.1

Interpret expressions that represent a quantity in terms of its context.

HSA.SSE.A.1b

Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.

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SR.A.6

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Understand independence and conditional probability and use them to interpret data.

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.3

Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, 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. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.

SR.A.7

Use the rules of probability to compute probabilities of compound events in a uniform probability model.

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, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.

HSS.CP.B.8

Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B|A) = P(B)P(A|B)$, and interpret the answer in terms of the model.

Lesson 7.09 - Binomial Probability

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students conduct simulations of binomial events, such as repeated coin flips, and use binomial

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probability formulas to calculate exact probabilities for given numbers of successes. Binomial probability is generalized for any repeated event with two outcomes, including compound and coupled events.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.APR.C.5
Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.
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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).
SR.A.6
Understand independence and conditional probability and use them to interpret data.
HSS.CP.B.9
Use permutations and combinations to compute probabilities of compound events and solve problems.
HSS.CP.A.2
Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.

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SR.A.7

Use the rules of probability to compute probabilities of compound events in a uniform probability model.

Lesson 7.10 - Combinatorial Probability

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students apply counting techniques to probability problems using a uniform probability model.

Problems involve selecting objects or arranging outcomes where each possibility is equally likely, with a focus on translating word problems into combinatorial expressions.

STANDARDS

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AR.A.1

Interpret the structure of expressions.

HSA.SSE.A.1

Interpret expressions that represent a quantity in terms of its context.

HSA.SSE.A.1a

Interpret parts of an expression, such as terms, factors, and coefficients.

HSA.SSE.A.1b

Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.

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SR.A.6

Understand independence and conditional probability and use them to interpret data.

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 A and B occurring together is the product

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of their probabilities, and use this characterization to determine if they are independent.

SR.A.7

Use the rules of probability to compute probabilities of compound events in a uniform probability model.

HSS.CP.B.9

Use permutations and combinations to compute probabilities of compound events and solve problems.

Unit 7 Review and Exam

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK4

Description: A full class session is dedicated to reviewing the skills and concepts from this unit. Another session is used for a summative exam, assessing students on all covered material.

STANDARDS

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AR.A.1

Interpret the structure of expressions.

HSA.SSE.A.1

Interpret expressions that represent a quantity in terms of its context.

HSA.SSE.A.1a

Interpret parts of an expression, such as terms, factors, and coefficients.

HSA.SSE.A.1b

Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.

HSA.APR.C.5

Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.

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SR.A.6

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Understand independence and conditional probability and use them to interpret data.

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 A and B 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 $P(A \text{ and } B)/P(B)$, 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. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.

HSS.CP.A.5

Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.

SR.A.7

Use the rules of probability to compute probabilities of compound events in a uniform probability model.

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, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.

HSS.CP.B.8

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Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B|A) = P(B)P(A|B)$, and interpret the answer in terms of the model.

HSS.CP.B.9

Use permutations and combinations to compute probabilities of compound events and solve problems.

Unit 8: Statistics

HS Pre-Calculus

UNIT SUMMARY

Students are introduced to probability distributions, statistical measures, and methods for making predictions from data. Students learn to describe and work with discrete and continuous distributions, including common models like binomial, geometric, and normal distributions. Key statistical tools such as variance, standard deviation, and confidence intervals are developed.

STANDARDS

Maine - High School - Mathematics - Statistical Reasoning (2020)
SR.A.1
Summarize, represent, and interpret data on a single count or measurement variable.
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 data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
HSS.ID.A.3
Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
HSS.ID.A.4
Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.
SR.A.4
Understand and evaluate random processes underlying statistical experiments.
HSS.IC.A.1
Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
HSS.IC.A.2
Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row

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cause you to question the model?

SR.A.5

Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

HSS.IC.B.3

Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

HSS.IC.B.4

Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.

HSS.IC.B.6

Evaluate reports based on data. For example, use an article in the local news and interpret the validity of the information presented. Consider animal wildlife reports, medical studies, and/or manufacturer claims.

HSS.IC.B.5

Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

SR.A.8

Calculate expected values and use them to solve problems.

HSS.MD.A.1

Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

HSS.MD.A.2

Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.

HSS.MD.A.3

Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.

HSS.MD.A.4

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Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

SR.A.9

Use probability to evaluate outcomes of decisions.

HSS.MD.B.5

Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.

HSS.MD.B.5a

Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.

HSS.MD.B.5b

Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.

HSS.MD.B.6

Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).

HSS.MD.B.7

Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game and replacing the goalie with an extra skater).

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ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Lesson 8.01 - Discrete Probability Distributions

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students learn to create and interpret discrete probability distributions. Probability distribution tables and graphs are introduced, and students practice using them to describe the likelihood of different outcomes in a finite sample space.

STANDARDS

Maine - High School - Mathematics - Statistical Reasoning (2020)
SR.A.1
Summarize, represent, and interpret data on a single count or measurement variable.
HSS.ID.A.1
Represent data with plots on the real number line (dot plots, histograms, and box plots).
HSS.IC.A.1
Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
SR.A.4
Understand and evaluate random processes underlying statistical experiments.
SR.A.9
Use probability to evaluate outcomes of decisions.
HSS.MD.A.4
Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?
HSS.MD.A.3
Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each

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question has four choices, and find the expected grade under various grading schemes.

HSS.MD.A.1

Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

Lesson 8.02 - Measures of Random Variables

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students are introduced to random variables as a notation to represent and combine distributions. Students learn to perform arithmetic with independent random variables. Expected value, variance, and standard deviation are introduced as measures for random variables and distributions. Random variable algebra is used to create and use formulas for calculating these measures.

STANDARDS

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SR.A.1

Summarize, represent, and interpret data on a single count or measurement variable.

SR.A.4

Understand and evaluate random processes underlying statistical experiments.

SR.A.8

Calculate expected values and use them to solve problems.

HSS.MD.A.2

Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.

SR.A.9

Use probability to evaluate outcomes of decisions.

HSS.MD.B.5a

Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.

HSS.MD.B.5

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Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.

HSS.MD.B.5b

Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.

HSS.MD.A.1

Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

HSS.IC.A.1

Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

Lesson 8.03 - Applying Discrete Distributions

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK4

Description: Students apply probability formulas for common discrete distributions, including binomial, geometric, negative binomial, hypergeometric, and Poisson models. Students practice identifying which distribution fits a situation, and using the distribution model to calculate probabilities, expected value, variance, and standard deviation.

STANDARDS

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SR.A.4

Understand and evaluate random processes underlying statistical experiments.

HSS.IC.A.1

Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

HSS.IC.A.2

Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?

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SR.A.8

Calculate expected values and use them to solve problems.

HSS.MD.A.1

Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

HSS.MD.A.2

Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.

HSS.MD.A.3

Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.

HSS.MD.A.4

Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

SR.A.9

Use probability to evaluate outcomes of decisions.

HSS.MD.B.5

Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.

HSS.MD.B.5a

Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.

HSS.MD.B.5b

Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.

HSS.MD.B.6

Unit 8: Statistics

HS Pre-Calculus

Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).

HSS.MD.B.7

Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game and replacing the goalie with an extra skater).

Lesson 8.04 - Sampling

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students learn the concept of taking random samples from a distribution and using sample data to estimate population values. Formulas for sample mean, sample variation, and sample standard deviation are introduced and applied. The idea of a sample mean distribution is introduced.

STANDARDS

Maine - High School - Mathematics - Statistical Reasoning (2020)

SR.A.1

Summarize, represent, and interpret data on a single count or measurement variable.

HSS.IC.A.2

Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?

HSS.IC.A.1

Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

SR.A.4

Understand and evaluate random processes underlying statistical experiments.

SR.A.5

Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

HSS.IC.B.3

Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

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HSS.IC.B.4

Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.

HSS.MD.A.1

Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

HSS.MD.A.2

Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.

HSS.MD.A.4

Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

HSS.MD.B.7

Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game and replacing the goalie with an extra skater).

Lesson 8.05 - Hypothesis Testing

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students are introduced to hypothesis testing as a method for making decisions about population values based on sample data. The process for setting up null and alternative hypotheses and interpreting test results is taught, with practice on basic examples.

STANDARDS

Maine - High School - Mathematics - Statistical Reasoning (2020)

SR.A.1

Summarize, represent, and interpret data on a single count or measurement variable.

HSS.ID.A.2

Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

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HSS.ID.A.3

Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

HSS.IC.A.1

Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

SR.A.4

Understand and evaluate random processes underlying statistical experiments.

HSS.IC.A.2

Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?

SR.A.5

Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

HSS.IC.B.3

Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

HSS.IC.B.4

Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.

HSS.IC.B.5

Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

HSS.IC.B.6

Evaluate reports based on data. For example, use an article in the local news and interpret the validity of the information presented. Consider animal wildlife reports, medical studies, and/or manufacturer claims.

HSS.MD.B.7

Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a

Unit 8: Statistics

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hockey goalie at the end of a game and replacing the goalie with an extra skater).

Lesson 8.06 - Normal Distribution

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students explore continuous probability distributions, building to a focus on the normal distribution and its properties. Students understand and interpret probability density functions to calculate probabilities. The 66-95-99.7 rule and calculators are each used for calculating probabilities of normal distributions. The inverse cumulative distribution function is used to calculate intervals on normal distributions to match given probabilities.

STANDARDS

Maine - High School - Mathematics - Statistical Reasoning (2020)
SR.A.1
Summarize, represent, and interpret data on a single count or measurement variable.
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 data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
HSS.ID.A.3
Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
HSS.ID.A.4
Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.
SR.A.4
Understand and evaluate random processes underlying statistical experiments.
HSS.IC.A.1
Understand statistics as a process for making inferences about population parameters based on a random sample

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from that population.

HSS.MD.A.1

Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

HSS.MD.A.2

Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.

SR.A.8

Calculate expected values and use them to solve problems.

HSS.MD.A.3

Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.

HSS.MD.A.4

Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

Lesson 8.07 - Central Limit Theorem

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students investigate the Central Limit Theorem and its importance in statistics. They use it to approximate distributions of sample means and estimate confidence intervals. The theorem's role in approximating binomial distributions with the normal distribution is introduced and applied.

STANDARDS

Maine - High School - Mathematics - Statistical Reasoning (2020)

SR.A.1

Summarize, represent, and interpret data on a single count or measurement variable.

HSS.ID.A.1

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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 data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

HSS.ID.A.3

Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

HSS.ID.A.4

Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.

SR.A.4

Understand and evaluate random processes underlying statistical experiments.

HSS.IC.A.1

Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

SR.A.5

Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

HSS.IC.B.4

Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.

HSS.MD.A.4

Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

HSS.MD.A.3

Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for

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the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.

HSS.MD.B.7

Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game and replacing the goalie with an extra skater).

Unit 8 Review and Exam

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK4

Description: A full class session is dedicated to reviewing the skills and concepts from this unit. Another session is used for a summative exam, assessing students on all covered material.

STANDARDS

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SR.A.1

Summarize, represent, and interpret data on a single count or measurement variable.

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 data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

HSS.ID.A.3

Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

HSS.ID.A.4

Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.

SR.A.4

Understand and evaluate random processes underlying statistical experiments.

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HSS.IC.A.1

Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

HSS.IC.A.2

Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?

SR.A.5

Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

HSS.IC.B.3

Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

HSS.IC.B.4

Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.

HSS.IC.B.5

Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

HSS.IC.B.6

Evaluate reports based on data. For example, use an article in the local news and interpret the validity of the information presented. Consider animal wildlife reports, medical studies, and/or manufacturer claims.

SR.A.8

Calculate expected values and use them to solve problems.

HSS.MD.A.1

Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

HSS.MD.A.2

Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.

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HSS.MD.A.3

Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.

HSS.MD.A.4

Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

SR.A.9

Use probability to evaluate outcomes of decisions.

HSS.MD.B.5

Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.

HSS.MD.B.5a

Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.

HSS.MD.B.5b

Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.

HSS.MD.B.6

Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).

HSS.MD.B.7

Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game and replacing the goalie with an extra skater).

Unit 9: Intro to Calculus

HS Pre-Calculus

UNIT SUMMARY

Students are introduced to foundational concepts of calculus. Students first learn about limits of functions, learning to describe limits graphically and algebraically. This includes describing function behavior, continuity of functions, convergence of limits (including infinite limits), and one-sided limits. Students then explore rates of change, derivatives, and their applications to real-world problems and concepts. Basic derivative rules are developed, used, and thoroughly practiced. An understanding of derivative functions, their graphs, and their properties is developed, culminating in solving optimization problems.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.4
Understand the relationship between zeros and factors of polynomials.
HSA.APR.B.3
Identify zeros of polynomials of degree three or higher when suitable factorizations (in factored form or easily factorable) are available, and use the zeros to construct a rough graph of the function defined by the polynomial.
AR.A.5
Use polynomial identities to solve problems.
HSA.APR.C.5
Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.
AR.A.6
Rewrite rational expressions.
HSA.APR.D.6
Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.
AR.A.13
Interpret functions that arise in applications in terms of the context.
HSF.IF.B.4
For a function that models a relationship between two quantities, interpret key features of graphs and tables in

Unit 9: Intro to Calculus

HS Pre-Calculus

terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

HSF.IF.B.6

Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

HSF.IF.C.7a

Graph linear and quadratic functions and show intercepts, maxima, and minima.

AR.A.14

Analyze functions using different representations.

HSF.IF.C.7c

Graph polynomial functions of degree three or higher, identifying zeros when suitable factorizations (in factored form or easily factorable) are available, and showing end behavior.

HSF.IF.C.7d

Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.

HSF.IF.C.7e.i

Graph exponential functions, showing intercepts and end behavior, and

HSF.IF.C.7e.ii

Graph logarithmic functions, showing intercepts and end behavior and trigonometric functions, showing period, midline, and amplitude.

HSF.LE.A.3

Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

HSF.IF.C.9

Unit 9: Intro to Calculus

HS Pre-Calculus

Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.

HSF.BF.A.1b

Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

AR.A.16

Build new functions from existing functions.

HSF.BF.B.3

Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

HSF.LE.A.2

Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

AR.A.1

Interpret the structure of expressions.

HSA.SSE.A.1

Interpret expressions that represent a quantity in terms of its context.

HSA.SSE.A.1a

Interpret parts of an expression, such as terms, factors, and coefficients.

HSA.SSE.A.1b

Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.

AR.A.21

Prove and apply trigonometric identities.

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HS Pre-Calculus

HSA.APR.A.1

Understand that polynomials form a system analogous to the integers, namely, they are closed under certain operations.

HSA.APR.A.1a

Perform operations on polynomial expressions (addition, subtraction, multiplication, and division), and compare the system of polynomials to the system of integers.

Unit 9: Intro to Calculus

HS Pre-Calculus

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Lesson 9.01 - Function Behavior

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students review end behavior of polynomial functions and compare how different types of functions grow as input values increase or decrease. Students describe how leading coefficients and degrees affect graphs and function behavior.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSF.IF.B.4
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.
AR.A.14
Analyze functions using different representations.
HSF.IF.C.7
Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.
HSF.IF.C.7d
Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
HSF.IF.C.7c
Graph polynomial functions of degree three or higher, identifying zeros when suitable factorizations (in factored form or easily factorable) are available, and showing end behavior.
HSF.IF.C.7e.i
Graph exponential functions, showing intercepts and end behavior, and
HSF.IF.C.7e.ii
Graph logarithmic functions, showing intercepts and end behavior and trigonometric functions, showing period,

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midline, and amplitude.

HSF.IF.C.9

Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.

HSF.BF.A.1b

Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

AR.A.16

Build new functions from existing functions.

HSF.LE.A.3

Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

AR.A.13

Interpret functions that arise in applications in terms of the context.

Lesson 9.02 - Intro to Limits

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students are introduced to the concept of a limit, identifying function values as inputs approach specific points. Students describe limits graphically and numerically, including limits at a point, infinite limits, and one-sided limits.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.6

Rewrite rational expressions.

HSA.APR.D.6

Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$,

Unit 9: Intro to Calculus

HS Pre-Calculus

$q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.

AR.A.13

Interpret functions that arise in applications in terms of the context.

HSF.IF.B.4

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

AR.A.14

Analyze functions using different representations.

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

HSF.IF.C.7c

Graph polynomial functions of degree three or higher, identifying zeros when suitable factorizations (in factored form or easily factorable) are available, and showing end behavior.

HSF.IF.C.7a

Graph linear and quadratic functions and show intercepts, maxima, and minima.

HSF.IF.C.7d

Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.

HSF.IF.C.7e.i

Graph exponential functions, showing intercepts and end behavior, and

HSF.IF.C.7e.ii

Graph logarithmic functions, showing intercepts and end behavior and trigonometric functions, showing period, midline, and amplitude.

HSF.LE.A.3

Unit 9: Intro to Calculus

HS Pre-Calculus

Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

Lesson 9.03 - Limit Laws

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK2

Description: Students apply limit properties to combine limits through addition, subtraction, multiplication, and division. Limits involving quotients are solved using factoring and rationalizing techniques. Students analyze the end behavior of quotients of functions from an understanding of growth rates of functions.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
HSF.IF.C.7
Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.
HSF.IF.B.4
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.
HSF.IF.C.9

Unit 9: Intro to Calculus

HS Pre-Calculus

Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.

HSF.BF.A.1b

Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

AR.A.16

Build new functions from existing functions.

Lesson 9.04 - Rates of Change

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students calculate average rates of change over intervals and estimate instantaneous rates of change by examining the behavior of function values near a point. Students interpret rates of change in applied, graphical, and algebraic contexts.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.1

Interpret the structure of expressions.

HSA.SSE.A.1

Interpret expressions that represent a quantity in terms of its context.

HSA.SSE.A.1a

Interpret parts of an expression, such as terms, factors, and coefficients.

HSA.SSE.A.1b

Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.

AR.A.6

Rewrite rational expressions.

Unit 9: Intro to Calculus

HS Pre-Calculus

HSA.APR.C.5

Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.

AR.A.13

Interpret functions that arise in applications in terms of the context.

HSF.IF.B.6

Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

AR.A.14

Analyze functions using different representations.

Lesson 9.05 - Intro to Derivatives

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students develop the definition of the derivative as a limit and use it to calculate derivatives of polynomial functions. This leads an understanding of the derivative rules for addition and scalar multiplication, as well as the power rule. Derivative functions and values are understood graphically, and connected to the slopes of tangent lines and rates of change.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.1

Interpret the structure of expressions.

HSA.SSE.A.1

Interpret expressions that represent a quantity in terms of its context.

HSA.SSE.A.1a

Interpret parts of an expression, such as terms, factors, and coefficients.

HSA.SSE.A.1b

Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$

Unit 9: Intro to Calculus

HS Pre-Calculus

as the product of P and a factor not depending on P and interpret the parts.

HSA.APR.C.5

Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.

AR.A.6

Rewrite rational expressions.

AR.A.13

Interpret functions that arise in applications in terms of the context.

HSF.IF.B.4

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

HSF.IF.B.6

Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

AR.A.16

Build new functions from existing functions.

HSA.APR.A.1

Understand that polynomials form a system analogous to the integers, namely, they are closed under certain operations.

HSA.APR.A.1a

Perform operations on polynomial expressions (addition, subtraction, multiplication, and division), and compare the system of polynomials to the system of integers.

AR.A.5

Unit 9: Intro to Calculus

HS Pre-Calculus

Use polynomial identities to solve problems.

Lesson 9.06 - Derivatives of Special Functions

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students apply derivative techniques to sinusoidal, exponential, and logarithmic functions. Students use the derivatives of these base functions to find derivatives of combined functions. Students examine and interpret the relationship between these functions and their derivatives using graphs and applied problems.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
AR.A.13
Interpret functions that arise in applications in terms of the context.
HSF.IF.B.4
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.
HSF.IF.B.6
Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

Unit 9: Intro to Calculus

HS Pre-Calculus

AR.A.14
Analyze functions using different representations.
HSF.IF.C.7
Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.
HSF.IF.C.7e.i
Graph exponential functions, showing intercepts and end behavior, and
HSF.IF.C.7e.ii
Graph logarithmic functions, showing intercepts and end behavior and trigonometric functions, showing period, midline, and amplitude.
HSF.IF.C.9
Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.
HSF.BF.A.1b
Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.
AR.A.16
Build new functions from existing functions.
HSF.BF.B.3
Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.
HSF.LE.A.2
Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).
AR.A.21

Unit 9: Intro to Calculus

HS Pre-Calculus

Prove and apply trigonometric identities.

Lesson 9.07 - Derivative Rules

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn and apply the product rule, quotient rule, and chain rule for finding derivatives of more complex functions.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
AR.A.13
Interpret functions that arise in applications in terms of the context.
HSF.IF.B.4
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.
HSF.IF.B.6
Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
AR.A.14

Unit 9: Intro to Calculus

HS Pre-Calculus

Analyze functions using different representations.

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

AR.A.16

Build new functions from existing functions.

HSF.BF.A.1b

Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

HSF.IF.C.9

Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.

Lesson 9.08 - Critical Points

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students use repeated differentiation to identify critical points and analyze function behavior at those points. Students find the coordinates of local minima and maxima points using the zeros of the first derivative, and use the second derivative to classify the the points. Students apply these techniques to solve optimization problems, finding maximum and minimum values in real world problems.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.1

Interpret the structure of expressions.

HSA.SSE.A.1

Interpret expressions that represent a quantity in terms of its context.

HSA.SSE.A.1a

Unit 9: Intro to Calculus

HS Pre-Calculus

Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
AR.A.4
Understand the relationship between zeros and factors of polynomials.
HSA.APR.B.3
Identify zeros of polynomials of degree three or higher when suitable factorizations (in factored form or easily factorable) are available, and use the zeros to construct a rough graph of the function defined by the polynomial.
AR.A.13
Interpret functions that arise in applications in terms of the context.
HSF.IF.B.4
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.
HSF.IF.B.6
Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
AR.A.14
Analyze functions using different representations.
HSF.IF.C.7
Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.
HSF.IF.C.7c
Graph polynomial functions of degree three or higher, identifying zeros when suitable factorizations (in factored form or easily factorable) are available, and showing end behavior.
HSF.IF.C.7a

Unit 9: Intro to Calculus

HS Pre-Calculus

Graph linear and quadratic functions and show intercepts, maxima, and minima.

HSF.IF.C.9

Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.

AR.A.16

Build new functions from existing functions.

HSF.BF.A.1b

Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

Unit 9 Review and Exam

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK4

Description: A full class session is dedicated to reviewing the skills and concepts from this unit. Another session is used for a summative exam, assessing students on all covered material.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.1

Interpret the structure of expressions.

HSA.SSE.A.1

Interpret expressions that represent a quantity in terms of its context.

HSA.SSE.A.1a

Interpret parts of an expression, such as terms, factors, and coefficients.

HSA.SSE.A.1b

Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.

AR.A.4

Unit 9: Intro to Calculus

HS Pre-Calculus

Understand the relationship between zeros and factors of polynomials.
HSA.APR.B.3
Identify zeros of polynomials of degree three or higher when suitable factorizations (in factored form or easily factorable) are available, and use the zeros to construct a rough graph of the function defined by the polynomial.
AR.A.5
Use polynomial identities to solve problems.
AR.A.13
Interpret functions that arise in applications in terms of the context.
HSF.IF.B.4
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.
HSF.IF.B.6
Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
AR.A.14
Analyze functions using different representations.
HSF.IF.C.7
Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.
HSF.IF.C.7a
Graph linear and quadratic functions and show intercepts, maxima, and minima.
HSF.IF.C.7c
Graph polynomial functions of degree three or higher, identifying zeros when suitable factorizations (in factored form or easily factorable) are available, and showing end behavior.
HSF.IF.C.7d

Unit 9: Intro to Calculus

HS Pre-Calculus

Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.

HSF.IF.C.7e.i

Graph exponential functions, showing intercepts and end behavior, and

HSF.IF.C.7e.ii

Graph logarithmic functions, showing intercepts and end behavior and trigonometric functions, showing period, midline, and amplitude.

HSF.IF.C.9

Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.

HSF.BF.A.1b

Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

AR.A.16

Build new functions from existing functions.

HSF.BF.B.3

Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

HSF.LE.A.2

Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

HSF.LE.A.3

Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

Unit 10: Special Topics

HS Pre-Calculus

UNIT SUMMARY

This unit is designed to adapt to students' interests and preferences, while applying core calculus concepts to real-world scenarios. In most years, the unit leans toward physics-based applications, and the lessons described here reflect that emphasis. More generally, students explore how to model situations using differential equations, or use approximation methods like Taylor series.

Students begin by practicing anti-derivatives and solving basic differential equations using initial conditions. The unit then moves into second-order differential equations applied to projectile motion, oscillation, and generalized exponential functions. Students also develop local approximation techniques using linear and quadratic approximations. The unit concludes with students creating, analyzing, and interpreting differential equation models based on applied problems.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.15
Build a function that models a relationship between two quantities.
HSF.BF.A.1b
Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.
AR.A.17
Construct and compare linear, quadratic, and exponential models and solve problems.
HSF.LE.A.1
Distinguish between situations that can be modeled with linear functions and with exponential functions.
AR.A.20
Model periodic phenomena with trigonometric functions.
HSA.CED.A.1
Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
AR.A.13
Interpret functions that arise in applications in terms of the context.

Unit 10: Special Topics

HS Pre-Calculus

HSF.IF.B.4

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

AR.A.14

Analyze functions using different representations.

HSF.BF.A.1

Write a function that describes a relationship between two quantities.

AR.A.16

Build new functions from existing functions.

HSF.BF.B.3

Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

AR.A.18

Interpret expressions for function in terms of the situation they model.

HSF.LE.B.5

Interpret the parameters in a linear or exponential function in terms of a context.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

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. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .

Unit 10: Special Topics

HS Pre-Calculus

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

HSF.IF.C.8

Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

HSF.BF.A.1a

Determine an explicit expression, a recursive process, or steps for calculation from a context.

AR.A.1

Interpret the structure of expressions.

HSA.SSE.A.1

Interpret expressions that represent a quantity in terms of its context.

HSA.SSE.A.1a

Interpret parts of an expression, such as terms, factors, and coefficients.

HSA.SSE.A.1b

Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.

AR.A.12

Understand the concept of a function and use function notation.

HSF.IF.A.2

Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

Unit 10: Special Topics

HS Pre-Calculus

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Lesson 10.01 - Anti-Derivatives

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students learn the process of finding anti-derivatives and solving basic differential equations. Students use initial conditions to determine particular solutions and graph solution curves.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
HSF.IF.B.4
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.
AR.A.14
Analyze functions using different representations.
HSF.IF.C.7
Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.
HSF.IF.C.8
Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.
AR.A.15
Build a function that models a relationship between two quantities.
HSF.BF.A.1
Write a function that describes a relationship between two quantities.
HSF.BF.A.1a
Determine an explicit expression, a recursive process, or steps for calculation from a context.
AR.A.16

Unit 10: Special Topics

HS Pre-Calculus

Build new functions from existing functions.
AR.A.18
Interpret expressions for function in terms of the situation they model.
AR.A.13
Interpret functions that arise in applications in terms of the context.
AR.A.7
Create equations and/or inequalities that describe numbers or relationships.
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
HSF.BF.A.1b
Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.
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.
AR.A.12
Understand the concept of a function and use function notation.
HSF.IF.A.2

Unit 10: Special Topics

HS Pre-Calculus

Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

Lesson 10.02 - Second Derivative Equations

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students solve second-order differential equations related to position, velocity, and acceleration. Students derive and apply the projectile motion equation to model real-world motion scenarios.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
AR.A.7
Create equations and/or inequalities that describe numbers or relationships.
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.
AR.A.14
Analyze functions using different representations.
AR.A.13
Interpret functions that arise in applications in terms of the context.

Unit 10: Special Topics

HS Pre-Calculus

HSF.IF.B.4

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

HSF.IF.C.8

Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1

Write a function that describes a relationship between two quantities.

HSF.BF.A.1a

Determine an explicit expression, a recursive process, or steps for calculation from a context.

HSF.BF.A.1b

Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

AR.A.16

Build new functions from existing functions.

AR.A.18

Interpret expressions for function in terms of the situation they model.

AR.A.12

Understand the concept of a function and use function notation.

Unit 10: Special Topics

HS Pre-Calculus

HSF.IF.A.2

Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

Lesson 10.03 - Proportional Derivatives

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students use exponential and sinusoidal functions to solve differential equations modeling financial models and springs. Students find general solutions, and connect them to specific models with initial equations.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

AR.A.1

Interpret the structure of expressions.

HSA.SSE.A.1

Interpret expressions that represent a quantity in terms of its context.

HSA.SSE.A.1a

Interpret parts of an expression, such as terms, factors, and coefficients.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

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. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .

AR.A.12

Understand the concept of a function and use function notation.

HSF.IF.A.2

Unit 10: Special Topics

HS Pre-Calculus

Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

AR.A.13

Interpret functions that arise in applications in terms of the context.

HSF.IF.B.4

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

AR.A.14

Analyze functions using different representations.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1

Write a function that describes a relationship between two quantities.

HSF.BF.A.1a

Determine an explicit expression, a recursive process, or steps for calculation from a context.

HSF.BF.B.3

Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

AR.A.17

Construct and compare linear, quadratic, and exponential models and solve problems.

HSF.LE.A.1

Distinguish between situations that can be modeled with linear functions and with exponential functions.

AR.A.18

Unit 10: Special Topics

HS Pre-Calculus

Interpret expressions for function in terms of the situation they model.
HSF.LE.B.5
Interpret the parameters in a linear or exponential function in terms of a context.
AR.A.20
Model periodic phenomena with trigonometric functions.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
HSF.IF.C.7
Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.
HSF.IF.C.8
Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.
AR.A.16
Build new functions from existing functions.

Lesson 10.04 - Harmonic Oscillator Equations

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students continue solving proportional differential equations with sinusoidal function solutions. Students create their own differential equations to model applied scenarios, such as using Hooke's Law to describe the forces for a spring and solve for the spring's motion.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1

Unit 10: Special Topics

HS Pre-Calculus

Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
AR.A.7
Create equations and/or inequalities that describe numbers or relationships.
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. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .
AR.A.12
Understand the concept of a function and use function notation.
AR.A.13
Interpret functions that arise in applications in terms of the context.
HSF.IF.B.4
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.
AR.A.14
Analyze functions using different representations.
HSF.IF.C.7
Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in

Unit 10: Special Topics

HS Pre-Calculus

simple cases and using technology for more complicated cases.

HSF.IF.C.8

Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1

Write a function that describes a relationship between two quantities.

HSF.BF.A.1a

Determine an explicit expression, a recursive process, or steps for calculation from a context.

AR.A.16

Build new functions from existing functions.

AR.A.18

Interpret expressions for function in terms of the situation they model.

AR.A.20

Model periodic phenomena with trigonometric functions.

HSF.IF.A.2

Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

Lesson 10.05 - Linear Differential Equations

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK4

Description: Students solve second order linear differential equations, that model population dynamics and damped oscillators. General solutions are found as a combination of exponential solutions, and Euler's Formula is used to relate this to sinusoidal functions.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)

Unit 10: Special Topics

HS Pre-Calculus

AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
AR.A.7
Create equations and/or inequalities that describe numbers or relationships.
HSA.CED.A.1
Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
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. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .
AR.A.12
Understand the concept of a function and use function notation.
HSF.IF.A.2
Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
AR.A.13
Interpret functions that arise in applications in terms of the context.

Unit 10: Special Topics

HS Pre-Calculus

HSF.IF.B.4

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

AR.A.14

Analyze functions using different representations.

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

HSF.IF.C.8

Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1

Write a function that describes a relationship between two quantities.

HSF.BF.A.1a

Determine an explicit expression, a recursive process, or steps for calculation from a context.

HSF.BF.A.1b

Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

AR.A.16

Build new functions from existing functions.

AR.A.17

Construct and compare linear, quadratic, and exponential models and solve problems.

Unit 10: Special Topics

HS Pre-Calculus

HSF.LE.A.1
Distinguish between situations that can be modeled with linear functions and with exponential functions.
AR.A.18
Interpret expressions for function in terms of the situation they model.
HSF.LE.B.5
Interpret the parameters in a linear or exponential function in terms of a context.
AR.A.20
Model periodic phenomena with trigonometric functions.

Lesson 10.06 - Local Approximation

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK3

Description: Students approximate function values near a point using linear approximations (tangent lines) and quadratic approximations. Students graph and compare approximation accuracy.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.
HSA.SSE.A.1b
Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.
AR.A.7
Create equations and/or inequalities that describe numbers or relationships.

Unit 10: Special Topics

HS Pre-Calculus

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.

AR.A.12

Understand the concept of a function and use function notation.

HSF.IF.A.2

Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

AR.A.13

Interpret functions that arise in applications in terms of the context.

HSF.IF.B.4

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

AR.A.14

Analyze functions using different representations.

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

HSF.IF.C.8

Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1

Write a function that describes a relationship between two quantities.

Unit 10: Special Topics

HS Pre-Calculus

HSF.BF.A.1a
Determine an explicit expression, a recursive process, or steps for calculation from a context.
HSF.BF.A.1b
Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.
AR.A.16
Build new functions from existing functions.
HSF.BF.B.3
Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.
AR.A.18
Interpret expressions for function in terms of the situation they model.

Unit 10 Review and Exam

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK4

Description: A full class session is dedicated to reviewing the skills and concepts from this unit. Another session is used for a summative exam, assessing students on all covered material.

STANDARDS

Maine - High School - Mathematics - Algebraic Reasoning (2020)
AR.A.1
Interpret the structure of expressions.
HSA.SSE.A.1
Interpret expressions that represent a quantity in terms of its context.
HSA.SSE.A.1a
Interpret parts of an expression, such as terms, factors, and coefficients.

Unit 10: Special Topics

HS Pre-Calculus

HSA.SSE.A.1b

Interpret multi-part expressions by viewing one or more of their parts as a single entity. For example, view $P(1+r)^n$ as the product of P and a factor not depending on P and interpret the parts.

AR.A.7

Create equations and/or inequalities that describe numbers or relationships.

HSA.CED.A.1

Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

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. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .

AR.A.12

Understand the concept of a function and use function notation.

HSF.IF.A.2

Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

AR.A.13

Interpret functions that arise in applications in terms of the context.

HSF.IF.B.4

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features may include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative and absolute maximums and minimums; symmetries; end behavior; and periodicity.

AR.A.14

Analyze functions using different representations.

Unit 10: Special Topics

HS Pre-Calculus

HSF.IF.C.7

Graph functions expressed symbolically and as well as show and describe key features of the graph, by hand in simple cases and using technology for more complicated cases.

HSF.IF.C.8

Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

AR.A.15

Build a function that models a relationship between two quantities.

HSF.BF.A.1

Write a function that describes a relationship between two quantities.

HSF.BF.A.1a

Determine an explicit expression, a recursive process, or steps for calculation from a context.

HSF.BF.A.1b

Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

AR.A.16

Build new functions from existing functions.

HSF.BF.B.3

Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

AR.A.17

Construct and compare linear, quadratic, and exponential models and solve problems.

HSF.LE.A.1

Distinguish between situations that can be modeled with linear functions and with exponential functions.

Unit 10: Special Topics

HS Pre-Calculus

AR.A.18

Interpret expressions for function in terms of the situation they model.

HSF.LE.B.5

Interpret the parameters in a linear or exponential function in terms of a context.











AR.A.20

Model periodic phenomena with trigonometric functions.

HS Pre-Calculus

Maine Virtual Academy

School Year 2024-2025 (Aug 26, 2024 - Jun 13, 2025)

UNIT	# OF TEACHING DAYS	DATES
 Unit 1: Equations and Inequalities	16 teaching days	Aug 26 - Sep 20, 2024
 Unit 2: Coordinates and Conics	16 teaching days	Sep 23 - Oct 18, 2024
 Unit 3: Vectors and Matrices	19 teaching days	Oct 21 - Nov 15, 2024
 Unit 4: Complex Numbers	12 teaching days	Nov 18 - Dec 6, 2024
 Unit 5: Functions	18 teaching days	Dec 9, 2024 - Jan 13, 2025
 Unit 6: Sequences and Series	15 teaching days	Jan 17 - Feb 7, 2025
 Unit 7: Combinatorics and Probability	15 teaching days	Feb 10 - Mar 7, 2025
 Unit 8: Statistics	13 teaching days	Mar 10 - Mar 28, 2025
 Unit 9: Intro to Calculus	9 teaching days	Mar 31 - Apr 17, 2025
 Unit 10: Special Topics	26 teaching days	Apr 28 - Jun 13, 2025

August

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26 Unit 1: Equations...	27 Unit 1: Equations...	28 Unit 1: Equations...	29 Unit 1: Equations...	30 Unit 1: Equations...	31

September

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Labor Day	3 Unit 1: Equations...	4 Unit 1: Equations...	5 Unit 1: Equations...	6 Unit 1: Equations...	7
8	9 Unit 1: Equations...	10 Fall NWEA Testing	11 Fall NWEA Testing	12 Fall NWEA Testing	13 Unit 1: Equations...	14
15	16 Unit 1: Equations...	17 Unit 1: Equations...	18 Unit 1: Equations...	19 Unit 1: Equations...	20 Unit 1: Equations...	21
22	23 Unit 2: Coordinat...	24 Unit 2: Coordinat...	25 Unit 2: Coordinat...	26 Unit 2: Coordinat...	27 Unit 2: Coordinat...	28
29	30 Unit 2: Coordinat...	1 Unit 2: Coordinat...	2 Unit 2: Coordinat...	3 Unit 2: Coordinat...	4 Unit 2: Coordinat...	5

October

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30 Unit 2: Coordinat...	1 Unit 2: Coordinat...	2 Unit 2: Coordinat...	3 Unit 2: Coordinat...	4 Unit 2: Coordinat...	5
6	7 Maine Through Year (Tentative)	8 Maine Through Year (Tentative)	9 Maine Through Year (Tentative)	10 Unit 2: Coordinat...	11 Unit 2: Coordinat...	12
13	14 Indigenous Peoples' Day	15 Unit 2: Coordinat...	16 Unit 2: Coordinat...	17 Unit 2: Coordinat...	18 Unit 2: Coordinat...	19
20	21 Unit 3: Vectors a...	22 Unit 3: Vectors a...	23 Unit 3: Vectors a...	24 Unit 3: Vectors a...	25 Unit 3: Vectors a...	26
27	28 Unit 3: Vectors a...	29 Unit 3: Vectors a...	30 Unit 3: Vectors a...	31 Unit 3: Vectors a...	1 Unit 3: Vectors a...	2

November

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28 Unit 3: Vectors a...	29 Unit 3: Vectors a...	30 Unit 3: Vectors a...	31 Unit 3: Vectors a...	1 Unit 3: Vectors a...	2
3	4 Unit 3: Vectors a...	5 Unit 3: Vectors a...	6 Unit 3: Vectors a...	7 Unit 3: Vectors a...	8 Unit 3: Vectors a...	9
10	11 Veterans Day	12 Unit 3: Vectors a...	13 Unit 3: Vectors a...	14 Unit 3: Vectors a...	15 Unit 3: Vectors a...	16
17	18 Unit 4: Complex ...	19 Unit 4: Complex ...	20 Unit 4: Complex ...	21 Unit 4: Complex ...	22 Unit 4: Complex ...	23
24	25 Unit 4: Complex ...	26 Unit 4: Complex ...	27 Thanksgiving	28 Thanksgiving	29 Thanksgiving	30

December

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Unit 4: Complex ...	3 Unit 4: Complex ...	4 Unit 4: Complex ...	5 Unit 4: Complex ...	6 Unit 4: Complex ...	7
8	9 Unit 5: Functions	10 Unit 5: Functions	11 Unit 5: Functions	12 Unit 5: Functions	13 Unit 5: Functions	14
15	16 Unit 5: Functions	17 Unit 5: Functions	18 Unit 5: Functions	19 Unit 5: Functions	20 Unit 5: Functions	21
22	23 Winter Break	24 Winter Break	25 Winter Break	26 Winter Break	27 Winter Break	28 Winter Break
29 Winter Break	30 Winter Break	31 Winter Break	1 New Year's Day	2 Unit 5: Functions	3 Unit 5: Functions	4

January

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29 Winter Break	30 Winter Break	31 Winter Break	1 New Year's Day	2 Unit 5: Functions	3 Unit 5: Functions	4
5	6 Unit 5: Functions	7 Unit 5: Functions	8 Unit 5: Functions	9 Unit 5: Functions	10 Unit 5: Functions	11
12	13 Unit 5: Functions	14 Winter NWEA Testing	15 Winter NWEA Testing	16 Winter NWEA Testing	17 Unit 6: Sequence...	18
19	20 Martin Luther King, Jr. Day	21 Unit 6: Sequence...	22 Unit 6: Sequence...	23 Unit 6: Sequence...	24 Unit 6: Sequence...	25
26	27 Unit 6: Sequence...	28 Unit 6: Sequence...	29 Unit 6: Sequence...	30 Unit 6: Sequence...	31 Unit 6: Sequence...	1

February

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
26	27 Unit 6: Sequence...	28 Unit 6: Sequence...	29 Unit 6: Sequence...	30 Unit 6: Sequence...	31 Unit 6: Sequence...	1
2	3 Unit 6: Sequence...	4 Unit 6: Sequence...	5 Unit 6: Sequence...	6 Unit 6: Sequence...	7 Unit 6: Sequence...	8
9	10 Unit 7: Combinat...	11 Unit 7: Combinat...	12 Unit 7: Combinat...	13 Unit 7: Combinat...	14 Unit 7: Combinat...	15
16	17 Presidents' Day	18 February Break	19 February Break	20 February Break	21 February Break	22
23	24 Unit 7: Combinat...	25 Unit 7: Combinat...	26 Unit 7: Combinat...	27 Unit 7: Combinat...	28 Unit 7: Combinat...	1

March

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
23	24 Unit 7: Combinat...	25 Unit 7: Combinat...	26 Unit 7: Combinat...	27 Unit 7: Combinat...	28 Unit 7: Combinat...	1
2	3 Unit 7: Combinat...	4 Unit 7: Combinat...	5 Unit 7: Combinat...	6 Unit 7: Combinat...	7 Unit 7: Combinat...	8
9	10 Unit 8: Statistics	11 Unit 8: Statistics	12 Unit 8: Statistics	13 Unit 8: Statistics	14 Unit 8: Statistics	15
16	17 Unit 8: Statistics	18 Unit 8: Statistics	19 Unit 8: Statistics	20 March Break	21 March Break	22
23	24 Unit 8: Statistics	25 Unit 8: Statistics	26 Unit 8: Statistics	27 Unit 8: Statistics	28 Unit 8: Statistics	29
30	31 Unit 9: Intro to Ca...	1 Unit 9: Intro to Ca...	2 Unit 9: Intro to Ca...	3 Unit 9: Intro to Ca...	4 Unit 9: Intro to Ca...	5

April

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
30	31 Unit 9: Intro to Ca...	1 Unit 9: Intro to Ca...	2 Unit 9: Intro to Ca...	3 Unit 9: Intro to Ca...	4 Unit 9: Intro to Ca...	5
6	7 MEA Science (HS)	8 MEA Science (HS)	9 MEA Science (HS)	10 MEA Science (HS)	11 MEA Science (HS)	12
13	14 Unit 9: Intro to Ca...	15 Unit 9: Intro to Ca...	16 Unit 9: Intro to Ca...	17 Unit 9: Intro to Ca...	18 April Vacation	19 April Vacation
20 April Vacation	21 April Vacation	22 April Vacation	23 April Vacation	24 April Vacation	25 April Vacation	26
27	28 Unit 10: Special T...	29 Spring NWEA Testing	30 Spring NWEA Testing	1 Spring NWEA Testing	2 Unit 10: Special T...	3

May

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28 Unit 10: Special T...	29 Spring NWEA Testing	30 Spring NWEA Testing	1 Spring NWEA Testing	2 Unit 10: Special T...	3
4	5 Unit 10: Special T...	6 Unit 10: Special T...	7 Unit 10: Special T...	8 Unit 10: Special T...	9 Unit 10: Special T...	10
11	12 MEA (ELA & Math)	13 MEA (ELA & Math)	14 MEA (ELA & Math)	15 MEA (ELA & Math)	16 MEA (ELA & Math)	17
18	19 Unit 10: Special T...	20 Unit 10: Special T...	21 Unit 10: Special T...	22 Unit 10: Special T...	23 Unit 10: Special T...	24
25	26 Memorial Day	27 Unit 10: Special T...	28 Unit 10: Special T...	29 Unit 10: Special T...	30 Unit 10: Special T...	31

June

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Unit 10: Special T...	3 Unit 10: Special T...	4 Unit 10: Special T...	5 Unit 10: Special T...	6 Unit 10: Special T...	7
8	9 Unit 10: Special T...	10 Unit 10: Special T...	11 Unit 10: Special T...	12 Unit 10: Special T...	13 Unit 10: Special T...	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

HS World Literature

Maine Virtual Academy

UNITS (12/12 SELECTED)

	SUGGESTED DURATION
 Unit 1: About Me	<i>10 teaching days</i>
 Unit 2: IXL Fall Skills	<i>40 teaching days</i>
 Unit 3: Independent Reading	<i>130 teaching days</i>
 Unit 4: Poetry Study	<i>40 teaching days</i>
 Unit 5: Writing	<i>15 teaching days</i>
 Unit 6: Novel	<i>35 teaching days</i>
 Unit 7: Argument	<i>1 teaching day</i>
 Unit 8: Multimedia	<i>1 teaching day</i>
 Unit 9: IXL Spring Skills	<i>12 teaching days</i>
 Unit 10: Flocabulary	<i>8 teaching days</i>
 Unit 11: Novel	<i>30 teaching days</i>
 Unit 12: Play Study	<i>35 teaching days</i>

Unit 1: About Me

HS World Literature

UNIT SUMMARY

Students will evaluate their academic skills to identify areas for growth, cultivate a collaborative learning environment, establish effective routines, and develop the reading and writing competencies necessary for success on the Accuplacer assessment.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.a	
	Use parallel structure.
L.1.9-Diploma.b	
	Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.2.9-Diploma.a	
	Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.2.9-Diploma.b	
	Use a colon to introduce a list or quotation.
L.2.9-Diploma.c	
	Observe hyphenation conventions.
L.2.9-Diploma.d	
	Spell correctly.
L.3.9-Diploma.a	
	Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b	
	Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
L.4.9-Diploma.a	

Unit 1: About Me

HS World Literature

Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

L.5.9-Diploma.a

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

L.5.9-Diploma.b

Analyze nuances in the meaning of words with similar denotations.

SL.1.9-Diploma.a

Participate effectively in a range of collaborative discussions (one-on-one, in groups, student-led, and teacher-led) on grades 9-Diploma topics texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

R.1.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.2.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.3.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span,

Unit 1: About Me

HS World Literature

and

- access district resources to help students move toward proficiency.

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

Unit 1: About Me

HS World Literature

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

Unit 1: About Me

HS World Literature

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Get to Know You Questionnaire

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will reflect on and communicate personal learning goals, reading interests, and barriers to learning to support individualized learning instruction.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.2.9-Diploma.d
Spell correctly.
R.1.9-Diploma
Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should <ul style="list-style-type: none">• assess where students are,• determine what they need to learn to master the skills appropriate to their grade level or grade span, and• access district resources to help students move toward proficiency.
R.2.9-Diploma
Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should <ul style="list-style-type: none">• assess where students are,• determine what they need to learn to master the skills appropriate to their grade level or grade span, and• access district resources to help students move toward proficiency.
R.3.9-Diploma
Some learners may enter your classroom without having mastered the skills identified in previous grade levels or

Unit 1: About Me

HS World Literature

grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

Reader's Interest Survey

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will complete a survey to communicate their reading interests, learning habits, and preferences to inform independent novel selection targeted instructional support.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

R.1.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.2.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.3.9-Diploma

Unit 1: About Me

HS World Literature

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

Writing Sample: Senior Soundtrack

Assessment Type: Formative / Diagnostic

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Students will identify a theme for their senior year, create a five song playlist in Spotify, and analyze textual evidence from the songs selected to make connections from the lyrics to theme in order to synthesize and apply concepts from music to their academic goals.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

L.1.9-Diploma.b

Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

L.1.9-Diploma.a

Use parallel structure.

L.2.9-Diploma.a

Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.

L.2.9-Diploma.b

Use a colon to introduce a list or quotation.

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L.2.9-Diploma.c
Observe hyphenation conventions.
L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b
Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.7.9-Diploma
Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.
W.1.9-Diploma.d
Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

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W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.3.9-Diploma.a
Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.
W.3.9-Diploma.b
Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.
W.3.9-Diploma.c
Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.
W.3.9-Diploma.e
Provide closure that enhances, supports, and reflects the purpose of the piece.

Accuplacer Reading Score Quiz

Assessment Type: Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 / DOK3

Description: Students will earn credit for completing the Accuplacer Reading Test by recording their score and discussing results with a teacher during their initial conference. The test will follow the IXL Diagnostic Assessment and completion of the first three weeks of the IXL Fall Skills Plan.

Teacher Conference

Assessment Type: Formative / Diagnostic

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK3 /

Description: Students will interpret the results of their IXL diagnostic, Reader's Interest survey, and receive feedback on their writing assessment to establish educational goals, barriers to learning (such as if hard copies of novels are needed or if students are dual enrolled in CT or classes), make selections for independent novels,

Unit 1: About Me

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and determine post-secondary plans.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
SL.1.9-Diploma.a	
	Participate effectively in a range of collaborative discussions (one-on-one, in groups, student-led, and teacher-led) on grades 9-Diploma topics texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
R.12.9-Diploma.b	
	Read various on-level texts with purpose and understanding.
R.12.9-Diploma.c	
	Use context to confirm or self-correct word recognition.
W.2.9-Diploma.a	
	Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.1.9-Diploma.d	
	Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.
W.2.9-Diploma.b	
	Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

Unit 2: IXL Fall Skills

HS World Literature

UNIT SUMMARY

Students will take the IXL Diagnostic assessment as a Pre- and Post-Assessment to track your reading, writing, grammar, and vocabulary skills throughout the semester. You will complete the Four Week Fall Skills program to prepare for the Accuplacer test in Reading by focusing on key skills for comprehension, vocabulary and language development, and grammatical functions to apply to greater understanding of literature in the course, on standardized tests, such as the SAT or ACT, and to determine mastery of 12th grade ELA standards.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.1.9-Diploma.a
Use parallel structure.
L.1.9-Diploma.b
Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.1.9-Diploma.c
Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contestable.
L.1.9-Diploma.d
Resolve issues of complex or contested usage, consulting references as needed.
L.2.9-Diploma.a
Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.2.9-Diploma.b
Use a colon to introduce a list or quotation.
L.2.9-Diploma.c
Observe hyphenation conventions.
L.2.9-Diploma.d
Spell correctly.

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L.3.9-Diploma.a

Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.

L.3.9-Diploma.b

Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

L.4.9-Diploma.a

Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

L.4.9-Diploma.c

Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.

L.5.9-Diploma.a

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

L.5.9-Diploma.b

Analyze nuances in the meaning of words with similar denotations.

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

R.1.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.2.9-Diploma

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Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.3.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.8.9-Diploma.a

Analyze the organization and structure of specific features and components in various texts

R.8.9-Diploma.b

Unit 2: IXL Fall Skills

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Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.

R.9.9-Diploma

Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use perspective and purpose to shape the intended content, style, and effect of various texts.

R.10.9-Diploma.a

Evaluate the effectiveness of how authors use literary and/or rhetorical strategies to develop arguments in various texts.

R.10.9-Diploma.b

Evaluate the premises, claims, and/or conclusions in various texts, verifying the information when possible and corroborating or challenging conclusions with other sources of information.

R.11.9-Diploma.b

Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Unit 2: IXL Fall Skills

HS World Literature

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

IXL Diagnostic Pre-Assessment

Assessment Type: Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will complete an ELA IXL Diagnostic Assessment to evaluate their proficiency in reading comprehension, writing, vocabulary, and grammar.

Four Week Fall Skills Plan: Week 1

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 /

Description: Students will complete a four week fall skills plan to prepare for the Accuplacer exam.

Week 1

Students will replace words using a thesaurus.

Students will identify and correct errors with frequently confused words.

Students will identify audience and purpose.

Students will determine which text is most formal.

Students will compare passages for subjective and objective tone.

Students will choose the topic sentence that best captures the main idea.

Students will determine the main idea of a passage.

Students will organize information by topic.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.4.9-Diploma.c
Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.
L.2.9-Diploma.d
Spell correctly.
L.5.9-Diploma.b
Analyze nuances in the meaning of words with similar denotations.
R.3.9-Diploma

Unit 2: IXL Fall Skills

HS World Literature

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.2.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.1.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.8.9-Diploma.b

Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in

Unit 2: IXL Fall Skills

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various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.8.9-Diploma.a

Analyze the organization and structure of specific features and components in various texts

Four Week Fall Skills Plan: Week 2

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 /

Description: Students will complete a four week fall skills plan to prepare for the Accuplacer exam.

Week 2

Students will use words accurately and precisely.

Students will interpret figures of speech.

Students will classify figures of speech to review the previous lesson.

Students will analyze the development of informational passages: set 1.

Students will identify stronger and weaker evidence to support a claim.

Students will choose the analysis that logically connects the evidence to the claim.

Students will read work emails and memos.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

L.5.9-Diploma.a

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

L.5.9-Diploma.b

Analyze nuances in the meaning of words with similar denotations.

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.8.9-Diploma.a

Analyze the organization and structure of specific features and components in various texts

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R.8.9-Diploma.b
Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.
R.10.9-Diploma.a
Evaluate the effectiveness of how authors use literary and/or rhetorical strategies to develop arguments in various texts.
R.10.9-Diploma.b
Evaluate the premises, claims, and/or conclusions in various texts, verifying the information when possible and corroborating or challenging conclusions with other sources of information.
R.12.9-Diploma.a
Read with sufficient accuracy and fluency to support comprehension.
R.12.9-Diploma.b
Read various on-level texts with purpose and understanding.
R.12.9-Diploma.c
Use context to confirm or self-correct word recognition.

Four Week Fall Skills Plan: Week 3

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 /

Description: Students will complete a four week fall skills plan to prepare for the Accuplacer exam.

Week 3

Students will choose the word whose connotation and denotation best match the sentence.

Students will use context to identify the meaning of a word.

Students will interpret the meaning of an allusion from its source.

Students will trace an argument: set 1.

Students will classify logical fallacies.

Students will evaluate counterclaims.

Students will use parallel structure.

Students will identify active and passive voice.

Unit 2: IXL Fall Skills

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STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.1.9-Diploma.a
Use parallel structure.
L.4.9-Diploma.a
Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.5.9-Diploma.a
Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.
R.10.9-Diploma.b
Evaluate the premises, claims, and/or conclusions in various texts, verifying the information when possible and corroborating or challenging conclusions with other sources of information.
R.10.9-Diploma.a
Evaluate the effectiveness of how authors use literary and/or rhetorical strategies to develop arguments in various texts.
R.12.9-Diploma.a
Read with sufficient accuracy and fluency to support comprehension.
R.12.9-Diploma.b
Read various on-level texts with purpose and understanding.

Four Week Fall Skills Plan: Week 4

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 /

Description: Students will complete a four week fall skills plan to prepare for the Accuplacer exam.

Week 4

Students will analyze passages from *Things Fall Apart*: Part 1.

Students will analyze passages from *Things Fall Apart*: Part 2.

Students will analyze rhetorical strategies in historical texts: set 1.

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Students will identify supporting evidence in a text.

Students will employ transitions with conjunctive adverbs.

Students will suggest appropriate revisions in text.

Students will correct errors with signs.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.1.9-Diploma.b
Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.8.9-Diploma.b
Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.
R.10.9-Diploma.a
Evaluate the effectiveness of how authors use literary and/or rhetorical strategies to develop arguments in various texts.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central

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idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.8.9-Diploma.a

Analyze the organization and structure of specific features and components in various texts

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

IXL Diagnostic: Post-Assessment

Assessment Type: Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will retake the ELA IXL Diagnostic Assessment to reassess their proficiency in reading comprehension, writing, vocabulary, and grammar. Results will inform differentiated instruction, including targeted intervention and enrichment, particularly for students who score below 239 on the Accuplacer or demonstrate advanced proficiency.

Unit 3: Independent Reading

HS World Literature

UNIT SUMMARY

Students will complete a monthly reading log based on personal interests, individual skill and Lexile levels, and/or teacher selected themes. Students will make selections based on reader's interest survey, data collected, access and preferences. Students will read books on Sora, Maine Digital Library, Cloud Library, and/or receive hard copies of novels mailed home.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.2.9-Diploma.b
Use a colon to introduce a list or quotation.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
SL.3.9-Diploma.d
Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.
R.1.9-Diploma
Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should <ul style="list-style-type: none">• assess where students are,• determine what they need to learn to master the skills appropriate to their grade level or grade span, and• access district resources to help students move toward proficiency.
R.2.9-Diploma
Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should <ul style="list-style-type: none">• assess where students are,• determine what they need to learn to master the skills appropriate to their grade level or grade span, and• access district resources to help students move toward proficiency.
R.3.9-Diploma

Unit 3: Independent Reading

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Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.1.9-Diploma.d

Unit 3: Independent Reading

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Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

Unit 3: Independent Reading

HS World Literature

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Reading Logs

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will complete monthly reading logs to sustain independent reading that increases fluency, interests, and life learning to support comprehension. Students will receive recommendations from teachers on personalized, contemporary and classic texts to support individual needs. Texts will provide access and fairness to all learners and may include audiobooks, hard copies, or ESL-Bits (website that chunks texts with audio).

12th Grade Recommended Reading List will be utilized and promoted for all students <https://k-12readinglist.com/reading-lists-for-high-school-students/reading-list-for-12th-grade-students-age-17-18/>

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.2.9-Diploma.d	Spell correctly.
L.2.9-Diploma.c	Observe hyphenation conventions.
L.2.9-Diploma.b	Use a colon to introduce a list or quotation.
L.2.9-Diploma.a	Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
SL.1.9-Diploma.b	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.1.9-Diploma.d	Propel conversations by posing and responding to questions that probe reasoning and evidence.
R.1.9-Diploma	

Unit 3: Independent Reading

HS World Literature

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.2.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.3.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Unit 3: Independent Reading

HS World Literature

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

Alternative Novel: Book Talk

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Unit 3: Independent Reading

HS World Literature

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Students will select one novel to develop a Book Talk by responding to the questions provided if they are unable to participate in the novel unit. Reasons may include any eventuating circumstances that require project-based learning assessment.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
SL.3.9-Diploma.d
Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or

Unit 3: Independent Reading

HS World Literature

techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

Unit 4: Poetry Study

HS World Literature

UNIT SUMMARY

Students will read, view, and listen to the epic poem *Beowulf*, examining how story changes through various interpretations and authors' perspectives, including reading Francis B. Gummer, Burton Raffel, the graphic novel by Gareth Hinds, and the *Myths and Legends* podcast versions of the text. Students will hone critical reading and figurative language skills, including determining vocabulary in context, evaluating tone and mood, identify main ideas, and synthesize information from a range of sources into a coherent understanding of central themes.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.5.9-Diploma.a
Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.
L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
R.11.9-Diploma.c
Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.
W.1.9-Diploma.c
Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.
L.1.9-Diploma.a
Use parallel structure.
L.1.9-Diploma.c
Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contestable.
L.2.9-Diploma.a
Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.2.9-Diploma.b

Unit 4: Poetry Study

HS World Literature

Use a colon to introduce a list or quotation.
L.2.9-Diploma.c
Observe hyphenation conventions.
L.2.9-Diploma.d
Spell correctly.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.11.9-Diploma.a
Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.
R.11.9-Diploma.b
Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.
R.12.9-Diploma.a
Read with sufficient accuracy and fluency to support comprehension.
R.12.9-Diploma.b
Read various on-level texts with purpose and understanding.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
L.1.9-Diploma.b
Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.

Unit 4: Poetry Study

HS World Literature

L.3.9-Diploma.b
Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.3.9-Diploma.a
Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.
W.3.9-Diploma.b
Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.
W.3.9-Diploma.c
Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.
W.3.9-Diploma.d
Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.
W.3.9-Diploma.e
Provide closure that enhances, supports, and reflects the purpose of the piece.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.7.9-Diploma
Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with

Unit 4: Poetry Study

HS World Literature

multiple meanings and/or language that is particularly evocative.

R.10.9-Diploma.a

Evaluate the effectiveness of how authors use literary and/or rhetorical strategies to develop arguments in various texts.

R.10.9-Diploma.b

Evaluate the premises, claims, and/or conclusions in various texts, verifying the information when possible and corroborating or challenging conclusions with other sources of information.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

R.9.9-Diploma

Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use perspective and purpose to shape the intended content, style, and effect of various texts.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

SL.3.9-Diploma.c

Use appropriate eye contact, adequate volume, and clear pronunciation.

SL.3.9-Diploma.d

Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.

Unit 4: Poetry Study

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ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Beowulf Station Notes

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will build background by taking notes on the time period and themes of EPICs by completing the EPIC Stations Activity.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).
R.11.9-Diploma.a
Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.
R.11.9-Diploma.c
Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.
W.1.9-Diploma.c
Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

ATTACHMENTS

 Beowulf_Intro_Stations.pdf

Beowulf Note Taking Guide

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will read the Francis B. Gummere version of Beowulf independently. Students will

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compare the Gummere translation to the graphic novel by Gareth Hinds in order to visualize the epic and analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

1. Students will write summaries of Books 1, 2, and 3 by taking notes on the 5W's+1.
2. Students will identify and label characters in each book. Students will define vocabulary words.
3. Students will distinguish the difference between analysis, summary, and response.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
	L.2.9-Diploma.d
Spell correctly.	
	L.2.9-Diploma.c
Observe hyphenation conventions.	
	L.2.9-Diploma.b
Use a colon to introduce a list or quotation.	
	L.2.9-Diploma.a
Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.	
	L.1.9-Diploma.c
Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contestable.	
	L.1.9-Diploma.a
Use parallel structure.	
	SL.1.9-Diploma.b
Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.	
	SL.1.9-Diploma.e
Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to	

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deepen the investigation or complete the task.

SL.2.9-Diploma.a

Integrate multiple sources of information presented in diverse formats and media in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

L.4.9-Diploma.c

Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.

L.4.9-Diploma.d

Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.11.9-Diploma.c

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

R.11.9-Diploma.b

Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

R.11.9-Diploma.a

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Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Beowulf Journal Prompts (3)

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will make connections to themselves and the text by responding to three journal prompts by connecting to themes in the novel. Students will generate ideas for college (or narrative) essays that they write in the next unit of study.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

L.1.9-Diploma.a

Use parallel structure.

L.1.9-Diploma.b

Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

L.2.9-Diploma.b

Use a colon to introduce a list or quotation.

L.2.9-Diploma.c

Observe hyphenation conventions.

L.2.9-Diploma.d

Spell correctly.

Unit 4: Poetry Study

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L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b
Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.3.9-Diploma.a
Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.
W.3.9-Diploma.b
Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.
W.3.9-Diploma.c
Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.
W.3.9-Diploma.d
Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.
W.3.9-Diploma.e
Provide closure that enhances, supports, and reflects the purpose of the piece.

AP Reading Passage Quizzes (3)

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 / DOK3

Unit 4: Poetry Study

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Description: Students will respond to 3 multiple choice AP reading quizzes on Beowulf passages to determine main ideas, evaluate purpose, determine vocabulary in context, and draw inferences about characters.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).
R.7.9-Diploma
Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.
R.10.9-Diploma.a
Evaluate the effectiveness of how authors use literary and/or rhetorical strategies to develop arguments in various texts.
R.10.9-Diploma.b
Evaluate the premises, claims, and/or conclusions in various texts, verifying the information when possible and corroborating or challenging conclusions with other sources of information.
R.12.9-Diploma.a
Read with sufficient accuracy and fluency to support comprehension.
R.12.9-Diploma.b
Read various on-level texts with purpose and understanding.
R.12.9-Diploma.c

Unit 4: Poetry Study

HS World Literature

Use context to confirm or self-correct word recognition.

Book 1-2 Comprehension Quizzes

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Students will answer 2 multiple choice comprehension quizzes on elements of plot to check for understanding on Books 1 and 2.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

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R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

Book 2: Fierce Females Activity

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 / DOK3

Description: Students will analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take by comparing the Burton Raffel translation to the Maria Dahvana Headley's translation of "Book 2: Grendel's Mother's Revenge" with an analysis activity. Students will read "Beyond Woman: 12 Mighty Female Warriors" by Mindy Weisberger from *Live Science* magazine to answer questions about what changed, confirmed, and challenged their beliefs about female warriors.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

L.2.9-Diploma.d

Spell correctly.

L.2.9-Diploma.c

Observe hyphenation conventions.

L.2.9-Diploma.b

Use a colon to introduce a list or quotation.

L.2.9-Diploma.a

Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.

L.1.9-Diploma.a

Use parallel structure.

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.5.9-Diploma.a

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HS World Literature

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.9.9-Diploma

Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use perspective and purpose to shape the intended content, style, and effect of various texts.

R.11.9-Diploma.b

Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

R.11.9-Diploma.c

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

Beowulf Job Interview

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK3 / DOK4

Description: Students will complete read nonfiction articles about job skills from *Forbes* magazine and apply knowledge of the plot and characters to create realistic dialogue. Students will compare themselves to the protagonist to identify skills they can apply to their own lives as they prepare for post-secondary activities like job, scholarship, or college.

Read the Articles: [Get that Job: Nine Ways to Interview with Confidence](#)

[The 10+ Most Important Job Skills Every Company will be Looking for in 2020](#)

STANDARDS

Unit 4: Poetry Study

HS World Literature

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.2.9-Diploma.b	
	Use a colon to introduce a list or quotation.
L.2.9-Diploma.c	
	Observe hyphenation conventions.
L.2.9-Diploma.d	
	Spell correctly.
L.1.9-Diploma.a	
	Use parallel structure.
R.4.9-Diploma	
	Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.b	
	Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.11.9-Diploma.a	
	Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.
R.11.9-Diploma.b	
	Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.
R.11.9-Diploma.c	
	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.
R.12.9-Diploma.a	
	Read with sufficient accuracy and fluency to support comprehension.

Unit 4: Poetry Study

HS World Literature

R.12.9-Diploma.b
Read various on-level texts with purpose and understanding.
W.1.9-Diploma.d
Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

Setting Sail with Beowulf

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Students will develop a superhero avatar and develop a multimedia slide where they practice writing parallel structure with a confident declaration as skill building for personal statements and college essays. Students will create a sail boat with an alliterative title, identify a visual symbol to represent the boat, create a declarative stance with caesuras for dramatic pauses, and employ creative uses of kennings. Students will compile their individual slides into a class deck, "or fleet," and use public speaking skills to introduce their avatar and boat to the class for a speaking and listening activity.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.1.9-Diploma.a
Use parallel structure.
L.2.9-Diploma.b
Use a colon to introduce a list or quotation.
L.2.9-Diploma.c

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Observe hyphenation conventions.
L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
SL.1.9-Diploma.b
Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.1.9-Diploma.c
Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
SL.3.9-Diploma.a
Present information, findings, and supporting evidence, conveying a clear and distinct perspective so that listeners can follow the line of reasoning.
SL.3.9-Diploma.c
Use appropriate eye contact, adequate volume, and clear pronunciation.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

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W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.3.9-Diploma.b
Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.
SL.3.9-Diploma.d
Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.
SL.1.9-Diploma.a
Participate effectively in a range of collaborative discussions (one-on-one, in groups, student-led, and teacher-led) on grades 9-Diploma topics texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
L.5.9-Diploma.a
Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

Unit Assessment

Assessment Type: Summative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Students will complete a multiple choice unit test to determine figurative, connotative, and technical word means, evaluate main ideas, themes, and analyze how the an author’s choices and determine how specific individuals/ characters, elements and/or techniques, events, or ideas interact and develop over the course of the text.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.5.9-Diploma.a
Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.
L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading,

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writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.8.9-Diploma.a

Analyze the organization and structure of specific features and components in various texts

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

Unit 5: Writing

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UNIT SUMMARY

Students will write a narrative or expository essay based on the Common Application prompts (or a self-selected topic related to their post-secondary plan). Students will utilize the journal prompts from Beowulf to begin brainstorming topics and select a prompt appropriate to their post-secondary goals. Students will read nonfiction articles to build understanding of scholarship aid and engage in a Socratic seminar to uncover misconceptions to break down barriers and promote the college application process.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
	L.2.9-Diploma.b
Use a colon to introduce a list or quotation.	
	L.2.9-Diploma.c
Observe hyphenation conventions.	
	L.2.9-Diploma.d
Spell correctly.	
	L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.	
	L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.	
	SL.1.9-Diploma.b
Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.	
	SL.1.9-Diploma.d
Propel conversations by posing and responding to questions that probe reasoning and evidence.	
	SL.3.9-Diploma.c
Use appropriate eye contact, adequate volume, and clear pronunciation.	

Unit 5: Writing

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W.1.9-Diploma.d
Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
L.1.9-Diploma.a
Use parallel structure.
L.2.9-Diploma.a
Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.3.9-Diploma.b
Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
L.4.9-Diploma.a
Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
W.1.9-Diploma.b
Assess the credibility, accuracy, and usefulness of a variety of authoritative sources in order to synthesize relevant information that leads to logical, increasingly complex conclusions.
W.1.9-Diploma.c
Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.
L.1.9-Diploma.b

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Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.9.9-Diploma

Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use perspective and purpose to shape the intended content, style, and effect of various texts.

R.11.9-Diploma.a

Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.

R.11.9-Diploma.c

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

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W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.d

Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

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ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Nonfiction Article: "College Board Creates Scholarship Regardless of GPA"

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Read a nonfiction article about the Big Future scholarship designed by the College Board, apply note taking skills to identify the main idea in the article utilizing the 5W's+1 note taking strategy and write a summary of the article; complete a multiple choice quiz to check for understanding of main ideas; complete a Socratic seminar about ideas related to the article, college, and scholarship aid for college.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.2.9-Diploma.b
Use a colon to introduce a list or quotation.
L.2.9-Diploma.c
Observe hyphenation conventions.
L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
SL.1.9-Diploma.a
Participate effectively in a range of collaborative discussions (one-on-one, in groups, student-led, and teacher-led) on grades 9-Diploma topics texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
SL.1.9-Diploma.b
Come to discussions prepared, having read and researched material under study; explicitly draw on that

Unit 5: Writing

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preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

SL.1.9-Diploma.d

Propel conversations by posing and responding to questions that probe reasoning and evidence.

SL.3.9-Diploma.c

Use appropriate eye contact, adequate volume, and clear pronunciation.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.10.9-Diploma.b

Evaluate the premises, claims, and/or conclusions in various texts, verifying the information when possible and corroborating or challenging conclusions with other sources of information.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.1.9-Diploma.c

Unit 5: Writing

HS World Literature

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

Generative Writing

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) /

Assessment Level (DOK): DOK1 / DOK2 / DOK3

Description: Students will answer generative questions about their post-secondary plans, select a prompt from the Common Application list (or other post-secondary appropriate prompts, such as cosmetology scholarships, or self-generated prompts for student-developed businesses). Students will brainstorm a list of memories related to the topic, and select one memory or idea to develop into a narrative or expository writing piece. Students may utilize the generative writing from the Beowulf journal prompts to make connections to their past experiences and interests for the purpose of essay.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.2.9-Diploma.d
Spell correctly.
L.2.9-Diploma.c
Observe hyphenation conventions.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

Narrative/Expository Essay Guided Draft

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK2 / DOK3 / DOK4

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Description: Students will employ active voice through development of a scene, utilizing voice, character action, descriptive language, and sensory details to create a 650 word response that answers the prompt selected, identifies post-secondary goals, and reflects on personal experiences. Students that prefer to write about a topic, idea, or concept they find so engaging they lose track of time will follow an expository writing structure, incorporating relative research, and citing evidence explicitly as needed.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.a	
	Use parallel structure.
L.2.9-Diploma.a	
	Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.2.9-Diploma.b	
	Use a colon to introduce a list or quotation.
L.2.9-Diploma.c	
	Observe hyphenation conventions.
L.2.9-Diploma.d	
	Spell correctly.
L.3.9-Diploma.a	
	Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
W.1.9-Diploma.d	
	Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.
W.2.9-Diploma.a	
	Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.b	
	Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

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W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.3.9-Diploma.a
Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.
W.3.9-Diploma.b
Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.
W.3.9-Diploma.c
Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.
W.3.9-Diploma.d
Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.
W.3.9-Diploma.e
Provide closure that enhances, supports, and reflects the purpose of the piece.
W.1.9-Diploma.b
Assess the credibility, accuracy, and usefulness of a variety of authoritative sources in order to synthesize relevant information that leads to logical, increasingly complex conclusions.
L.3.9-Diploma.b
Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

Narrative/Expository Essay Final Draft

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK2 / DOK3 / DOK4

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HS World Literature

Description: Students will revise and edit the draft of their essay after receiving ongoing feedback through Google docs and one-to-one conferencing with their teacher, where they will determine appropriate uses for their final drafts, such as college applications, websites or testimonies for student-developed businesses, scholarship applications, and more.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.a	
	Use parallel structure.
L.1.9-Diploma.b	
	Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.1.9-Diploma.d	
	Resolve issues of complex or contested usage, consulting references as needed.
L.2.9-Diploma.a	
	Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.2.9-Diploma.b	
	Use a colon to introduce a list or quotation.
L.2.9-Diploma.c	
	Observe hyphenation conventions.
L.2.9-Diploma.d	
	Spell correctly.
L.3.9-Diploma.a	
	Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b	
	Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

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L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
W.1.9-Diploma.d
Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.3.9-Diploma.a
Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.
W.3.9-Diploma.b
Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.
W.3.9-Diploma.c
Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.
W.3.9-Diploma.d
Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.
W.3.9-Diploma.e
Provide closure that enhances, supports, and reflects the purpose of the piece.

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Discourse Analysis Essay

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK3 / DOK4

Description: Students will self-select a controversial topic from Britannica's ProCon site and read four nonfiction articles on the issue. They will learn to use the bibliographies on the site to locate credible sources, annotate two articles, and use the 5W's+1 note-taking strategy to create summaries. Students will then write a three-paragraph essay that presents both sides of the argument and articulates their own stance based on the research. Students uncertain about attending college will specifically explore the pros and cons of college education. All students will integrate and synthesize information from four sources, cite them in MLA format, and include a Works Cited page.

[Nonfiction Articles for College Topic](#)

[Benefits of Earning a College Degree](#)

[What's more expensive than going to college is not going to college.](#)

[Is a college degree still worth it? Going to college is a mistake for many](#)

[Not Every Student Should Go to College and That's Okay](#)

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.a	
	Use parallel structure.
L.1.9-Diploma.b	
	Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.2.9-Diploma.a	
	Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.2.9-Diploma.b	
	Use a colon to introduce a list or quotation.
L.2.9-Diploma.c	
	Observe hyphenation conventions.

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L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b
Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.7.9-Diploma
Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.
R.9.9-Diploma
Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use perspective and purpose to shape the intended content, style, and effect of various texts.
R.11.9-Diploma.a
Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.
R.11.9-Diploma.c

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Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships

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among increasingly complex ideas.


W.3.9-Diploma.d

Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

ATTACHMENTS

 Analysis_Writing_Template.pdf

Unit 6: Novel

HS World Literature

UNIT SUMMARY

Students will read the dystopian novel *Nineteen Eighty-Four* by George Orwell to develop critical thinking, close reading, passage analysis, vocabulary development, examination of the themes of censorship, totalitarian governments, surveillance, individual identity, propaganda, and language and thought control in order to make connections to real world issues and events.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.5.9-Diploma.b
Analyze nuances in the meaning of words with similar denotations.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).
R.7.9-Diploma
Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.
R.11.9-Diploma.b
Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.
R.12.9-Diploma.a

Unit 6: Novel

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Read with sufficient accuracy and fluency to support comprehension.
R.12.9-Diploma.b
Read various on-level texts with purpose and understanding.
R.8.9-Diploma.a
Analyze the organization and structure of specific features and components in various texts
R.11.9-Diploma.c
Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.
L.1.9-Diploma.a
Use parallel structure.
L.1.9-Diploma.b
Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.2.9-Diploma.a
Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.2.9-Diploma.b
Use a colon to introduce a list or quotation.
L.2.9-Diploma.c
Observe hyphenation conventions.
L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b

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Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

SL.1.9-Diploma.e

Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.

SL.2.9-Diploma.a

Integrate multiple sources of information presented in diverse formats and media in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

SL.2.9-Diploma.b

Evaluate the speaker's technique, including use of evidence, reasoning, stylistic and rhetorical elements, or other features appropriate to the task.

SL.3.9-Diploma.a

Present information, findings, and supporting evidence, conveying a clear and distinct perspective so that listeners can follow the line of reasoning.

SL.3.9-Diploma.b

Address alternative or opposing perspectives; the organization development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

SL.3.9-Diploma.c

Use appropriate eye contact, adequate volume, and clear pronunciation.

SL.3.9-Diploma.d

Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.

R.9.9-Diploma

Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use perspective and purpose to shape the intended content, style, and effect of various texts.

R.10.9-Diploma.a

Evaluate the effectiveness of how authors use literary and/or rhetorical strategies to develop arguments in various

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texts.
R.10.9-Diploma.b
Evaluate the premises, claims, and/or conclusions in various texts, verifying the information when possible and corroborating or challenging conclusions with other sources of information.
R.11.9-Diploma.a
Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.
W.1.9-Diploma.a
Investigate self-generated questions by participating in sustained inquiry that builds increasingly complex knowledge or that solves a problem, refocusing inquiry and/or incorporating effective advanced searches as needed.
W.1.9-Diploma.b
Assess the credibility, accuracy, and usefulness of a variety of authoritative sources in order to synthesize relevant information that leads to logical, increasingly complex conclusions.
W.1.9-Diploma.c
Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.
W.1.9-Diploma.d
Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.3.9-Diploma.a

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Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.d

Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

R.8.9-Diploma.b

Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.

L.4.9-Diploma.a

Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

L.4.9-Diploma.c

Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.

L.4.9-Diploma.d

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Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

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ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Pre-Reading: Plato's "Allegory of the Cave"

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Students will read Plato's "The Allegory of the Cave" and answer comprehension questions to check for understanding.

*Differentiation on Final Project

Alternative Assessment: For students that need a remediated assignment for the final project, they will complete a short analysis assignment answering the questions below.

Instructions:

In a well-developed paragraph (8–10 sentences), compare the society depicted in *1984* with the world described in Plato's *Allegory of the Cave*. Focus on the following guiding ideas:

- What role does **illusion** play in both texts?
- How do the **figures of power** control knowledge and truth?
- What happens to those who seek or discover the **real truth**?

Requirements:

- Use at least one quote or paraphrased example from *1984*.
- Make at least one direct reference to the cave allegory (e.g., shadows, chains, the journey out of the cave).
- Conclude with a sentence that reflects on how this comparison deepens your understanding of either text.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.1.9-Diploma.a
Use parallel structure.
L.1.9-Diploma.b
Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.2.9-Diploma.a
Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.

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L.2.9-Diploma.b
Use a colon to introduce a list or quotation.
L.2.9-Diploma.c
Observe hyphenation conventions.
L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b
Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
L.5.9-Diploma.a
Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

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R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.9.9-Diploma

Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use perspective and purpose to shape the intended content, style, and effect of various texts.

R.11.9-Diploma.a

Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

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W.3.9-Diploma.e
Provide closure that enhances, supports, and reflects the purpose of the piece.
W.3.9-Diploma.d
Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.
W.3.9-Diploma.c
Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.
W.3.9-Diploma.b
Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.
W.3.9-Diploma.a
Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

Vocabulary Worksheets by Chapter

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will complete vocabulary worksheets with fill in the blank sentences, matching, and definitions based on each section of the novel.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.2.9-Diploma.d
Spell correctly.
L.4.9-Diploma.a
Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.4.9-Diploma.c
Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the

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pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.

L.4.9-Diploma.d

Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.5.9-Diploma.b

Analyze nuances in the meaning of words with similar denotations.

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Understanding Genre: Fantasy, Science Fiction, and Dystopia Quiz

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will read a nonfiction article to define closely related genres and answer literal and evaluative questions about the text.

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L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.7.9-Diploma

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Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

Pre-Reading: Propaganda and Censorship Article and Worksheet

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 / DOK3

Description: Students will read the nonfiction article about propaganda and censorship to define the various types of propaganda found in mass media marketing. Students will complete a worksheet defining the terms, providing examples of how propaganda and censorship have been employed in historical events, identify and analyzing popular advertisements to determine what types of strategies and messages are embedded in mass media.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

L.1.9-Diploma.a

Use parallel structure.

L.1.9-Diploma.b

Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

L.2.9-Diploma.c

Observe hyphenation conventions.

L.2.9-Diploma.b

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Use a colon to introduce a list or quotation.
L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b
Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).
R.7.9-Diploma
Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

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R.8.9-Diploma.b

Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.

R.9.9-Diploma

Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use perspective and purpose to shape the intended content, style, and effect of various texts.

R.10.9-Diploma.b

Evaluate the premises, claims, and/or conclusions in various texts, verifying the information when possible and corroborating or challenging conclusions with other sources of information.

R.11.9-Diploma.a

Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.

R.11.9-Diploma.c

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

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W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

Comprehension Quizzes for Parts One-Three (8)

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will complete comprehension quizzes to check for understanding of plot, characterization, and themes as they read.

Part One

Chapters 1-2 Quiz

Chapters 5-6 Quiz

Chapters 7-8 Quiz

Part Two

Chapters 1-2 Quiz

Chapters 5-6 Quiz

Chapters 9-10 Quiz

Part Three

Chapters 1-2 Quiz

Chapters 5-6 Quiz

STANDARDS

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R.5.9-Diploma.a

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Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).
R.7.9-Diploma
Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.
R.8.9-Diploma.b
Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.
R.12.9-Diploma.b
Read various on-level texts with purpose and understanding.
R.12.9-Diploma.c
Use context to confirm or self-correct word recognition.
R.12.9-Diploma.a
Read with sufficient accuracy and fluency to support comprehension.

Literary Analysis: Motifs and Symbols

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK2

Description: Students will examine symbols and imagery in Part One to identify, classify, and distinguish how Orwell creates a dystopian landscape with historical references to create motifs of urban decay and mind control/manipulation.

STANDARDS

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Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.5.9-Diploma.a	
	Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.
SL.1.9-Diploma.e	
	Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
R.4.9-Diploma	
	Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.b	
	Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma	
	Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).
R.7.9-Diploma	
	Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.
R.10.9-Diploma.a	
	Evaluate the effectiveness of how authors use literary and/or rhetorical strategies to develop arguments in various texts.
R.12.9-Diploma.a	
	Read with sufficient accuracy and fluency to support comprehension.
R.12.9-Diploma.b	
	Read various on-level texts with purpose and understanding.

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R.12.9-Diploma.c
Use context to confirm or self-correct word recognition.
W.1.9-Diploma.d
Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.3.9-Diploma.a
Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.
W.3.9-Diploma.b
Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

1984 Research Project: Power, Truth, and Resistance in a Dystopian World

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK3 / DOK4

Description: In this culminating project, students will analyze George Orwell's *1984* alongside classic and contemporary texts to explore how authors use structure, rhetoric, and perspective to comment on power, surveillance, and truth. Students will synthesize ideas from literature, TED Talks, and podcasts to produce a literary analysis and comparative research paper or presentation. The project emphasizes critical thinking, media literacy, and real-world connections.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

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L.1.9-Diploma.a
Use parallel structure.
L.1.9-Diploma.b
Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.2.9-Diploma.a
Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.2.9-Diploma.b
Use a colon to introduce a list or quotation.
L.2.9-Diploma.c
Observe hyphenation conventions.
L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b
Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
SL.1.9-Diploma.e
Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.2.9-Diploma.a
Integrate multiple sources of information presented in diverse formats and media in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

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SL.2.9-Diploma.b
Evaluate the speaker's technique, including use of evidence, reasoning, stylistic and rhetorical elements, or other features appropriate to the task.
SL.3.9-Diploma.a
Present information, findings, and supporting evidence, conveying a clear and distinct perspective so that listeners can follow the line of reasoning.
SL.3.9-Diploma.b
Address alternative or opposing perspectives; the organization development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
SL.3.9-Diploma.c
Use appropriate eye contact, adequate volume, and clear pronunciation.
SL.3.9-Diploma.d
Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.10.9-Diploma.a
Evaluate the effectiveness of how authors use literary and/or rhetorical strategies to develop arguments in various texts.
R.9.9-Diploma
Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use

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perspective and purpose to shape the intended content, style, and effect of various texts.

R.10.9-Diploma.b

Evaluate the premises, claims, and/or conclusions in various texts, verifying the information when possible and corroborating or challenging conclusions with other sources of information.

R.11.9-Diploma.a

Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.

R.11.9-Diploma.b

Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

R.11.9-Diploma.c

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

W.1.9-Diploma.a

Investigate self-generated questions by participating in sustained inquiry that builds increasingly complex knowledge or that solves a problem, refocusing inquiry and/or incorporating effective advanced searches as needed.

W.1.9-Diploma.b

Assess the credibility, accuracy, and usefulness of a variety of authoritative sources in order to synthesize relevant information that leads to logical, increasingly complex conclusions.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.1.9-Diploma.d

Unit 6: Novel

HS World Literature

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.


W.3.9-Diploma.d

Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

ATTACHMENTS

 1984_Research_Project_Power_Truth_and_Resistance_in_a_Dystopian_World.pdf

Novel Review: Escape Room

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK2 / DOK3

Unit 6: Novel

HS World Literature

Description: Students will check for understanding of plot, theme, characters, setting, and information about the author as they activate higher order thinking skills by solving puzzles to break out of a digital escape room and review for the unit test.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).
R.7.9-Diploma
Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.
R.8.9-Diploma.a
Analyze the organization and structure of specific features and components in various texts
R.11.9-Diploma.c
Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.
R.12.9-Diploma.a
Read with sufficient accuracy and fluency to support comprehension.
R.12.9-Diploma.b

Unit 6: Novel

HS World Literature

Read various on-level texts with purpose and understanding.

1984 Unit Test

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will answer multiple choices questions about the setting, themes, figurative language, elements of plot, characters, and conflicts to demonstrate their understanding of the novel.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).
R.7.9-Diploma
Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.
R.11.9-Diploma.b
Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.
R.12.9-Diploma.a

Unit 6: Novel

HS World Literature

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

L.5.9-Diploma.a

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

Unit 7: Argument

HS World Literature

UNIT SUMMARY

This is a supplemental unit, to be used much like a textbook, that may be used in conjunction with units 5-6 to teach parts of argument writing including highly qualified sources, thesis statements, academic paragraph construction, refuting counterarguments, labeling parts of an academic paragraph, in-text citations for print and digital sources, annotations, effective conclusions, and Works Cited lists.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.a	
	Use parallel structure.
L.2.9-Diploma.a	
	Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.2.9-Diploma.b	
	Use a colon to introduce a list or quotation.
L.2.9-Diploma.c	
	Observe hyphenation conventions.
L.2.9-Diploma.d	
	Spell correctly.
L.3.9-Diploma.a	
	Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b	
	Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
SL.2.9-Diploma.a	
	Integrate multiple sources of information presented in diverse formats and media in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.3.9-Diploma.a	

Unit 7: Argument

HS World Literature

Present information, findings, and supporting evidence, conveying a clear and distinct perspective so that listeners can follow the line of reasoning.

SL.3.9-Diploma.b

Address alternative or opposing perspectives; the organization development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.d

Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Unit 8: Multimedia

HS World Literature

UNIT SUMMARY

This is a supplement unit to be used as a reference for students as they construct multimedia projects. The lessons may be assigned in conjunction with units 5-6.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
	L.2.9-Diploma.d
Spell correctly.	
	L.2.9-Diploma.c
Observe hyphenation conventions.	
	L.2.9-Diploma.b
Use a colon to introduce a list or quotation.	
	L.2.9-Diploma.a
Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.	
	L.1.9-Diploma.a
Use parallel structure.	
	L.1.9-Diploma.b
Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.	
	SL.3.9-Diploma.c
Use appropriate eye contact, adequate volume, and clear pronunciation.	
	SL.3.9-Diploma.d
Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.	

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Unit 9: IXL Spring Skills

HS World Literature

UNIT SUMMARY

Students will take the IXL Diagnostic assessment as a Pre- and Post-Assessment to track your reading, writing, grammar, and vocabulary skills throughout the semester. Students will complete a weekly language skill to deep knowledge of usage, grammar, syntax, vocabulary, and figurative language. Students will apply the skills practice to the study of literary texts in semester two.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.1.9-Diploma.c
Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contestable.
L.1.9-Diploma.d
Resolve issues of complex or contested usage, consulting references as needed.
L.4.9-Diploma.a
Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.4.9-Diploma.b
Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).
L.4.9-Diploma.c
Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.
L.4.9-Diploma.d
Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.5.9-Diploma.a
Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.
L.5.9-Diploma.b
Analyze nuances in the meaning of words with similar denotations.

Unit 9: IXL Spring Skills

HS World Literature

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Unit 9: IXL Spring Skills

HS World Literature

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

IXL Diagnostic Pre-Assessment

Assessment Type: Diagnostic

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will complete an ELA IXL Diagnostic Assessment to evaluate their proficiency in reading comprehension, writing, vocabulary, and grammar.

Weekly Language Skills

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will complete weekly language skills that will be applied to literary analysis of *The Kite Runner* and *Hamlet*.

Vocabulary and Language Objectives

- Students will use the correct homophone.
- Students will interpret figures of speech.
- Students will classify figures of speech, including:
 - Alliteration
 - Allusion
 - Anaphora
 - Antithesis
 - Apostrophe
 - Chiasmus
 - Euphemism
 - Hyperbole
 - Irony
 - Litotes
 - Metaphor
 - Metonymy
 - Onomatopoeia
 - Oxymoron
 - Paradox
 - Personification

Unit 9: IXL Spring Skills

HS World Literature

- Pun
- Simile
- Synecdoche
- Understatement
- Students will describe the difference between related words.
- Students will choose the word with the best connotation and denotation.
- Students will use words accurately and precisely.
- Students will use dictionary entries to determine the correct usage.
- Students will explore words with new or contested usage.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.1.9-Diploma.c
Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contestable.
L.1.9-Diploma.d
Resolve issues of complex or contested usage, consulting references as needed.
L.4.9-Diploma.a
Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.4.9-Diploma.b
Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).
L.4.9-Diploma.c
Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.
L.4.9-Diploma.d
Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.5.9-Diploma.a

Unit 9: IXL Spring Skills

HS World Literature

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

L.5.9-Diploma.b

Analyze nuances in the meaning of words with similar denotations.

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

IXL Post-Assessment

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will complete a the IXL Diagnostic as a post-assessment at the end of the semester to see where they have gained knowledge in all strands of English Language Arts.

Unit 10: Flocabulary

HS World Literature

UNIT SUMMARY

Students will utilize Flocabulary to learn domain specific and grade level vocabulary by listening to raps, employing the word in context by writing a sentence on digital vocabulary cards, play games, break down skills, read and respond to questions, take quizzes, and write creative verses employing the terms. This program is utilized in conjunction with anchor texts for literary study of *The Kite Runner* and *Hamlet*.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.a	
	Use parallel structure.
L.1.9-Diploma.c	
	Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contestable.
L.1.9-Diploma.d	
	Resolve issues of complex or contested usage, consulting references as needed.
L.2.9-Diploma.d	
	Spell correctly.
L.3.9-Diploma.a	
	Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.4.9-Diploma.a	
	Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.4.9-Diploma.b	
	Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).
L.4.9-Diploma.c	
	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.

Unit 10: Flocabulary

HS World Literature

L.4.9-Diploma.d

Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.5.9-Diploma.a

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

L.5.9-Diploma.b

Analyze nuances in the meaning of words with similar denotations.

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

SL.4.9-Diploma

Adapt speech to a variety of contexts, demonstrating a command of language in the appropriate register.

Unit 10: Flocabulary

HS World Literature

ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Flocabulary Assignments (4)

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will complete four Flocabulary assignments to introduce or review vocabulary terms that will be utilized in semester two. Students will practice employing vocabulary in context by writing sentences and creative verses. Flocabulary Lessons include, Figurative Language, Irony, Source Evaluation, and "To Be or Not to Be," Hamlet soliloquy.

Conventions of Standard English

- Students will apply correct grammar and usage in writing and speaking.
- Students will use correct capitalization, punctuation, and spelling in writing.

Knowledge of Language

- Students will analyze how language functions in different contexts.
- Students will make purposeful language choices for clarity and style.
- Students will enhance comprehension by examining language use.

Vocabulary Acquisition and Use

- Students will use context, word parts, and references to determine word meaning.
- Students will interpret figurative language and word relationships.
- Students will use and expand academic and domain-specific vocabulary independently.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.a	Use parallel structure.
L.1.9-Diploma.d	Resolve issues of complex or contested usage, consulting references as needed.
L.1.9-Diploma.c	Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contestable.

Unit 10: Flocabulary

HS World Literature

L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.4.9-Diploma.a
Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.4.9-Diploma.b
Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).
L.4.9-Diploma.c
Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.
L.4.9-Diploma.d
Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.5.9-Diploma.a
Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.
L.5.9-Diploma.b
Analyze nuances in the meaning of words with similar denotations.
L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
SL.4.9-Diploma
Adapt speech to a variety of contexts, demonstrating a command of language in the appropriate register.

Unit 11: Novel

HS World Literature

UNIT SUMMARY

Students will read *The Kite Runner* by Afghan-American author Khaled Hosseini, a modern classic that explores themes of friendship, betrayal, guilt, and redemption. The novel offers both a personal and political lens, examining identity, family expectations, ethnic tensions, and life under the Taliban regime, as well as exploring what it means to be a refugee in the United States.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.1.9-Diploma.a
Use parallel structure.
L.1.9-Diploma.b
Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.2.9-Diploma.b
Use a colon to introduce a list or quotation.
L.2.9-Diploma.c
Observe hyphenation conventions.
L.2.9-Diploma.d
Spell correctly.
L.5.9-Diploma.b
Analyze nuances in the meaning of words with similar denotations.
W.1.9-Diploma.d
Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.c

Unit 11: Novel

HS World Literature

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

L.3.9-Diploma.a

Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.

L.4.9-Diploma.c

Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.8.9-Diploma.a

Analyze the organization and structure of specific features and components in various texts

R.9.9-Diploma

Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use perspective and purpose to shape the intended content, style, and effect of various texts.

R.11.9-Diploma.b

Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

SL.1.9-Diploma.a

Participate effectively in a range of collaborative discussions (one-on-one, in groups, student-led, and teacher-led) on grades 9-Diploma topics texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

Unit 11: Novel

HS World Literature

SL.1.9-Diploma.b

Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

SL.1.9-Diploma.c

Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.

SL.1.9-Diploma.d

Propel conversations by posing and responding to questions that probe reasoning and evidence.

SL.1.9-Diploma.e

Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.

R.1.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.3.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

Unit 11: Novel

HS World Literature

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

L.2.9-Diploma.a

Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.

L.3.9-Diploma.b

Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

Unit 11: Novel

HS World Literature

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

R.8.9-Diploma.b

Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.

L.5.9-Diploma.a

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

SL.2.9-Diploma.a

Integrate multiple sources of information presented in diverse formats and media in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

SL.3.9-Diploma.a

Present information, findings, and supporting evidence, conveying a clear and distinct perspective so that listeners can follow the line of reasoning.

SL.3.9-Diploma.c

Use appropriate eye contact, adequate volume, and clear pronunciation.

SL.3.9-Diploma.d

Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.

W.1.9-Diploma.a

Investigate self-generated questions by participating in sustained inquiry that builds increasingly complex knowledge or that solves a problem, refocusing inquiry and/or incorporating effective advanced searches as needed.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.d

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Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

R.10.9-Diploma.a

Evaluate the effectiveness of how authors use literary and/or rhetorical strategies to develop arguments in various texts.

R.10.9-Diploma.b

Evaluate the premises, claims, and/or conclusions in various texts, verifying the information when possible and corroborating or challenging conclusions with other sources of information.

R.11.9-Diploma.a

Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.

R.11.9-Diploma.c

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

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ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Journal Prompt

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will respond to the prompt below in a well-developed paragraph (6–8 sentences). Reflect honestly and thoughtfully. Please write in complete sentences and use specific examples or reflections where possible.

Prompt: Think about a time when a relationship—whether with a friend, family member, or classmate—was affected by outside pressures like cultural expectations, social status, political views, or community tensions. How did those larger forces influence the way you or others acted in the relationship?

Why do you think personal relationships are sometimes shaped by broader societal or political conflicts? What might this tell us about how people navigate loyalty, power, and identity in the world around them?

Be honest, be reflective, and connect your experience to the bigger picture.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.2.9-Diploma.d
Spell correctly.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.1.9-Diploma.d

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Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

L.2.9-Diploma.c

Observe hyphenation conventions.

L.2.9-Diploma.b

Use a colon to introduce a list or quotation.

L.1.9-Diploma.a

Use parallel structure.

L.1.9-Diploma.b

Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

Map of Middle East

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1

Description: Students will label a map of the middle east to familiarize themselves with the setting of the novel.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

L.2.9-Diploma.d

Spell correctly.

L.3.9-Diploma.a

Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.

L.4.9-Diploma.c

Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading,

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writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

Nonfiction Article: "The Hero's Journey" by Jessica McBirney

Assessment Type: Formative \

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will read the nonfiction article, "The Hero's Journey," by Jessica McBirney, which summarizes Joseph Campbell's work of comparative mythology, *A Hero with a Thousand Faces*, to understand the archetype of the hero and the formulaic pattern of the hero's journey that is popularized in literature, TV, and film. Students will use the 5W's+1 note taking guide to take notes and write a summary of the text. Then, they will complete a four question quiz to check for understanding.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.8.9-Diploma.a

Analyze the organization and structure of specific features and components in various texts

R.9.9-Diploma

Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use perspective and purpose to shape the intended content, style, and effect of various texts.

R.11.9-Diploma.b

Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

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Read and Discuss: Aristotle's "Three Types of Friendship"

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will read the article from *The Nicomachean Ethics* by Aristotle (translated by F.H. Peters) and participate in a class discussion to evaluate types of friendship and make connections to central themes in the text as a pre-reading assignment.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
SL.1.9-Diploma.b
Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.1.9-Diploma.d
Propel conversations by posing and responding to questions that probe reasoning and evidence.
SL.1.9-Diploma.e
Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or

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techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.11.9-Diploma.a

Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

L.2.9-Diploma.d

Spell correctly.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

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Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

PearDeck Discussion Questions (3 sets)

Assessment Type: Formative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 / DOK3

Description: Students will complete three Google slide decks PearDeck discussion questions (Chapters 1-8, 9-17, and 18-25) to answer literal, evaluative, synthesizing, and analytical questions about the plot, characters, figurative language, and conflicts in the novel. Students will work independently with ongoing monitoring and feedback from teacher, and come to class prepared to discuss the questions, propel conversations, and deepen understanding of the text.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
SL.1.9-Diploma.a
Participate effectively in a range of collaborative discussions (one-on-one, in groups, student-led, and teacher-led) on grades 9-Diploma topics texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
SL.1.9-Diploma.b
Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.1.9-Diploma.c
Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
SL.1.9-Diploma.d

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Propel conversations by posing and responding to questions that probe reasoning and evidence.

SL.1.9-Diploma.e

Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.

R.1.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.2.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.3.9-Diploma

Some learners may enter your classroom without having mastered the skills identified in previous grade levels or grade spans. In cases when this occurs, teachers should

- assess where students are,
- determine what they need to learn to master the skills appropriate to their grade level or grade span, and
- access district resources to help students move toward proficiency.

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.5.9-Diploma.a

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Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.8.9-Diploma.b

Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.a

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Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

Comprehension Quizzes (3)

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will complete three multiple choice quizzes to check for understanding on the elements of plot, characterization, figures of speech, and literary analysis after reviewing and discussing the PearDeck discussion questions.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.6.9-Diploma

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Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.11.9-Diploma.b

Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

Enhancing Writing with Phrases and Clauses

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will receive direct instruction on practice with types of phrases and clauses with examples from *The Kite Runner* to identify parts of speech, practice writing and revising language by responding to a series practice questions. Students will submit their journal before completing the unit assessments.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

L.1.9-Diploma.b

Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

W.1.9-Diploma.c

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Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

L.2.9-Diploma.d

Spell correctly.

L.2.9-Diploma.c

Observe hyphenation conventions.

L.2.9-Diploma.b

Use a colon to introduce a list or quotation.

L.2.9-Diploma.a

Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.

L.3.9-Diploma.a

Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.

L.3.9-Diploma.b

Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

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ATTACHMENTS

 The_Kite_Runner__Phrases_and_Clauses_Lesson.pdf

 The_Kite_Runner_Phrase_Clause_Student_Worksheet.pdf

Unit Assessment: Figurative Language

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 / DOK3

Description: Students will apply the knowledge of language study to analyze figurative language with passages from the text to determine the device employed, including simile, metaphor, allusion, and personification.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)
L.5.9-Diploma.b
Analyze nuances in the meaning of words with similar denotations.
L.5.9-Diploma.a
Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.
L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).
R.7.9-Diploma
Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in

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various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.8.9-Diploma.b

Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.

Multimedia Project: Mapping Amir's Journey

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Students will illustrate the hero's journey that Amir takes over the course of the novel to understand the elements of plot, the symbols employed by the author, and the transformation of the main character. Students will examine the author's choice, foil characters, setting, arch of the story, and the primary themes as they identify and define the stages of the hero's journey, use textual evidence from the novel to support their claims, and employ creative use of multimedia, visual design, and technology to communicate their ideas. Students will work in small groups to break down the assignment. Discuss the various stages of the journey and identify textual evidence to create a study guide that the class can use as scaffolding for the project.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

L.1.9-Diploma.a

Use parallel structure.

L.1.9-Diploma.b

Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

L.2.9-Diploma.b

Use a colon to introduce a list or quotation.

L.2.9-Diploma.c

Observe hyphenation conventions.

L.2.9-Diploma.d

Spell correctly.

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L.3.9-Diploma.a

Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.

L.3.9-Diploma.b

Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

L.4.9-Diploma.c

Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.

L.5.9-Diploma.a

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

L.5.9-Diploma.b

Analyze nuances in the meaning of words with similar denotations.

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

SL.1.9-Diploma.a

Participate effectively in a range of collaborative discussions (one-on-one, in groups, student-led, and teacher-led) on grades 9-Diploma topics texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

SL.1.9-Diploma.b

Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

SL.1.9-Diploma.c

Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.

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SL.1.9-Diploma.d
Propel conversations by posing and responding to questions that probe reasoning and evidence.
SL.1.9-Diploma.e
Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.2.9-Diploma.a
Integrate multiple sources of information presented in diverse formats and media in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.3.9-Diploma.a
Present information, findings, and supporting evidence, conveying a clear and distinct perspective so that listeners can follow the line of reasoning.
SL.3.9-Diploma.c
Use appropriate eye contact, adequate volume, and clear pronunciation.
SL.3.9-Diploma.d
Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.
R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.
R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma

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Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.8.9-Diploma.b

Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.

R.11.9-Diploma.c

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

R.11.9-Diploma.b

Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

W.1.9-Diploma.a

Investigate self-generated questions by participating in sustained inquiry that builds increasingly complex knowledge or that solves a problem, refocusing inquiry and/or incorporating effective advanced searches as needed.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

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W.1.9-Diploma.d
Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.3.9-Diploma.a
Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.
W.3.9-Diploma.b
Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.
W.3.9-Diploma.c
Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.
W.3.9-Diploma.d
Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.
W.3.9-Diploma.e
Provide closure that enhances, supports, and reflects the purpose of the piece.

Reader Response Essay

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK3 / DOK4

Description: Students will write an essay responding to a statement about The Afghanistan Relief Organization

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and making connections to the novel.

Statement:

The Afghanistan Relief Organization is an organization of varied backgrounds and faiths founded in the United States in 1998. ARO is mostly a volunteer organization made up of Americans and Afghans who have distributed food, medicine, and school supplies to Afghanistan. The ARO's goal is to help improve basic living conditions and support education. The Afghanistan Relief Organization said, "Hope is knowing that people, like kites, are made to be lifted."

Write an essay response to the statement above. Listed are some questions that you should consider:

- What role does kite flying play in the novel?
- Where in the novel are there examples of hope?
- What does the phrase *lifted up* mean?
- How does this statement apply to the characters Amir and Sohrab at the end of the novel?
- How does the significance of the title of the novel *The Kite Runner* connect to this quote by the ARO?

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.a	Use parallel structure.
L.1.9-Diploma.b	Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.2.9-Diploma.a	Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.2.9-Diploma.b	Use a colon to introduce a list or quotation.
L.2.9-Diploma.c	Observe hyphenation conventions.
L.2.9-Diploma.d	Spell correctly.
L.3.9-Diploma.a	

Unit 11: Novel

HS World Literature

Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.

L.3.9-Diploma.b

Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

L.5.9-Diploma.a

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.9.9-Diploma

Unit 11: Novel

HS World Literature

Analyze and evaluate how authors from various contexts (e.g. diverse, intersectional, multicultural, religious) use perspective and purpose to shape the intended content, style, and effect of various texts.

R.10.9-Diploma.a

Evaluate the effectiveness of how authors use literary and/or rhetorical strategies to develop arguments in various texts.

R.10.9-Diploma.b

Evaluate the premises, claims, and/or conclusions in various texts, verifying the information when possible and corroborating or challenging conclusions with other sources of information.

R.11.9-Diploma.a

Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.

R.11.9-Diploma.b

Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

R.11.9-Diploma.c

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.a

Unit 11: Novel

HS World Literature

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.d

Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

Unit 12: Play Study

HS World Literature

UNIT SUMMARY

Students will read a Shakespearean tragedy, engaging with its complex language and literary style while analyzing themes such as revenge, family, love, madness, personal conflict, mortality, and existentialism. Students will explore how these enduring themes remain relevant to contemporary life and adolescence, using the play as a lens for deeper reflection on human experience.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.a	
	Use parallel structure.
L.1.9-Diploma.b	
	Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.1.9-Diploma.c	
	Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contestable.
L.1.9-Diploma.d	
	Resolve issues of complex or contested usage, consulting references as needed.
L.3.9-Diploma.a	
	Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b	
	Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
L.2.9-Diploma.d	
	Spell correctly.
L.2.9-Diploma.c	
	Observe hyphenation conventions.

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HS World Literature

L.2.9-Diploma.b
Use a colon to introduce a list or quotation.
L.2.9-Diploma.a
Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.3.9-Diploma.a
Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.
SL.1.9-Diploma.c
Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.11.9-Diploma.c
Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.
R.12.9-Diploma.a
Read with sufficient accuracy and fluency to support comprehension.

Unit 12: Play Study

HS World Literature

R.12.9-Diploma.b
Read various on-level texts with purpose and understanding.
L.4.9-Diploma.c
Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.
L.4.9-Diploma.d
Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
L.5.9-Diploma.a
Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.
L.5.9-Diploma.b
Analyze nuances in the meaning of words with similar denotations.
SL.1.9-Diploma.a
Participate effectively in a range of collaborative discussions (one-on-one, in groups, student-led, and teacher-led) on grades 9-Diploma topics texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
SL.1.9-Diploma.b
Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.1.9-Diploma.d
Propel conversations by posing and responding to questions that probe reasoning and evidence.
SL.2.9-Diploma.b

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Evaluate the speaker's technique, including use of evidence, reasoning, stylistic and rhetorical elements, or other features appropriate to the task.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.8.9-Diploma.a

Analyze the organization and structure of specific features and components in various texts

R.8.9-Diploma.b

Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

SL.3.9-Diploma.a

Present information, findings, and supporting evidence, conveying a clear and distinct perspective so that listeners can follow the line of reasoning.

SL.3.9-Diploma.d

Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.

SL.4.9-Diploma

Adapt speech to a variety of contexts, demonstrating a command of language in the appropriate register.

W.1.9-Diploma.c

Unit 12: Play Study

HS World Literature

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.d

Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.11.9-Diploma.a

Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.

R.11.9-Diploma.b

Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.1.9-Diploma.a

Investigate self-generated questions by participating in sustained inquiry that builds increasingly complex knowledge or that solves a problem, refocusing inquiry and/or incorporating effective advanced searches as needed.

SL.3.9-Diploma.c

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Use appropriate eye contact, adequate volume, and clear pronunciation.

SL.3.9-Diploma.b

Address alternative or opposing perspectives; the organization development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

SL.1.9-Diploma.e

Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.

Unit 12: Play Study

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ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

Pre-Reading Journal Prompt

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will respond to the journal prompt below to build understanding of the protagonist's conflict at the start of the play to make connections to themselves and the world around them.

Topic: Family Expectations vs. Personal Desires

Instructions: Respond to the prompt below in a thoughtful, well-developed paragraph (6–8 sentences). Please write in complete sentences and use specific examples or reflections where possible.

Prompt: Think about a time when you felt pressure to meet someone else's expectations—perhaps from a parent, guardian, teacher, or cultural tradition. Did their expectations align with what you truly wanted for yourself? How did you handle the situation, and what did you learn from it?

In your response, reflect on how family or societal expectations can sometimes come into conflict with personal goals, values, or identity. Why do you think these conflicts happen, and how might they shape a person's decisions or sense of self?

Be honest, be reflective, and write with intention.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.b	
	Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.2.9-Diploma.b	
	Use a colon to introduce a list or quotation.
L.2.9-Diploma.c	
	Observe hyphenation conventions.
L.2.9-Diploma.d	
	Spell correctly.
L.3.9-Diploma.a	

Unit 12: Play Study

HS World Literature

Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.

L.3.9-Diploma.b

Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

SL.1.9-Diploma.d

Propel conversations by posing and responding to questions that probe reasoning and evidence.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

Building Background

Assessment Type: Formative

Assessment Tier: Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3

Description: Students will read informational texts about the background of Hamlet to build understanding of the plot, setting, themes, and characters, while activate higher order thinking skills to break out of an escape room by solving a series of five puzzles related to the text. Students may work in groups, partners, or individually to promote collaboration and problem solving skills.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

R.5.9-Diploma.b

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Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.11.9-Diploma.c

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

SL.1.9-Diploma.c

Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.

Visualize Vocabulary (Acts 1-5)

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will receive ten vocabulary words per Act to add to a graphic organizer. Students will define the term, identify the part of speech, a synonym, antonym, and memory clue, such as an image related to the word or sentence. Students will also define types of speeches in Act 2 and create a memory clue for each word.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

L.1.9-Diploma.c

Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contestable.

L.1.9-Diploma.d

Resolve issues of complex or contested usage, consulting references as needed.

L.4.9-Diploma.c

Unit 12: Play Study

HS World Literature

Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.

L.4.9-Diploma.d

Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

PearDeck Discussion Questions (Acts 1-5)

Assessment Type: Formative

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2 / DOK3

Description: Students will answer questions at the end of each act of the play about plot, characters, figurative language, and themes utilizing interactive PearDeck slides. Students will work independently and come to class prepared to discuss and analyze the text. Language analysis of IXL skills is also embedded into the slides to allow students to apply their knowledge of figurative language to the analysis of the play.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

L.5.9-Diploma.a

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

L.5.9-Diploma.b

Analyze nuances in the meaning of words with similar denotations.

SL.1.9-Diploma.a

Participate effectively in a range of collaborative discussions (one-on-one, in groups, student-led, and teacher-led) on grades 9-Diploma topics texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

SL.1.9-Diploma.b

Come to discussions prepared, having read and researched material under study; explicitly draw on that

Unit 12: Play Study

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preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

SL.1.9-Diploma.c

Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.

SL.1.9-Diploma.d

Propel conversations by posing and responding to questions that probe reasoning and evidence.

SL.2.9-Diploma.b

Evaluate the speaker's technique, including use of evidence, reasoning, stylistic and rhetorical elements, or other features appropriate to the task.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.8.9-Diploma.a

Analyze the organization and structure of specific features and components in various texts

R.8.9-Diploma.b

Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.

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R.11.9-Diploma.c
Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.
R.12.9-Diploma.a
Read with sufficient accuracy and fluency to support comprehension.
R.12.9-Diploma.b
Read various on-level texts with purpose and understanding.
R.12.9-Diploma.c
Use context to confirm or self-correct word recognition.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
L.2.9-Diploma.d
Spell correctly.
L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.

Comprehension Quizzes (Acts 1-5)

Assessment Type: Summative

Assessment Tier: Rehearsal & Scrimmage (R&S)

Assessment Level (DOK): DOK1 / DOK2

Description: Students will answer multiple choice questions about the plot, characters, themes, and language in order to demonstrate knowledge of class discussions and PearDeck analysis.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

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R.5.9-Diploma.a
Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.
R.5.9-Diploma.b
Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.
R.6.9-Diploma
Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).
R.7.9-Diploma
Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.
R.8.9-Diploma.a
Analyze the organization and structure of specific features and components in various texts
R.8.9-Diploma.b
Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.
R.12.9-Diploma.a
Read with sufficient accuracy and fluency to support comprehension.
R.12.9-Diploma.b
Read various on-level texts with purpose and understanding.
R.12.9-Diploma.c
Use context to confirm or self-correct word recognition.

To Be or Not to Be Remix

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

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Description: Students will annotate Hamlet's famous soliloquy in Act 3. Students will write an adapted version of the soliloquy in style, genre, and medium of their choice. Students will record themselves reading the adapted versions. Styles include poetry, rap, song, story, speech, or digital storytelling. Students will submit their annotations, adapted script, and recording to the dropbox.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.a	Use parallel structure.
L.1.9-Diploma.b	Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
L.2.9-Diploma.a	Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
L.2.9-Diploma.b	Use a colon to introduce a list or quotation.
L.2.9-Diploma.c	Observe hyphenation conventions.
L.2.9-Diploma.d	Spell correctly.
L.3.9-Diploma.a	Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b	Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
L.4.9-Diploma.a	Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a

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sentence) as a clue to the meaning of a word or phrase.

L.4.9-Diploma.c

Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its usage.

L.4.9-Diploma.d

Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.5.9-Diploma.a

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

L.5.9-Diploma.b

Analyze nuances in the meaning of words with similar denotations.

L.6.9-Diploma

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

SL.3.9-Diploma.a

Present information, findings, and supporting evidence, conveying a clear and distinct perspective so that listeners can follow the line of reasoning.

SL.3.9-Diploma.d

Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.

SL.4.9-Diploma

Adapt speech to a variety of contexts, demonstrating a command of language in the appropriate register.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Unit 12: Play Study

HS World Literature

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

W.3.9-Diploma.b

Unit 12: Play Study

HS World Literature

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.d

Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

Creative Writing: The Power of Words

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK4

Description: Students will develop a piece of creative writing based on one of the two prompts below to complete a character exercise in the format of their choice: script, story, or letter. Students will employ ten vocabulary words from the visualize vocabulary assignments in their writing. Students will reflect on the emotional states of the characters, giving opportunity for social and emotional learning (SEL), which demonstrating understanding of the characters, conflicts, and plot.

Prompt 1: In Act 2, Hamlet paid a silent visit to Ophelia which Ophelia struggled to decipher. Since Hamlet won't spill his feelings to her or to Horatio, see if he'll reveal them to a therapist: put Hamlet on the couch! The therapist might ask Hamlet to talk about his past relationships, his current feelings towards Ophelia, his dreams—be creative, and see what you can uncover about Hamlet's behavior in Ophelia's room. Was he trying to say something in code? What are his priorities right now, and where does Ophelia come into his plans?

Prompt 2: Reflect on the pressure Ophelia has received from both her father and her brother. Now, add in Hamlet's mixed messages, rude behavior at the *Murder of Gonzago*, and Ophelia's status within the social hierarchy of the Danish court and within her family. What messages has she been facing from her older brother, dad, and her ex-boyfriend. How do you think she is feeling? Put Ophelia on the couch and let her have a dialogue with a therapist.

STANDARDS

Unit 12: Play Study

HS World Literature

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
	L.1.9-Diploma.a
Use parallel structure.	
	L.1.9-Diploma.b
Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.	
	L.2.9-Diploma.a
Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.	
	L.2.9-Diploma.b
Use a colon to introduce a list or quotation.	
	L.2.9-Diploma.c
Observe hyphenation conventions.	
	L.2.9-Diploma.d
Spell correctly.	
	L.3.9-Diploma.a
Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.	
	L.3.9-Diploma.b
Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.	
	L.6.9-Diploma
Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.	
	R.4.9-Diploma
Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the	

Unit 12: Play Study

HS World Literature

text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

R.12.9-Diploma.c

Use context to confirm or self-correct word recognition.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

Unit 12: Play Study

HS World Literature

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.d

Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

Non-text Analysis: "Ophelia" by John Everett Millais

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)

Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description: Students will read the nonfiction article, "A Pre-Raphael Masterpiece," and review a handout explaining the symbolism of the flowers Ophelia gives out in Act 4, Scene 5. Students respond to the questions below create literary analysis from the painting "Ophelia" by John Everett Millais.

Literary Analysis Questions

1. Write a paragraph describing the scene of the Millais painting. What does the Millais painting say about Ophelia's death?
2. Identify and explain three symbols in the painting and explain how they are related to her death.
3. How does the painting compare to the description of Ophelia's death in Act 4, scene 7, according to Gertrude? Provide textual evidence to support your explanation.
4. Provide your own assertion about what happened to Ophelia and who is responsible for her death. Use textual evidence to support your claim.

STANDARDS

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)

L.1.9-Diploma.a

Use parallel structure.

L.1.9-Diploma.b

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HS World Literature

Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

L.2.9-Diploma.a

Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.

L.2.9-Diploma.b

Use a colon to introduce a list or quotation.

L.2.9-Diploma.c

Observe hyphenation conventions.

L.2.9-Diploma.d

Spell correctly.

L.3.9-Diploma.a

Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.

L.3.9-Diploma.b

Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

L.5.9-Diploma.a

Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

SL.1.9-Diploma.b

Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

R.4.9-Diploma

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.5.9-Diploma.a

Unit 12: Play Study

HS World Literature

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.8.9-Diploma.b

Evaluate the effectiveness of text structures in conveying the overall meaning and/or purpose of the text as a whole.

R.11.9-Diploma.a

Evaluate and synthesize multiple sources of information and various texts (e.g., literary, visual, artistic, and quantitative) in order to achieve a specific purpose or to answer a question.

R.11.9-Diploma.b

Analyze how various authors or texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

R.11.9-Diploma.c

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

Unit 12: Play Study

HS World Literature

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

W.1.9-Diploma.d

Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.

W.2.9-Diploma.a

Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.2.9-Diploma.b

Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.

W.2.9-Diploma.c

Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.

W.3.9-Diploma.a

Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.

W.3.9-Diploma.b

Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.

W.3.9-Diploma.c

Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.

W.3.9-Diploma.d

Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.

W.3.9-Diploma.e

Provide closure that enhances, supports, and reflects the purpose of the piece.

Unit 12: Play Study

HS World Literature

Unit Assessment: Mock Trial

Assessment Type: Summative

Assessment Tier: Authentic Performance (AP)

Assessment Level (DOK): DOK4

Description: Students will gather textual evidence, work collaboratively in teams, and complete a mock trial as a summative assessment of the play.

Directions

Use the Hamlet evidence sheet to track quotes from the play in Acts 2-5 to determine whether Hamlet has gone mad or is indeed putting on an “an antic disposition” (Act I, Scene 5) to enact revenge on Claudius. You will use the evidence gathered to put Hamlet on trial at the end of the play.

Two teams will be established, the defendants and the prosecution. Each team will use the [multimedia template](#) to present their evidence and case in the trial. Each team will also prepare a series of questions to cross-examine their opposing team. There will be a team captain nominated for each team. When cross-examined, each team will have time to confer and respond.

Students that prefer to work asynchronously, will watch a YouTube video of mock trial YouTube and use their compiled evidence sheet to write an analytical response determining Hamlet's sentence presenting both sides of the case and providing evidence from the trial to substantiate their final verdict in a three paragraph minimum response.

Students will vote on the trial after both sides have presented their cases. The final verdict will be announced in class. All students will complete reflection questions.

Reflection questions for trial participants: Write a reflection explaining what you contributed to your team. What did you learn from the process of the group assignment? Would you do anything differently if you worked in a group again? After hearing both sides of the testimony, what do you now believe about Hamlet? Is he guilty or innocent? Explain your reasoning.

Reflection questions for Asynchronous Participation: Watch the mock trial YouTube video. Use your compiled evidence sheet to write an analytical response determining Hamlet's sentence, presenting both sides of the case and providing evidence from the trial to substantiate the final verdict. Write a three paragraph minimum, analytical response.

STANDARDS

Unit 12: Play Study

HS World Literature

Maine - Grade 9-12 - English Language Arts & Literacy ELA (2020)	
L.1.9-Diploma.a	
	Use parallel structure.
L.2.9-Diploma.b	
	Use a colon to introduce a list or quotation.
L.2.9-Diploma.c	
	Observe hyphenation conventions.
L.2.9-Diploma.d	
	Spell correctly.
L.3.9-Diploma.a	
	Write and edit work so that it conforms to the guidelines in a style manual appropriate for the discipline and writing task.
L.3.9-Diploma.b	
	Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
L.5.9-Diploma.a	
	Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.
L.5.9-Diploma.b	
	Analyze nuances in the meaning of words with similar denotations.
L.6.9-Diploma	
	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
SL.1.9-Diploma.a	
	Participate effectively in a range of collaborative discussions (one-on-one, in groups, student-led, and teacher-led) on grades 9-Diploma topics texts, and issues, building on others' ideas and expressing their own clearly and

Unit 12: Play Study

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persuasively.
SL.1.9-Diploma.b
Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
SL.1.9-Diploma.c
Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
SL.1.9-Diploma.d
Propel conversations by posing and responding to questions that probe reasoning and evidence.
SL.1.9-Diploma.e
Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.3.9-Diploma.a
Present information, findings, and supporting evidence, conveying a clear and distinct perspective so that listeners can follow the line of reasoning.
SL.3.9-Diploma.b
Address alternative or opposing perspectives; the organization development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
SL.3.9-Diploma.c
Use appropriate eye contact, adequate volume, and clear pronunciation.
SL.3.9-Diploma.d
Make strategic use of multimedia (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence.
SL.4.9-Diploma
Adapt speech to a variety of contexts, demonstrating a command of language in the appropriate register.
R.4.9-Diploma

Unit 12: Play Study

HS World Literature

Cite strong and thorough textual evidence to support analysis of various texts in ways that demonstrate what the text(s) says explicitly and implicitly, including attending to moments of textual inconsistency or ambiguity.

R.5.9-Diploma.a

Provide accurate summaries of various texts that make clear the relationships among the key details and ideas.

R.5.9-Diploma.b

Determine the theme(s) or central idea(s) of various texts and analyze the development of the theme(s) or central idea(s) over the course of the texts, including how elements interact and build on one another, to provide a complex account or analysis.

R.6.9-Diploma

Analyze the impact of an author's choices and determine how specific individuals/characters, elements and/or techniques, events, or ideas interact and develop over the course of the text (or a series of texts).

R.7.9-Diploma

Determine the meaning of figurative, connotative, and technical word meanings and phrases as they are used in various contexts and texts; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings and/or language that is particularly evocative.

R.11.9-Diploma.c

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of an idea or event, noting discrepancies among perspectives.

R.12.9-Diploma.a

Read with sufficient accuracy and fluency to support comprehension.

R.12.9-Diploma.b

Read various on-level texts with purpose and understanding.

W.1.9-Diploma.a

Investigate self-generated questions by participating in sustained inquiry that builds increasingly complex knowledge or that solves a problem, refocusing inquiry and/or incorporating effective advanced searches as needed.

W.1.9-Diploma.c

Take organized notes that purposefully quote, summarize, and/or paraphrase a variety of sources while avoiding plagiarism and overreliance on any one source.

Unit 12: Play Study

HS World Literature

W.1.9-Diploma.d
Follow a standard format for citation (in-text and a list of sources) that applies to task, audience, and purpose.
W.2.9-Diploma.a
Develop and strengthen writing as needed by planning, composing, revising, editing, rewriting, reflecting, and/or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.2.9-Diploma.b
Use technology and ongoing feedback, including new arguments and information, to produce increasingly dynamic writing products.
W.2.9-Diploma.c
Demonstrate and maintain command of keyboarding skills to produce sustained writing of increasing length.
W.3.9-Diploma.a
Compose clear and increasingly varied and complex pieces with purposefully designed sections that are organized to fully explore the depth and significance of ideas that are appropriate to task, audience, and purpose.
W.3.9-Diploma.b
Develop and support the topic with a variety of relevant techniques and by purposefully embedding the most significant details.
W.3.9-Diploma.c
Use appropriate and varied transitions, along with purposeful syntax, to create cohesion that clarifies relationships among increasingly complex ideas.
W.3.9-Diploma.d
Effectively use increasingly sophisticated, precise language to establish a highly developed voice and tone.
W.3.9-Diploma.e
Provide closure that enhances, supports, and reflects the purpose of the piece.

Assessment Title

Assessment Type: Formative / Summative / Diagnostic

Assessment Tier: Drill & Practice (D&P) / Rehearsal & Scrimmage (R&S) / Authentic Performance (AP)













Assessment Level (DOK): DOK1 / DOK2 / DOK3 / DOK4

Description:

HS World Literature

Maine Virtual Academy

School Year 2024-2025 (Aug 26, 2024 - Jun 13, 2025)

UNIT	# OF TEACHING DAYS	DATES
 Unit 1: About Me	10 teaching days	Aug 26 - Sep 9, 2024
 Unit 2: IXL Fall Skills	40 teaching days	Sep 9 - Nov 13, 2024
 Unit 3: Independent Reading	130 teaching days	Sep 9, 2024 - May 8, 2025
 Unit 4: Poetry Study	40 teaching days	Sep 23 - Nov 22, 2024
 Unit 5: Writing	15 teaching days	Nov 25 - Dec 18, 2024
 Unit 6: Novel	35 teaching days	Dec 30, 2024 - Mar 4, 2025
 Unit 7: Argument	1 teaching day	Mar 5 - Mar 5, 2025
 Unit 8: Multimedia	1 teaching day	Mar 6 - Mar 6, 2025
 Unit 9: IXL Spring Skills	12 teaching days	Mar 7 - Mar 26, 2025
 Unit 10: Flocabulary	8 teaching days	Mar 27 - Apr 14, 2025
 Unit 11: Novel	30 teaching days	Apr 14 - Jun 13, 2025
 Unit 12: Play Study	35 teaching days	Mar 24 - Jun 6, 2025

August

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26 Unit 1: About Me	27 Unit 1: About Me	28 Unit 1: About Me	29 Unit 1: About Me	30 Unit 1: About Me	31

September

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Labor Day	3 Unit 1: About Me	4 Unit 1: About Me	5 Unit 1: About Me	6 Unit 1: About Me	7
8	9 Unit 1: About Me Unit 2: IXL Fall S... Unit 3: Independ...	10 Fall NWEA Testing	11 Fall NWEA Testing	12 Fall NWEA Testing	13 Unit 2: IXL Fall S... Unit 3: Independ...	14
15	16 Unit 2: IXL Fall S... Unit 3: Independ...	17 Unit 2: IXL Fall S... Unit 3: Independ...	18 Unit 2: IXL Fall S... Unit 3: Independ...	19 Unit 2: IXL Fall S... Unit 3: Independ...	20 Unit 2: IXL Fall S... Unit 3: Independ...	21
22	23 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	24 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	25 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	26 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	27 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	28
29	30 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	1 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	2 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	3 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	4 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	5

October

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	1 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	2 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	3 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	4 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	5
6	7 Maine Through Year (Tentative)	8 Maine Through Year (Tentative)	9 Maine Through Year (Tentative)	10 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	11 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	12
13	14 Indigenous Peoples' Day	15 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	16 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	17 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	18 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	19
20	21 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	22 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	23 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	24 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	25 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	26
27	28 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	29 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	30 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	31 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	1 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	2

November

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	29 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	30 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	31 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	1 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	2
3	4 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	5 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	6 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	7 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	8 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	9
10	11 Veterans Day	12 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	13 Unit 2: IXL Fall S... Unit 3: Independ... Unit 4: Poetry Stu...	14 Unit 3: Independ... Unit 4: Poetry Stu...	15 Unit 3: Independ... Unit 4: Poetry Stu...	16
17	18 Unit 3: Independ... Unit 4: Poetry Stu...	19 Unit 3: Independ... Unit 4: Poetry Stu...	20 Unit 3: Independ... Unit 4: Poetry Stu...	21 Unit 3: Independ... Unit 4: Poetry Stu...	22 Unit 3: Independ... Unit 4: Poetry Stu...	23
24	25 Unit 3: Independ... Unit 5: Writing	26 Unit 3: Independ... Unit 5: Writing	27 Thanksgiving	28 Thanksgiving	29 Thanksgiving	30

December

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Unit 3: Independ... Unit 5: Writing	3 Unit 3: Independ... Unit 5: Writing	4 Unit 3: Independ... Unit 5: Writing	5 Unit 3: Independ... Unit 5: Writing	6 Unit 3: Independ... Unit 5: Writing	7
8	9 Unit 3: Independ... Unit 5: Writing	10 Unit 3: Independ... Unit 5: Writing	11 Unit 3: Independ... Unit 5: Writing	12 Unit 3: Independ... Unit 5: Writing	13 Unit 3: Independ... Unit 5: Writing	14
15	16 Unit 3: Independ... Unit 5: Writing	17 Unit 3: Independ... Unit 5: Writing	18 Unit 3: Independ... Unit 5: Writing	19 Unit 3: Independ...	20 Unit 3: Independ...	21
22	23 Winter Break	24 Winter Break	25 Winter Break	26 Winter Break	27 Winter Break	28 Winter Break
29 Winter Break	30 Winter Break	31 Winter Break	1 New Year's Day	2 Unit 3: Independ... Unit 6: Novel	3 Unit 3: Independ... Unit 6: Novel	4

January

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29 Winter Break	30 Winter Break	31 Winter Break	1 New Year's Day	2 Unit 3: Independ... Unit 6: Novel	3 Unit 3: Independ... Unit 6: Novel	4
5	6 Unit 3: Independ... Unit 6: Novel	7 Unit 3: Independ... Unit 6: Novel	8 Unit 3: Independ... Unit 6: Novel	9 Unit 3: Independ... Unit 6: Novel	10 Unit 3: Independ... Unit 6: Novel	11
12	13 Unit 3: Independ... Unit 6: Novel	14 Winter NWEA Testing	15 Winter NWEA Testing	16 Winter NWEA Testing	17 Unit 3: Independ... Unit 6: Novel	18
19	20 Martin Luther King, Jr. Day	21 Unit 3: Independ... Unit 6: Novel	22 Unit 3: Independ... Unit 6: Novel	23 Unit 3: Independ... Unit 6: Novel	24 Unit 3: Independ... Unit 6: Novel	25
26	27 Unit 3: Independ... Unit 6: Novel	28 Unit 3: Independ... Unit 6: Novel	29 Unit 3: Independ... Unit 6: Novel	30 Unit 3: Independ... Unit 6: Novel	31 Unit 3: Independ... Unit 6: Novel	1

February

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
26	27 Unit 3: Independ... Unit 6: Novel	28 Unit 3: Independ... Unit 6: Novel	29 Unit 3: Independ... Unit 6: Novel	30 Unit 3: Independ... Unit 6: Novel	31 Unit 3: Independ... Unit 6: Novel	1
2	3 Unit 3: Independ... Unit 6: Novel	4 Unit 3: Independ... Unit 6: Novel	5 Unit 3: Independ... Unit 6: Novel	6 Unit 3: Independ... Unit 6: Novel	7 Unit 3: Independ... Unit 6: Novel	8
9	10 Unit 3: Independ... Unit 6: Novel	11 Unit 3: Independ... Unit 6: Novel	12 Unit 3: Independ... Unit 6: Novel	13 Unit 3: Independ... Unit 6: Novel	14 Unit 3: Independ... Unit 6: Novel	15
16	17 Presidents' Day	18 February Break	19 February Break	20 February Break	21 February Break	22
23	24 Unit 3: Independ... Unit 6: Novel	25 Unit 3: Independ... Unit 6: Novel	26 Unit 3: Independ... Unit 6: Novel	27 Unit 3: Independ... Unit 6: Novel	28 Unit 3: Independ... Unit 6: Novel	1

March

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
23	24 Unit 3: Independ... Unit 6: Novel	25 Unit 3: Independ... Unit 6: Novel	26 Unit 3: Independ... Unit 6: Novel	27 Unit 3: Independ... Unit 6: Novel	28 Unit 3: Independ... Unit 6: Novel	1
2	3 Unit 3: Independ... Unit 6: Novel	4 Unit 3: Independ... Unit 6: Novel	5 Unit 3: Independ... Unit 7: Argument	6 Unit 3: Independ... Unit 8: Multimedia	7 Unit 3: Independ... Unit 9: IXL Spring...	8
9	10 Unit 3: Independ... Unit 9: IXL Spring...	11 Unit 3: Independ... Unit 9: IXL Spring...	12 Unit 3: Independ... Unit 9: IXL Spring...	13 Unit 3: Independ... Unit 9: IXL Spring...	14 Unit 3: Independ... Unit 9: IXL Spring...	15
16	17 Unit 3: Independ... Unit 9: IXL Spring...	18 Unit 3: Independ... Unit 9: IXL Spring...	19 Unit 3: Independ... Unit 9: IXL Spring...	20 March Break	21 March Break	22
23	24 Unit 3: Independ... Unit 12: Play Study Unit 9: IXL Spring...	25 Unit 3: Independ... Unit 12: Play Study Unit 9: IXL Spring...	26 Unit 3: Independ... Unit 12: Play Study Unit 9: IXL Spring...	27 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	28 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	29
30	31 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	1 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	2 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	3 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	4 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	5

April

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
30	31 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	1 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	2 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	3 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	4 Unit 3: Independ... Unit 12: Play Study Unit 10: Flocabul...	5
6	7 MEA Science (HS)	8 MEA Science (HS)	9 MEA Science (HS)	10 MEA Science (HS)	11 MEA Science (HS)	12
13	14 Unit 3: Independ... Unit 11: Novel Unit 12: Play ... +1	15 Unit 3: Independ... Unit 11: Novel Unit 12: Play Study	16 Unit 3: Independ... Unit 11: Novel Unit 12: Play Study	17 Unit 3: Independ... Unit 11: Novel Unit 12: Play Study	18 April Vacation	19 April Vacation
20 April Vacation	21 April Vacation	22 April Vacation	23 April Vacation	24 April Vacation	25 April Vacation	26
27	28 Unit 3: Independ... Unit 11: Novel Unit 12: Play Study	29 Spring NWEA Testing	30 Spring NWEA Testing	1 Spring NWEA Testing	2 Unit 3: Independ... Unit 11: Novel Unit 12: Play Study	3

May

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28 Unit 3: Independ... Unit 11: Novel Unit 12: Play Study	29 Spring NWEA Testing	30 Spring NWEA Testing	1 Spring NWEA Testing	2 Unit 3: Independ... Unit 11: Novel Unit 12: Play Study	3
4	5 Unit 3: Independ... Unit 11: Novel Unit 12: Play Study	6 Unit 3: Independ... Unit 11: Novel Unit 12: Play Study	7 Unit 3: Independ... Unit 11: Novel Unit 12: Play Study	8 Unit 3: Independ... Unit 11: Novel Unit 12: Play Study	9 Unit 11: Novel Unit 12: Play Study	10
11	12 MEA (ELA & Math)	13 MEA (ELA & Math)	14 MEA (ELA & Math)	15 MEA (ELA & Math)	16 MEA (ELA & Math)	17
18	19 Unit 11: Novel Unit 12: Play Study	20 Unit 11: Novel Unit 12: Play Study	21 Unit 11: Novel Unit 12: Play Study	22 Unit 11: Novel Unit 12: Play Study	23 Unit 11: Novel Unit 12: Play Study	24
25	26 Memorial Day	27 Unit 11: Novel Unit 12: Play Study	28 Unit 11: Novel Unit 12: Play Study	29 Unit 11: Novel Unit 12: Play Study	30 Unit 11: Novel Unit 12: Play Study	31

June

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 Unit 11: Novel Unit 12: Play Study	3 Unit 11: Novel Unit 12: Play Study	4 Unit 11: Novel Unit 12: Play Study	5 Unit 11: Novel Unit 12: Play Study	6 Unit 11: Novel Unit 12: Play Study	7
8	9 Unit 11: Novel	10 Unit 11: Novel	11 Unit 11: Novel	12 Unit 11: Novel	13 Unit 11: Novel	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5