VERNON TOWNSHIP
SCHOOL DISTRICT

Science Grade 6
Curriculum Map

Adapted from:
Understanding By Design

Reviewed by:
Vincent Gagliostro - Director of Curriculum & Instruction

Adopted:
March 2025

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Course Description

Based upon the following list of proficiencies, each student must demonstrate a minimum competency level of 65%. Competencies will be measured by way of an evaluation program consisting of teacher observations of student performance, tests, quizzes, classwork, homework, projects, and class participation, as well as class attendance in accordance with the high school's attendance policy.

New Jersey learning Standards covered throughout the course

In conjunction with the New Jersey Student Learning Standards, students enrolled in the **science** courses will demonstrate the ability to:

SPACE SYSTEMS

- MS-ESS1-1. Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.
- MS-ESS1-2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
- MS-ESS1-3. Analyze and interpret data to determine scale properties of objects in the solar system.

HISTORY OF EARTH

- MS-ESS1-4. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.
- MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
- MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.

EARTH'S SYSTEMS

- MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
- MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
- MS-ESS3-1. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

WEATHER AND CLIMATE

- MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
- MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
- MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

HUMAN IMPACTS

- MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Grading Criteria
• Participation - 10% • Tests - 35% • Quizzes/Labs - 35 % • Classwork/Homework - 20%

Course Resources
Core Text: Savvas Learning Company LLC - Elevate Science Earth Grade 6, ©2019 **Technologies:** • Personal computer with Internet access, a web browser and word processing, presentation software for both teacher and student use • Software and web-based presentation resources

- BenQ Interactive Display, Chromebooks

Supplemental Materials:

- For phenomena ideas: www.NGSSPhenomena.com
- For readings, quizzes, and simulations: www.ck12.org
- For simulation labs: https://learn.concord.org/collections, https://www.explorelearning.com/

Scope and Sequence- Topical Outline		
Unit	Title	Time
1	Introduction to Earth's Systems	13 days
2	Weather in the Atmosphere	19 days
3	Minerals and Rocks in the Geosphere	16 days
4	Plate Tectonics	16 days
5	Earth's Surface Systems	16 days
6	Distribution of Natural Resources	16 days
7	Human Impacts on the Environment	16 days
8	History of Earth	13 days
9	Energy in the Atmosphere and Ocean	13 days
10	Climate	13 days
11	Earth-Sun-Moon System	13 days
12	Solar System and the Universe *(*with the DEI mandate)*	16 days

The timeline is only an approximation. The inclusion of a classroom project in any one of the above units would extend the time allotment.

Subject Area: Science Grade Level: 6	
Unit 1	**Introduction to Earth's Systems**
Timeframe	13 days
Established Goals	• Explaining how interactions between the geosphere and the hydrosphere affect Earth's surface materials • Understanding that water continually cycles among the land, ocean, and atmosphere • Distinguishing casual relationships from those that are merely correlational. • Recognizing the role of energy in driving the cycling of matter with the natural systems. • Observing that stability in a system can be disturbed by sudden events or a series of gradual changes.
NJSLS	• MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. • MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
Essential Questions	• How do matter and energy cycle through Earth's systems?

Content Knowledge	*Students will learn:*
	• Matter and Energy in Earth's Systems
	  ○ Components of Earth's system and the energy sources that drive the cycling of matter.
	• Surface Features in the Geosphere
	  ○ Landforms and the forces of energy that affect the geosphere.
	• The Hydrosphere
	  ○ The places and forms in which water is found on Earth and how water is cycled through Earth's systems.

Skills	*Students will be able to:* • Using models to predict and or describe phenomena.

Performance Tasks	• MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. Evidence Statements • MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.Evidence Statements
Other Assessment Evidence	***Formative Assessment*** • Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** • Claim, Evidence, Reasoning • Skill/homework sheets • Test Wizard • Web-based simulations • Lab activities, experimental design, and reports • Unit assessment - Earth Systems Quiz • Current Event Article(s) ***Alternative Assessment*** Assessments will be differentiated in various ways based on the needs of the students. For example, differentiation could be in… • Content (texts, phenomena, graphs, datatables, vocabulary, etc.) • Process (scaffolding, guiding questions, small group instruction, etc.) • Product (individual components,student choice modality such as video, skit, etc) ***Benchmark*** Planning and carrying out an earth system science investigation: Students are presented with an earth system science problem. They will design and conduct an experiment testing how to most effectively determine solutions to a real world problem. • Students will be able to design and conduct a controlled experiment in order to identify significant figures in measurements and calculations of data. • Students will be able to effectively analyze and draw conclusions from their dataset. • Students will be able to make strong predictions based on trends in the data. • Students will be able to evaluate the effectiveness of their experimental design and reflect upon it. ***During each common, formative, and summative assessment, teachers will provide alternative assessment opportunities that adhere to 504 and IEP requirements. Alternative assessments are individualized for the needs of all students.***

Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**: ○ Topic 1: Introduction to Earth's Systems **Supplemental:** ● Extra Practice Homework ● Notebook ● Scholastic: Science World
Learning Activities	● Interactions in Earth's systems ● Savvas Interactions Activity using index cards ● Hurricane Preparedness Activity ● "What scientist do you want to be?" Research Activity
Interdisciplinary Connections	**ELA** **SL.PI.6.4.** Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate speaking behaviors (e.g., eye contact, adequate volume, and clear pronunciation). ***Activity***: Students run a controlled, multi-step experiment to collect data on sea ice versus land ice.

Subject Area: Science Grade Level: 6	
Unit 2	**Weather in the Atmosphere**
Timeframe	19 days
Established Goals	• Understanding how the movement of water in the atmosphere influences local weather conditions. • Understanding that because weather patterns are so complex, storm predictions are based on probabilities. • Learning that mapping the history of natural hazards such as floods can help forecast the location of future events. • Using cause-and-effect relationships to predict phenomena in natural systems. • Recognizing that models are limited because they can only represent certain parts of a system. • Following the transfer of energy as it travels within natural systems.
NJSLS	• MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the Sun and the force of gravity. • MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses results and changes in weather conditions. • MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the earth cause patterns of atmospheric and oceanic circulation that determine regional climates. • MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
Essential Questions	• What determines weather on Earth?

Content Knowledge	*Students will learn:*
	• The Atmosphere Around You
	  ○ The composition and structure of Earth's atmosphere and the way that energy from the Sun affect Earth's atmosphere.
	• Water in the Atmosphere
	  ○ How water is always moving between the surface of Earth and the atmosphere, the processes that drive the water cycle, and how the water cycle affects the weather.
	• Air Masses

	○ The movement of air masses of different temperatures and humidity to identify the types of fronts and types of weather that can develop. ● Predicting Weather Changes ○ How meteorologists use direct observations, pattern analysis, and technology to predict the weather. ● Severe Weather and Floods ○ Examine and describe damage associated with severe storms, as well as measures that can be taken to ensure safety.
Skills	*Students will be able to:* ● Developing models to predict and/or describe natural phenomena. ● Evaluating the accuracy of data collection methods. ● Using graphical displays such as maps to identify temporal and spatial relationships in phenomena.
Performance Tasks	● MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the Sun and the force of gravity. Evidence Statements ● MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses results and changes in weather conditions. Evidence Statements ● MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the earth cause patterns of atmospheric and oceanic circulation that determine regional climates. Evidence Statements ● MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. Evidence Statements
Other Assessment Evidence	***Formative Assessment*** ● Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** ● Claim, Evidence, Reasoning ● Skill/homework sheets ● Test Wizard ● Web-based simulations ● Lab activities, experimental design, and reports ● Unit assessment - Meteorology Test ● Current Event Article(s) ***Alternative Assessment*** Assessments will be differentiated in various ways based on the needs of the students. For example,

	differentiation could be in… ● Content (texts, phenomena, graphs, datatables, vocabulary, etc.) ● Process (scaffolding, guiding questions, small group instruction, etc.) ● Product (individual components,student choice modality such as video, skit, etc)
Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**: ○ Topic 2: Weather in the Atmosphere **Supplemental:** ● Extra Practice Homework ● Enrichment ● Scholastic: Science World
Learning Activities	● Atmosphere Graph ● A Meteorologist for a day ● Collecting data from outdoor sources ● Water Cycle Diagrams ● Water Cycle Dice Game ● Create a Weather Map ● Multiple Activities using Jetstream NOAA
Interdisciplinary Connections	**Math** **6.RP.A.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. **Activity:** Analyze and interpret graphs of seismic activity at different location around the world.

Subject Area: Science Grade Level: 6	
Unit 3	**Minerals and Rocks in the Geosphere**
Timeframe	16 days
Established Goals	• Recognizing that Earth's history has been shaped over millions of years. • Understanding that resources derived from the geosphere are limited and may not be renewable. • Describing how the transfer of energy drives processes such as a rock cycle. • Explaining that stability can be disturbed by sudden events or gradual changes over time.
NJSLS	• MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process
Essential Questions	• What events form Earth's rocks?

Content Knowledge	*Students will learn:*
	• Earth's Interior
	  ○ How scientists study the Earth's materials and model its layers.
	• Minerals
	  ○ The processes that formed minerals and the characteristics and properties of minerals.
	• Rocks
	  ○ The three basic types of rocks and how rocks form.
	• Cycling of Rocks
	  ○ The materials that make up Earth, and how they are continuously cycled, and what energy flows drive Earth processes.

Skills	*Students will be able to:* • Developing models to predict and/or describe phenomena. • Applying scientific evidence to build an explanation for a natural phenomenon.
Performance Tasks	• MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. Evidence Statements

Other Assessment Evidence	***Formative Assessment*** ● Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** ● Claim, Evidence, Reasoning ● Skill/homework sheets ● Test Wizard ● Web-based simulations ● Lab activities, experimental design, and reports ● Unit assessment - Rock Cycle Test ● Current Event Article(s) ***Alternative Assessment*** Assessments will be differentiated in various ways based on the needs of the students. For example, differentiation could be in… ● Content (texts, phenomena, graphs, datatables, vocabulary, etc.) ● Process (scaffolding, guiding questions, small group instruction, etc.) ● Product (individual components,student choice modality such as video, skit, etc)
Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**: ○ Topic 3: Minerals and Rocks in the Geosphere **Supplemental:** ● Extra Practice Homework ● Enrichment ● Scholastic: Science World
Learning Activities	● Rock Cycle Shower Activity ● Rock Identification Activity ● Rock Cycle Interactive https://www.learner.org/series/interactive-rock-cycle/ ● Convection Currents Lab ● Layers of Earth Foldable ● Density Lab
Interdisciplinary Connections	**ELA** **SL.II.6.2.** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

	Activity: Analyzing on-line resources to contribute to the rock cycle shower activity.

Subject Area: Science **Grade Level: 6**	
Unit 4	**Plate Tectonics**
Timeframe	16 days
Established Goals	• Recognizing that energy flows and matter cycles within and among Earth's systems. • Understanding that Earth's plates have moved great distances, collided, and spread apart. • Recognizing that mapping the history of previous hazards can help scientists forecast the likelihood of future hazards. • Understanding that patterns can reveal past and present events and geological history. • Using proportional relationships to gather information about the magnitude of a process.
NJSLS	• MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. • MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. • MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
Essential Questions	• How do geological processes change Earth's surface?

Content Knowledge	*Students will learn:*
	• Evidence of Plate Motions
	  ○ The evidence that supports the hypothesis of continental drift and the existence of Pangea.
	• Plate Tectonics and Earth's Surface
	  ○ How convection drives plate motion, how the movement of Earth's plates has greatly changed the locations of the continents and the size and shape of the ocean basins, and learn the ways that plates move at plate boundaries.
	• Earthquakes and Tsunami Hazards
	  ○ How tension, shearing, and compression produce faults and other features and how these features and events at Earth's surface determine the relationship with plate boundaries.

	• Volcanoes and Earth's Surface ○ How volcanic activity plays in shaping Earth's surface as well as the hazards that different types of volcanoes pose. Students will learn the relationship between plate tectonics and volcanic eruptions and landforms.
Skills	*Students will be able to:* • Interpreting diagrams to identify temporal and spatial relationships. • Constructing a scientific explanation based on valid and reliable data.
Performance Tasks	• MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. Evidence Statements • MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. Evidence Statements • MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. Evidence Statements
Other Assessment Evidence	***Formative Assessment*** • Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** • Claim, Evidence, Reasoning • Skill/homework sheets • Test Wizard • Web-based simulations • Lab activities, experimental design, and reports • Unit assessment - Plate Tectonics Test • Current Event Article(s) ***Alternative Assessment*** Assessments will be differentiated in various ways based on the needs of the students. For example, differentiation could be in… • Content (texts, phenomena, graphs, datatables, vocabulary, etc.) • Process (scaffolding, guiding questions, small group instruction, etc.) • Product (individual components,student choice modality such as video, skit, etc)
Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**:

	○ Topic 4: Plate Tectonics **Supplemental:** ● Notebook ● Scholastic: Science World ● For phenomena ideas: www.NGSSPhenomena.com ● For readings, quizzes, and simulations: www.ck12.org ● For simulation labs: https://learn.concord.org/collections, http://explorelearning.com/
Learning Activities	● USGS Earthquake Website Activity ● Paleomagnetism Activity ● Lava Lab ● Continental Drift Puzzle ● Snack Tectonics Activity ● Sea-floor Spreading Student Model and Classroom Model ● Convection Current Lab ● Plate Tectonic Map Lab ● Earthquake Epicenter Lab ● Slinky Demonstrations on Seismic Waves
Interdisciplinary Connections	**ELA** **RL.MF.6.6**. Compare and contrast information or texts to develop a coherent understanding of a theme, topic, or issue when reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text. ***Activity***: Students will read and watch a video to compare and contrast characteristics of continental drift.

Subject Area: Science Grade Level: 6	
Unit 5	**Earth's Surface Systems**
Timeframe	16 days
Established Goals	• Recognizing that energy flows and matter cycles within and among Earth's systems. • Applying the history of previous hazards to help forecast the likelihood of future hazards. • Understanding that patterns can reveal past and present events in history. • Recognizing that phenomena observed at one scale may not be observable at another scale.
NJSLS	• MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. • MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
Essential Questions	• What processes change Earth's surface?

Content Knowledge	*Students will learn:*
	• Weathering and Soil
	  ○ The two agents of weathering, mechanical and chemical weathering, and how these and other processes contribute to the formation of soil.
	• Erosion and Deposition
	  ○ The forces, causes, and relationship between erosion and deposition, and explore how these processes help change Earth's surface features.
	• Water Erosion
	  ○ Ways in which water causes erosion to learn how water creates landforms by carving out rock or building up sediment.
	• Glacial and Wave Erosion
	  ○ How glacial movement carves out valleys in the land and deposits sediment to create new landforms, as well as how wave action contributes to erosion and deposition of beaches.

Skills	*Students will be able to:* • Analyzing and interpreting data to determine similarities and differences and findings. • Constructing a scientific explanation based on multiple sources of evidence.

Performance Tasks	• MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. Evidence Statements • MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. Evidence Statements
Other Assessment Evidence	***Formative Assessment*** • Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** • Claim, Evidence, Reasoning • Skill/homework sheets • Test Wizard • Web-based simulations • Lab activities, experimental design, and reports • Unit assessment - Geologic Processes Quiz • Current Event Article(s) ***Alternative Assessment*** Assessments will be differentiated in various ways based on the needs of the students. For example, differentiation could be in… • Content (texts, phenomena, graphs, datatables, vocabulary, etc.) • Process (scaffolding, guiding questions, small group instruction, etc.) • Product (individual components,student choice modality such as video, skit, etc)
Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**: ○ Topic 5: Earth's Surface Systems **Supplemental:** • Extra Practice Homework • Enrichment • Scholastic: Science World
Learning Activities	• Geologic Processes Artwork in Science • Erosion and Deposition Lab • Chemical and Mechanical Weathering Lab • Soil Lab • Glacial Erosion Demo

	• Demo Lab: Materials on a Slope
Interdisciplinary Connections	**ELA** **RL.MF.6.6**. Compare and contrast information or texts to develop a coherent understanding of a theme, topic, or issue when reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text. ***Activity***: Students will read and watch a video to compare and contrast characteristics

Subject Area: Science Grade Level: 6	
Unit 6	**Distribution of Natural Resources**
Timeframe	16 days
Established Goals	• Recognizing that humans depend on natural resources, many of which are limited and/or not renewable. • Understanding the negative impacts of human population increase on natural resources. • Understanding that although relationships may not be casual or correlational, correlation does not always imply causation.
NJSLS	• MS-ESS3-1. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. • MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. • MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
Essential Questions	• How is the distribution of natural resources the result of geological processes?

Content Knowledge	*Students will learn:*
	• Nonrenewable Resources
	  ○ The diversity of non-renewable energy sources and the impact of their scarcity on human energy use.
	• Renewable Resources
	  ○ The difference between renewable and nonrenewable resources, the benefits of alternative energy sources, and methods to reduce fossil-fuel use.
	• Mineral Resources
	  ○ The diversity of minerals in the world and how humans use them.
	• Water Resources
	  ○ The distribution and characteristics of water resources on Earth and learn about the human

	impacts of their use.
Skills	*Students will be able to:* ● Constructing a scientific explanation based on valid and reliable evidence. ● Constructing an argument supported by evidence and scientific reasoning to support an explanation.
Performance Tasks	● MS-ESS3-1. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. Evidence Statements ● MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. Evidence Statements ● MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. Evidence Statements
Other Assessment Evidence	***Formative Assessment*** ● Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** ● Claim, Evidence, Reasoning ● Skill/homework sheets ● Test Wizard ● Web-based simulations ● Lab activities, experimental design, and reports ● Unit assessment - Natural Resources Test ● Current Event Article(s) ***Alternative Assessment*** Assessments will be differentiated in various ways based on the needs of the students. For example, differentiation could be in… ● Content (texts, phenomena, graphs, datatables, vocabulary, etc.) ● Process (scaffolding, guiding questions, small group instruction, etc.) ● Product (individual components,student choice modality such as video, skit, etc)
Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**: ○ Topic 6: Distribution of Natural Resources

	Supplemental: ● Extra Practice Homework ● Scholastic: Science World ● Enrichment
Learning Activities	● Persuasive Google Slide presentation on Natural Resources ● Investigating Coal ● Fossils Fuels Activity using pennies/checkers ● Analyzing pie charts from Department of Energy -EIA. ● Plastic Refinery Demo ● Pizza Box/Shoe Box Solar Ovens ● Puff Mobile Design Challenge ● Activity: Waterwheel Work
Interdisciplinary Connections	**ELA** **W.WR.6.5.** Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate. ***Activity:*** Students research the effect of dependency on natural resources at various locations.

Subject Area: Science **Grade Level: 6**	
Unit 7	**Human Impact on the Environment**
Timeframe	16 days
Established Goals	● Recognizing that humans depend on natural resources, many of which are limited and/or not renewable. ● Understanding the negative impacts that human population increase can have on natural resources. ● Recognizing that some cause and effect relationships may predict the occurrence of natural phenomena.
NJSLS	● MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Essential Questions	• How does human activity impact Earth's systems?

Content Knowledge	*Students will learn:*
	• Population Growth and Resources Consumption
	  ○ As human population increases, human need for natural resources also increases and that resource use has impacts on Earth systems.
	• Air Pollution
	  ○ The causes of air pollution, the long-term impact it has on Earth Systems, and efforts to decrease the levels of air pollution around the world.
	• Impacts on Land
	  ○ The natural resources obtained from Earth's geosphere, the importance of these resources, and how human activities impact the availability of resources.
	• Water Pollution
	  ○ Why fresh water is a limited resource within Earth's systems, and how human activities cause freshwater and ocean pollution, and how humans utilize technology and other methods to help limit freshwater and ocean pollution.

Skills	*Students will be able to:* • Using models or representations to construct an explanation. • Using evidence to construct an argument that supports or refutes a claim.
Performance Tasks	• MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. Evidence Statements
Other Assessment Evidence	***Formative Assessment*** • Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** • Claim, Evidence, Reasoning • Skill/homework sheets • Test Wizard • Web-based simulations • Lab activities, experimental design, and reports • Unit assessment - Human Impact Test • Current Event Article(s)

	Alternative Assessment Assessments will be differentiated in various ways based on the needs of the students. For example, differentiation could be in… ● Content (texts, phenomena, graphs, datatables, vocabulary, etc.) ● Process (scaffolding, guiding questions, small group instruction, etc.) ● Product (individual components,student choice modality such as video, skit, etc)
Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**: ○ Topic 7: Human Impacts on the Environment **Supplemental**: ● Extra Practice Homework ● Enrichment ● Scholastic: Science World
Learning Activities	● Anthropocene: Human Impact on the Environment On-line Resource ● Non-renewable Activity: Pennies/Checkers ● Activity: Treating Wastewater ● Puff Mobile Design Challenge
Interdisciplinary Connections	**Math** **MS-ESS3-3**. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. **6.EE.C.9:** Represent and analyze quantitative relationships between dependent and independent variables. ***Activity***: Students identify the relationship among human population, greenhouse gases, and global temperatures.

Subject Area: Science Grade Level: 6	
Unit 8	**History of Earth**
Timeframe	13 days
Established Goals	• Recognizing that the geological time scale can be inferred from layers of rock. • Using patterns to draw scientific conclusions. • Understanding that geologic periods are not drawn to scale in timelines of Earth's history.
NJSLS	• MS-ESS1-4. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.
Essential Questions	• How can events in Earth's past be organized?

Content Knowledge	*Students will learn:*
	• Determining the Ages of Rocks
	  ○ The different ways to determine the relative and absolute ages of rock layers, as well as events that can affect those layers.
	• Geologic Time Scale
	  ○ The long history of Earth, first into eras, then into periods, each Mark by its own unique organisms and geological features.
	• Major Events in Earth's History
	  ○ How major events in Earth's history have shaped evolution as well as geological features and provided the beginning and ending points of eras and periods.

Skills	*Students will be able to:* • Interpreting graphical displays of data to identify relationships among organisms. • Applying scientific reasoning to explain why evidence is adequate to support a conclusion. • Constructing an argument supporting a model for a natural phenomenon.
Performance Tasks	• MS-ESS1-4. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history. Evidence Statements

Other Assessment Evidence	***Formative Assessment*** ● Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** ● Claim, Evidence, Reasoning ● Skill/homework sheets ● Test Wizard ● Web-based simulations ● Lab activities, experimental design, and reports ● Unit assessment - Earth's History and Geologic Time Test ● Current Event Article(s) ***Alternative Assessment*** Assessments will be differentiated in various ways based on the needs of the students. For example, differentiation could be in… ● Content (texts, phenomena, graphs, datatables, vocabulary, etc.) ● Process (scaffolding, guiding questions, small group instruction, etc.) ● Product (individual components,student choice modality such as video, skit, etc)
Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**: ○ Topic 8: History of Earth **Supplemental**: ● Extra Practice Homework ● Enrichment ● Scholastic: Science World
Learning Activities	● Math problems calculating half-lives ● Using pHet Website for Radioactive Decay ● Radioactive Skittles Activity Pre-Lab ● Radioactive Decay Cube Lab ● Modeling with Clay-layers of rock ● Modeling Geologic Time Scale using machine adding paper ● Ancient Life Fossil Stations Lab

Interdisciplinary Connections	**ELA** **RL.MF.6.6**. Compare and contrast information or texts to develop a coherent understanding of a theme, topic, or issue when reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text. ***Activity***: Students will read and watch a video to compare and contrast characteristics of the different geologic time periods.

Subject Area: Science Grade Level: 6	
Unit 9	**Energy in the Atmosphere and Ocean**
Timeframe	13 days
Established Goals	• Predicting how the global movement of water among land, ocean, and atmosphere can influence local weather. • Describing how patterns of circulation in the atmosphere and in the ocean affect an area's weather and climate. • Describing how some cause-and-effect relationships can be used to predict natural phenomena. • Understanding that systems may interact with other systems.
NJSLS	• MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. • MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. • MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
Essential Questions	• How does energy move throughout Earth's atmosphere and ocean?

Content Knowledge	*Students will learn:*
	• Energy in the Earth's Atmosphere
	  ○ How energy is transferred from the sun to Earth's surface and air by radiation, conduction, and convection.
	• Patterns of Circulation in the Atmosphere
	  ○ How differences in air pressure caused by the unequal heating of the atmosphere create global and local winds and how the rotation of Earth produces patterns of calm areas and global wind belts.
	• Patterns of Circulation in the Ocean
	  ○ How unequal heating and Earth's rotation produce patterns of ocean circulation that

	distribute energy.
Skills	*Students will be able to:* ● Asking questions that arise from unexpected results. ● Developing models to show relationships among variables and their components.
Performance Tasks	● MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. Evidence Statements ● MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. Evidence Statements ● MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. Evidence Statements
Other Assessment Evidence	***Formative Assessment*** ● Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** ● Claim, Evidence, Reasoning ● Skill/homework sheets ● Test Wizard ● Web-based simulations ● Lab activities, experimental design, and reports ● Unit assessment - Hydrologic Cycle Test ● Current Event Article(s) ***Alternative Assessment*** Assessments will be differentiated in various ways based on the needs of the students. For example, differentiation could be in… ● Content (texts, phenomena, graphs, datatables, vocabulary, etc.) ● Process (scaffolding, guiding questions, small group instruction, etc.) ● Product (individual components,student choice modality such as video, skit, etc)
Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**: ○ Topic 9: Energy in the Atmosphere and Ocean **Supplemental**:

	• Extra Practice Homework • Enrichment • Scholastic: Science World
Learning Activities	• Using my NASA data analyzing ocean circulation patterns • Coriolis Effect Activity with a balloon and marker • Ocean Currents Model • Tracking Hurricanes Lab
Interdisciplinary Connections	**ELA** **W.AW.6.1.** Write arguments on discipline-specific content (e.g., social studies, science, math, technical subjects, English/Language Arts) to support claims with clear reasons and relevant evidence. ***Activity***: Students perform a multi-step experiment on convection currents and use the CER framework in organizing their writing and support claims with evidence and reasoning.

Subject Area: Science Grade Level: 6	
Unit 10	**Climate**
Timeframe	13 days
Established Goals	• Recognizing that complex interactions among the land, the ocean, and the atmosphere determine weather and climate. • Understanding the oceans major influence on global weather and climate. • Using models to represent systems and their interactions. • Realizing that either sudden events or gradual changes can disturb stability.
NJSLS	• MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. • MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.
Essential Questions	• How have natural processes and human activities changed Earth's climate?

Content Knowledge	*Students will learn:*
	• Climate Factors
	  ○ How factors such as latitude, altitude, and land distribution, and ocean currents influence climate patterns.
	• Climate Change
	  ○ The greenhouse effect and use historical and recent data to identify trends in Earth's warming and cooling patterns.
	• Effects of Changing Climate
	  ○ How increased temperatures affect water levels, identify the effects of warmer temperatures on living organisms, and design solutions to lessen the effect of climate change.

Skills	*Students will be able to:* • Asking questions to identify and clarify the evidence for an argument. • Developing or using a model to predict or describe phenomena.

Performance Tasks	• MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. Evidence Statements • MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. Evidence Statements
Other Assessment Evidence	***Formative Assessment*** • Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** • Claim, Evidence, Reasoning • Skill/homework sheets • Test Wizard • Web-based simulations • Lab activities, experimental design, and reports • Unit assessment - Climate Test • Current Event Article(s) ***Alternative Assessment*** Assessments will be differentiated in various ways based on the needs of the students. For example, differentiation could be in… • Content (texts, phenomena, graphs, datatables, vocabulary, etc.) • Process (scaffolding, guiding questions, small group instruction, etc.) • Product (individual components,student choice modality such as video, skit, etc)
Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**: ○ Topic 10: Climate **Supplemental:** • Extra Practice Homework • Enrichment • Scholastic: Science World
Learning Activities	• Mapping greenhouse gas emissions where you live-EPA Database • Ocean Currents Model • Greenhouse Effect Lab • Climate History in Tree Rings

	• Using HHMI resources and NASA Climate in analyzing climate change • Sea Ice vs. Land Ice Activity
Interdisciplinary Connections	**ELA** **SL.II.6.2**. Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study **Activity**: Students run a controlled, multi-step experiment to collect data on temperature differences for carbon dioxide levels and present their findings.

Subject Area: Science Grade Level: 6	
Unit 11	**Earth-Sun-Moon System**
Timeframe	13 days
Established Goals	• Describing and predicting movements of the sun, the moon, and the stars. • Explaining how a model of our solar system can explain eclipses of the sun and moon. • Using models of systems to demonstrate the interactions occurring within them.
NJSLS	• MS-ESS1-1. Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.
Essential Questions	• How do the sun and the moon affect Earth?

Content Knowledge	*Students will learn:*
	• Movement in Space
	  ○ The different objects seen in the night sky and how Earth, the sun, and other planets move through space.
	• Earth's Movement in Space
	  ○ How Earth and the moon remain in orbit and how Earth's motions affect the amount of daylight and the seasons.
	• Phases and Eclipses
	  ○ How the sun and moon affect tides, the causes of different types of eclipses, and the phases of the Moon.

Skills	*Students will be able to:* • Developing models to predict and/or describe phenomena. • Interpreting diagrams of natural phenomena to identify temporal and spatial relationships.
Performance Tasks	• MS-ESS1-1. Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. Evidence Statements

Other Assessment Evidence	***Formative Assessment*** ● Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** ● Claim, Evidence, Reasoning ● Skill/homework sheets ● Test Wizard ● Web-based simulations ● Lab activities, experimental design, and reports ● Unit assessment - Earth and Sun Test and Small Bodies in Space Test ● Current Event Article(s) ***Alternative Assessment*** Assessments will be differentiated in various ways based on the needs of the students. For example, differentiation could be in… ● Content (texts, phenomena, graphs, datatables, vocabulary, etc.) ● Process (scaffolding, guiding questions, small group instruction, etc.) ● Product (individual components,student choice modality such as video, skit, etc)
Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**: ○ Topic11: Earth-Sun-Moon System **Supplemental:** ● Extra Practice Homework ● Enrichment ● Scholastic: Science World
Learning Activities	● Modeling Solstices and Equinoxes ● Using magnets and compasses in discovering magnetic fields ● Star Lab ● Using globes to model seasons/equinoxes/solstices ● Seasons Lab ● Modeling Rotation/Revolution using Earth models ● Golf Tee moon phases ● Paper Plate Moon Phases ● Motions of Moon models

	• Tides Lab
Interdisciplinary Connections	**ELA** **RL.MF.6.6**. Compare and contrast information or texts to develop a coherent understanding of a theme, topic, or issue when reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text. ***Activity***: Students will read and watch a video to compare and contrast characteristics and the relative size of the inner and outer planets

Subject Area: Science Grade Level: 6	
Unit 12	**Solar System and the Universe (with DEI mandate)**
Timeframe	16 days
Established Goals	• Explaining that objects in our solar system are held in orbit around our sun by the sun's gravitational pull. • Recognizing that Earth and its solar system are part of the Milky Way galaxy. • Using scale models to study phenomena that are too small or too large to directly examine. • Understanding that models are limited because they can only represent certain aspects of a system.
NJSLS	• MS-ESS1-2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. • MS-ESS1-3. Analyze and interpret data to determine scale properties of objects in the solar system.
Essential Questions	• What kind of data and evidence help us to understand the universe?

Content Knowledge	*Students will learn:*
	• Solar System Objects
	  ○ To compare and contrast the planets and other objects in the solar system.
	• Learning About the Universe
	  ○ How technology is used to detect electromagnetic radiation and produce images in order to provide information about the universe.
	• Stars
	  ○ How to classify stars based on their physical characteristics of absolute brightness, color, and temperature. They also will learn the role gravity plays in the formation of a star.
	• Galaxies
	  ○ The theory behind the formation of the universe and apply the concept of scientific notation as a means for scientists to measure the vastness of the universe.

Skills	*Students will be able to:* • Developing models to predict and/or describe phenomena. • Analyzing and interpreting data to determine similarities and differences and findings.

Performance Tasks	• MS-ESS1-2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.Evidence Statements • MS-ESS1-3. Analyze and interpret data to determine scale properties of objects in the solar system.Evidence Statements
Other Assessment Evidence	***Formative Assessment*** • Teacher check ins, exit tickets, observations of student groups, bell ringers, think-pair-share, On-line gamification (Kahoot, Quizizz, EdPuzzle, Blooket, Gimkit). ***Summative Assessment*** • Claim, Evidence, Reasoning • Skill/homework sheets • Test Wizard • Web-based simulations • Lab activities, experimental design, and reports • Unit assessment - Stars, Galaxies, and the UniverseTest • Current Event Article(s) ***Alternative Assessment*** Assessments will be differentiated in various ways based on the needs of the students. For example, differentiation could be in… • Content (texts, phenomena, graphs, datatables, vocabulary, etc.) • Process (scaffolding, guiding questions, small group instruction, etc.) • Product (individual components,student choice modality such as video, skit, etc) ***Benchmark*** Planning and carrying out a space science investigation: Students are presented with a space science problem. They will design and conduct an experiment testing how to most effectively determine solutions to a real world problem. • Students will be able to design and conduct a controlled experiment in order to identify significant figures in measurements and calculations of data. • Students will be able to effectively analyze and draw conclusions from their dataset. • Students will be able to make strong predictions based on trends in the data. • Students will be able to evaluate the effectiveness of their experimental design and reflect upon it.
Resources/Materials	**Core:** **Core Text: Savvas Realize Elevate Science Earth**: ○ Topic12: Solar System and the Universe

	Supplemental: ● Extra Practice Homework ● Scholastic: Science World ● Enrichment
Learning Activities	● Spectroscopy Lab ● Activity: Scaling out the solar system in size and distance ● Make a classroom comet ● Crater Lab ● Using a sunspotter and/or researching spaceweather.com ● Electromagnetic Spectrum Stations ● Rocket Activity: Pop Rockets/Water Bottle Rockets/Paper Rockets/Balloon Rockets ● Stages of a Star's Life Poster ● Gas Tubes in Analyzing Star's Composition ● Flames Test ● HR Diagram Lab ● Chandra X-ray Education website on Stellar Heartbeats Activity ● Scaling the Universe
Diversity, Equality, and Inclusion **DEI**	Explore the life of a space scientist who faced some hardships yet achieved success in their career. Conduct a webquest and discuss the following: ○ Choose a scientist relevant to this field of science. ○ When did the scientist conduct their research? ○ What were their scientific discoveries or awards received? ○ What hardships regarding disabilities, race, culture, or gender were dealt with.
Interdisciplinary Connections	**Math** **MS-ESS1-3**. Analyze and interpret data to determine scale properties of objects in the solar system. **6.RP.A.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. **Activity**: Analyze and interpret graphs of daylight and darkness from several worldwide locations at different latitudes.

Additional Information

21st Century Skills Integration: Career Readiness, Life Literacies, and Key Skills	• 9.1.8.CR.1: Compare and contrast the role of philanthropy, volunteer service, and charities in community development and the quality of life in a variety of cultures • 9.1.8.CR.2: Compare various ways to give back through strengths, passions, goals, and other personal factors. • 9.1.8.CR.3: Relate the importance of consumer, business, and government responsibility to the economy and personal finance. • 9.1.8.CR.4: Examine the implications of legal and ethical behaviors when making financial decisions. • 9.1.8.CDM.1: Compare and contrast the use of credit cards and debit cards for specific purchases and the advantages and disadvantages of using each. • 9.1.8.CDM.2: Demonstrate an understanding of the terminology associated with different types of credit (e.g., credit cards, installment loans, mortgages, lines of credit) and compare and calculate the interest rates associated with each. • 9.1.8.CDM.3: Compare and contrast loan management strategies, including interest charges and total principal repayment costs. • 9.1.8.CDM.4: Evaluate the application process for different types of loans (e.g., credit card, mortgage, student loans). • 9.1.8.CP.1: Compare prices for the same goods or services. • 9.1.8.CP.2: Analyze how spending habits affect one's ability to save. • 9.1.8.CP.3: Explain the purpose of a credit score and credit record, the factors and impact of credit scores. • 9.1.8.CP.4: Summarize borrower's credit report rights. • 9.1.8.CP.5: Compare the financial products and services available to borrowers relative to their credit worthiness. • 9.1.8.EG.1: Explain how taxes affect disposable income and the difference between net and gross income. • 9.1.8.EG.2: Explain why various sources of income are taxed differently. • 9.1.8.EG.3: Explain the concept and forms of taxation and evaluate how local, state and federal governments use taxes to fund public activities and initiatives. • 9.1.8.EG.4: Identify and explain the consequences of breaking federal and/or state employment or financial laws. • 9.1.8.EG.5: Interpret how changing economic and societal needs influence employment trends and future education.

	• 9.1.8.EG.6: Explain the economic principle of the circular flow of money in different situations regarding buying products or services from a local or national business and buying imported or domestic goods. • 9.1.8.EG.7: Explain the effect of the economy (e.g., inflation, unemployment) on personal income, individual and family security, and consumer decisions. • 9.1.8.EG.8: Analyze the impact of currency rates over a period of time and the impact on trade, employment, and income. • 9.1.8.EG.9: Identify types of consumer fraud, the procedures for reporting fraud, the specific consumer protection laws, and the issues they address. • 9.1.8.FI.1: Identify the factors to consider when selecting various financial service providers. • 9.1.8.FI.2: Determine the most appropriate use of various financial products and services to borrow and access money for making purchases (e.g., ATM, debit cards, credit cards, check books, online/mobile banking). • 9.1.8.FI.3: Evaluate the most appropriate financial institutions to assist with meeting various personal financial needs and goals. • 9.1.8.FI.4: Analyze the interest rates and fees associated with financial products. • 9.1.8.FP.1: Describe the impact of personal values on various financial scenarios. • 9.1.8.FP.2: Evaluate the role of emotions, attitudes, and behavior (rational and irrational) in making financial decisions. • 9.1.8.FP.3: Explain how self-regulation is important to managing money (e.g., delayed gratification, impulse buying, peer pressure, etc.). • 9.1.8.FP.4: Analyze how familial and cultural values influence savings rates, spending, and other financial decisions. • 9.1.8.FP.5: Determine how spending, investing, and using credit wisely contributes to financial well-being. • 9.1.8.FP.6: Compare and contrast advertising messages to understand what they are trying to accomplish. • 9.1.8.FP.7: Identify the techniques and effects of deceptive advertising. • 9.1.8.PB.1: Predict future expenses or opportunities that should be included in the budget planning process. • 9.1.8.PB.2: Explain how different circumstances can affect one’s personal budget. • 9.1.8.PB.3: Explain how to create budget that aligns with financial goals. • 9.1.8.PB.4: Construct a simple personal savings and spending plan based on various sources of income and different stages of life (e.g. teenager, young adult, family).

	• 9.1.8.PB.5: Identify factors that affect one's goals, including peers, culture, location, and past experiences. • 9.1.8.PB.6: Construct a budget to save for short-term, long term, and charitable goals. • 9.1.8.PB.7: Brainstorm techniques that will help decrease expenses including comparison shopping, negotiating, and day-to-day expense management. • 9.1.8.RM.1: Determine criteria for deciding the amount of insurance protection needed. • 9.1.8.RM.2: Analyze the need for and value of different types of insurance and the impact of deductibles in protecting assets against loss. • 9.1.8.RM.3: Evaluate the need for different types of warranties. • 9.1.8.RM.4: Explain the purpose of insurance products and the reasons for property product and liability insurance protection. • Career Ready Practices class prepares students to succeed in all Career and CTE Pathways. • ARTSTANDING is a district-wide event that allows all "Special" areas to be highlighted -- of which CTE programs and Career Pathways are included. • 9.2.8.CAP.1: Identify offerings such as high school and county career and technical school courses, apprenticeships, military programs, and dual enrollment courses that support career or occupational areas of interest. • 9.2.8.CAP.2: Develop a plan that includes information about career areas of interest. • 9.2.8.CAP.3: Explain how career choices, educational choices, skills, economic conditions, and personal behavior affect income. • 9.2.8.CAP.4: Explain how an individual's online behavior (e.g., social networking, photo exchanges, video postings) may impact opportunities for employment or advancement • 9.2.8.CAP.5: Develop a personal plan with the assistance of an adult mentor that includes information about career areas of interest, goals and an educational plan. • 9.2.8.CAP.6: Compare the costs of postsecondary education with the potential increase in income from a career of choice. • 9.2.8.CAP.7: Devise a strategy to minimize costs of postsecondary education. • 9.2.8.CAP.8: Compare education and training requirements, income potential, and primary duties of at least two jobs of interest. • 9.2.8.CAP.9: Analyze how a variety of activities related to career preparation (e.g., volunteering, apprenticeships, structured learning experiences, dual enrollment, job search, scholarships) impacts postsecondary options. • 9.2.8.CAP.10: Evaluate how careers have evolved regionally, nationally, and globally. • 9.2.8.CAP.11: Analyze potential career opportunities by considering different types of resources, including occupation databases, and state and national labor market statistics. • 9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential. • • 9.2.8.CAP.13: Compare employee benefits when evaluating employment interests and explain the

	possible impact on personal finances. ● 9.2.8.CAP.14: Evaluate sources of income and alternative resources to accurately compare employment options. ● 9.2.8.CAP.15: Present how the demand for certain skills, the job market, and credentials can determine an individual's earning power. ● .2.8.CAP.16: Research different ways workers/ employees improve their earning power through education and the acquisition of new knowledge and skills. ● 9.2.8.CAP.17: Prepare a sample resume and cover letter as part of an application process. ● 9.2.8.CAP.18: Explain how personal behavior, appearance, attitudes, and other choices may impact the job application process. ● 9.2.8.CAP.19: Relate academic achievement, as represented by high school diplomas, college degrees, and industry credentials, to employability and to potential level.. ● 9.2.8.CAP.20: Identify the items to consider when estimating the cost of funding a business. ● 9.4.8.CI.1: Assess data gathered on varying perspectives on causes of climate change (e.g., cross-cultural, gender-specific, generational), and determine how the data can best be used to design multiple potential solutions (e.g., RI.7.9, 6.SP.B.5, 7.1.NH.IPERS.6, 8.2.8.ETW.4). ● 9.4.8.CI.2: Repurpose an existing resource in an innovative way (e.g., 8.2.8.NT.3). ● 9.4.8.CI.3: Examine challenges that may exist in the adoption of new ideas (e.g., 2.1.8.SSH, 6.1.8.CivicsPD.2). ● 9.4.8.CI.4: Explore the role of creativity and innovation in career pathways and industries. ● 9.4.8.CT.1: Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to a local or global problem, such as climate change, and use critical thinking skills to predict which one(s) are likely to be effective (e.g., MS-ETS1-2). ● 9.4.8.CT.2: Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option (e.g., MS-ETS1-4, 6.1.8.CivicsDP.1). ● 9.4.8.CT.3: Compare past problem-solving solutions to local, national, or global issues and analyze the factors that led to a positive or negative outcome. ● 9.4.8.DC.1: Analyze the resource citations in online materials for proper use. • ● 9.4.8.DC.2: Provide appropriate citation and attribution elements when creating media products (e.g., W.6.8). ● 9.4.8.DC.3: Describe tradeoffs between allowing information to be public (e.g., within online games) versus keeping information private and secure. ● 9.4.8.DC.4: Explain how information shared digitally is public and can be searched, copied, and potentially seen by public audiences. ● 9.4.8.DC.5: Manage digital identity and practice positive online behavior to avoid inappropriate forms of self-disclosure. ● 9.4.8.DC.6: Analyze online information to distinguish whether it is helpful or harmful to reputation ● 9.4.8.DC.7: Collaborate within a digital community to create a digital artifact using strategies such as crowdsourcing or digital surveys. ● 9.4.8.DC.8: Explain how communities use data and technology to develop measures to respond to

	effects of climate change (e.g., smart cities). • 9.4.8.GCA.1: Model how to navigate cultural differences with sensitivity and respect (e.g., 1.5.8.C1a). • 9.4.8.GCA.2: Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal. • 9.4.8.IML.1: Critically curate multiple resources to assess the credibility of sources when searching for information. • 9.4.8.IML.2: Identify specific examples of distortion, exaggeration, or misrepresentation of information.
Use of Technology	• All students are one-to-one with Chromebooks for day-to-day use in the classroom • All classrooms have access to an interactive BenQ with speaker system so lessons can include video, sound, and interactive lessons for all learners
Technology Integration: Computer vScience and Design Thinking	8.1.12.DA.1: Create interactive data visualizations using software tools to help others better understand real world phenomena, including climate change. 8.2.8.ED.5: Explain the need for optimization in a design process. 8.2.8.ED.6: Analyze how trade-offs can impact the design of a product. 8.2.8.ED.7: Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs (e.g., annotated sketches). 8.2.8.ITH.2: Compare how technologies have influenced society over time.
Gifted and Talented	• Inclusive Identification process that depicts the child as a whole in order to provide the best learning environment possible for each student. Click here for Identification Profile Sample • Tiered Services utilizing NAGC K-12 Programming standards to ensure individual needs are being met. Click here for services map. • Formative Assessment utilized in order to promote acceleration, curriculum compacting, grouping, and asynchronous learning where appropriate. • Dynamic Model for Gifted Program Improvement is utilized in order to verify that our program is employing not only up to date methods, but also effective ones. • Teacher training in Gifted Education.
Risk for School-Failure	• Restorative Classroom • Counseling interventions • Parent meetings • Student meetings • Individual and Group counseling
Accommodations for: Special Education & 504	• Special Education modifications will be implemented as per the Individualized Education Programs of the students in the class. • Please click here for an overview of the variety of accommodations set in place. • Accommodations will be dictated by the general makeup of the class. Possible Science Instructional adjustments

	• small group instruction • modeling • Alternate assessments and class activities: drawing, discussion, performances, etc. • Speech to text (to listen to text) • Text to speech (to dictate essays or writing) • Reduce Unnecessary stimuli • Preferential Seating • Allow student movement to increase productivity POSSIBLE CONTENT ADJUSTMENTS - based on pre-assessment and benchmark assessment data • Provide copies of Periodic Table, Plate Tectonic Maps, Geologic History Timelines, Temperature Conversions, HR Diagrams, CER Graphic Organizer • Post formulas or metric conversions in areas visible to students • Provide guided notes and posted in Schoology • Model concepts using manipulatives and technology
Multilingual Learners(MLL) Accommodations and Modifications	• Coordinate activities with ESL teacher to accommodate individual learning needs • Provide appropriate leveled texts • Students complete the ACCESS 2.0 test yearly to measure growth and guide instruction • Text-Speech • Google Translation on Chromebook device

MTSS/RTI	The VTSD Response to Intervention and MTSS Manual and the NJTSS Early Reading Screening Guidelines outline the policies and procedures that 'exist to ensure a coordinated system for planning, delivering, measurement, and modification of intervention and referral services implemented in each school by a multidisciplinary team to address the learning, behavioral, and health needs of all students. (N.J.A.C. 6A:16-8)' This requirement is fulfilled through the district New Jersey Tiered System of Support (NJTSS) Early Reading grant initiative and our Multi-Tiered Systems of Support (MTSS) Response to Intervention plan which includes a. A continuum of supports and interventions available in each school to support learning, behavior, and health needs; b. Action plans for interventions based on student data and desired outcomes; c. Professional development for multidisciplinary teams and staff who provide interventions; and d. Review and assessment of effectiveness of interventions (e.g., progress monitoring).

Diversity Equity and Inclusion Mandate (DEI)	Explore the life of an earth scientist who faced some hardships yet achieved success in their career. Conduct a webquest and discuss the following: ○ Choose a scientist relevant to this field of science. ○ When did the scientist conduct their research? ○ What were their scientific discoveries or awards received? ○ What hardships regarding disabilities, race, culture, or gender were dealt with.

Career Education with Diversity, Equity, and Inclusion	**Astrophysicists** ● **Neil deGrasse Tysonis** (African-American) ● **Doctor Ronald E. McNair** (Two years before the Challenger disaster, he had flown as a mission specialist on Challenger, becoming the second Black American to fly in space). ● **Susan Jocelyn Bell Burnell** (a Northern Irish physicist who discovered the first radio pulsars in 1967). ● **Carl Sagan** (Jewish astronomer) **Geologists** ● **Dr. Kathleen Johnson** (Native American/Chinese American) – A climate scientist and geologist studying paleoclimate records ● **Ming Chen** – A Chinese geophysicist with contributions to seismology. **Meteorologists/Climatologist** ● **Brittany Bell** (a local African-American meteorologist on NewJersey12) ● **Ayana Elizabeth Johnson** (a black marine biologist and climate advocate addressing ocean-climate interactions)

Additional Careers	**Planetary Science** • **Career:** Studies planets, moons, and other solar system bodies. **Notable Minority Scientist: Diana Trujillo –** A Colombian aerospace engineer working on Mars rovers. **Cosmology** • **Career:** Investigates the origins and evolution of the universe. **Notable Minority Scientist: Wendy Freedman –** A Canadian-American astronomer who helped refine the Hubble Constant. **Geology (Study of Earth's solid materials, rocks, and processes)** • **Career:** Geologist, Mineralogist, Petrologist, Structural Geologist **Notable Minority Scientist: Tshibubudze Tshibubudze** – A South African structural geologist studying Precambrian geology. **Volcanology (Study of volcanoes and magma movements)** • **Career:** Volcanologist, Geochemist, Remote Sensing Specialist **Notable Minority Scientist: Rosaly Lopes** – A Brazilian planetary volcanologist specializing in volcanoes on Earth and other planets.