

GREEN TOWNSHIP SCHOOL DISTRICT



Content Area: Science
Course/Grade Level: 6th Grade

Curriculum Committee Members:

Principal:
Jon Paul Bollette

Board Approval Date:
10/21/26



6th Grade

Mission:

All students will develop an understanding of scientific concepts and processes essential for informed decision-making, meaningful participation in civic life, and readiness for postsecondary opportunities, including careers in STEM fields.

Vision:

Prepare students to become scientifically literate individuals who can effectively:

- Apply scientific thinking, skills, and understanding to real-world phenomena and problems;
- Engage in systems thinking and modeling to explain phenomena and to give a context for the ideas to be learned;
- Conduct investigations, solve problems, and engage in discussions;
- Discuss open-ended questions that focus on the strength of the evidence used to generate claims;
- Read and evaluate multiple sources, including science-related magazine and journal articles and web-based resources to gain knowledge about current and past science problems and solutions and develop well-reasoned claims; and
- Communicate ideas through journal articles, reports, posters, and media presentations that explain and argue.



6th Grade

Key Performance and Benchmark Tasks/Assessments

Formative assessments:

- Used to gauge student understanding and progress throughout the unit.
- Not necessarily graded
- Provide feedback for students to use to reflect, revise and refine their work.

Summative Assessments:

- Final projects or assessments to determine what students have learned over the course of the project or unit.

Benchmark Assessments:

- Teacher-created benchmark assessments to be given periodically during the year.

Alternative Assessments:

- Teacher modifies assignments and activities based on student needs.
- Oral assessments administered in place of written when necessary.
- Accommodation and modification ideas may be found here:
 - [Modifications & Accommodations Menu](#)
 - *Assessments other than paper & pencil tests See link for more info:*
http://education.qmu.edu/assets/docs/forms/mirs/assessment_brochure.pdf

Integrated Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ***ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students.***

The attached worksheets can be printed ahead of each unit during the planning phase to help the teacher plan for the needs of particular students in each class, allowing for differentiation per unit and per year. The worksheets contain suggested accommodations and modifications for Content & Material, Student



6th Grade

Organization, Instructional Strategies, Assessments, Attention/Focus, Written Language, and Social/Behavioral.

[Modifications & Accommodations Menu](#)



6th Grade

Unit 1

Ecology: Matter and Energy and the Environment	Pacing: 3 weeks
Unit Summary: Students investigate how living and nonliving components interact within ecosystems and examine how matter is continuously recycled through the water, carbon, nitrogen, and oxygen cycles. They explore the roles of decomposers and ecological niches to understand how organisms contribute to the balance, sustainability, and interconnectedness of Earth's ecosystems.	
Essential Questions: • How do biotic and abiotic factors work together to maintain healthy ecosystems? • Why is the cycling of matter essential for life on Earth? • How do organisms, including decomposers, influence the flow of matter and energy within and between ecosystems?	Enduring Understandings: • Ecosystems are dynamic systems in which living (biotic) and nonliving (abiotic) factors interact to support life. • Matter is continuously recycled through Earth's systems by biogeochemical cycles, with organisms playing essential roles in moving and transforming matter. • Organisms occupy ecological niches that may span multiple ecosystems, and each species contributes to the balance and sustainability of its environment.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. • MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems • MS-LS2-3. Develop a model to describe the cycling of	• describe the role of biotic and abiotic factors in an ecosystem. • diagram and explain the water, nitrogen, carbon, and oxygen cycles. • explain how an organism can have a niche in multiple ecosystems. • identify the role of decomposers in the cycling of matter.	• Developing and Using Models • Constructing Explanations and Designing Solutions • Obtaining, Evaluating, and Communicating Information • Analyzing and Interpreting Data



6th Grade

matter and flow of energy among living and nonliving parts of an ecosystem

- Planning and Carrying Out Investigations
- Engaging in Argument from Evidence

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
- 9.4.8.TL.3 – Select appropriate tools to organize and present information.
- 9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
- 9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 1: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes

Summative Assessments:



6th Grade

- Teacher-created quizzes
- Teacher-created unit assessments
- Labs

Alternative Assessments:

Unit 1: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)



6th Grade

Unit 2

Ecology: Interactions of Organisms in an Ecosystem	Pacing: 4 weeks
Unit Summary: Students investigate how energy moves through ecosystems by examining trophic levels, food chains, and food webs while exploring the interactions among organisms. They analyze how competition, predator-prey relationships, symbiosis, and natural selection influence population size and the stability of ecosystems.	
Essential Questions: - How does energy move through an ecosystem, and why are trophic levels important? - How do interactions among organisms affect the size and health of populations? - How does natural selection influence the survival and growth of populations?	Enduring Understandings: - Energy flows through ecosystems as organisms occupy different trophic levels, while interactions among species influence the stability of populations. - Population sizes change over time due to competition, predator-prey relationships, symbiosis, and natural selection. - The survival of organisms depends on their interactions and adaptations, which shape ecosystems and drive changes in populations over time.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
- MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. - MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems - MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	- describe and give examples for the various trophic levels of the energy pyramid. - interpret and draw conclusions regarding how competition affects population size. - distinguish between predator-prey and symbiotic relationships among organisms. - interpret and draw conclusions from predator-prey graphs. - describe how natural selection affects the size of a population.	- Analyzing and Interpreting Data - Constructing Explanations and Designing Solutions - Developing and Using Models - Engaging in Argument from Evidence - Obtaining, Evaluating, and Communicating Information - Planning and Carrying Out



6th Grade

- MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
- MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.
- MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
- MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
- MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Investigations

Interdisciplinary Connections



6th Grade

2020 Career Readiness, Life Literacies, and Key Skills

9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.

9.4.8.TL.3 – Select appropriate tools to organize and present information.

9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.

9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 2: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes

Summative Assessments:

- Teacher-created quizzes
- Teacher-created unit assessments
- Labs

Alternative Assessments:



6th Grade

Unit 2: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)



6th Grade

Unit 3

Ecology: Ecosystems and Biomes	Pacing: 4 weeks
Unit Summary: Students examine how climate, temperature, and precipitation shape terrestrial and aquatic biomes and influence the organisms that live within them. They investigate limiting factors, population movement, ecological succession, and eutrophication to understand how natural processes and human activities contribute to changes in ecosystems over time.	
Essential Questions: • How do temperature and rainfall determine the characteristics of Earth's biomes? • How do limiting factors and environmental conditions affect the distribution and movement of populations? • How do ecological succession and human activities change ecosystems over time?	Enduring Understandings: • Climate determines the characteristics of Earth's biomes, influencing the organisms that can survive in different environments. • Biomes are dynamic ecosystems where limiting factors, population movement, and environmental changes shape biodiversity over time. • Natural processes and human activities can alter ecosystems through succession and environmental changes such as eutrophication.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms • MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. • MS-LS2-2. Construct an explanation that predicts	• describe climate in terms of rainfall and temperature. • identify temperature dependent land biomes and their characteristics. • identify moisture dependent land biomes and their characteristics. • identify the limiting factors that affect populations in various biomes. • describe population movement between biomes. • identify various saltwater and freshwater biomes	• Developing and Using Models • Constructing Explanations and Designing Solutions • Obtaining, Evaluating, and Communicating Information • Analyzing and Interpreting



6th Grade

patterns of interactions among organisms across multiple ecosystems - MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. - MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services. - MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.	and their characteristics. - describe the process of ecological succession. - distinguish between primary and secondary succession. - explain how eutrophication occurs and identify ways to minimize human impact.	Data - Engaging in Argument from Evidence - Planning and Carrying Out Investigations
--	--	--

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.CT.1 – Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to solve a problem.
- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
- 9.4.8.TL.3 – Select appropriate tools to organize and present information.
- 9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
- 9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos



6th Grade

- Glencoe ConnectEd online resources

Unit 3: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes

Summative Assessments:

- Teacher-created quizzes
- Teacher-created unit assessments
- Labs

Alternative Assessments:

Unit 3: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)

Unit 4

Waves and Their Applications

Pacing: 3 weeks



6th Grade

Unit Summary: In this unit, students investigate the characteristics and behavior of mechanical and electromagnetic waves and explore how waves transfer energy through different media. Students also examine wave interactions, compare analog and digital signals, and connect wave concepts to real-world technologies such as communication systems and medical imaging.

Essential Questions:

- How do different types of waves transfer energy and information?
- How do the properties of waves affect their behavior and interactions?
- How are waves used to communicate in everyday life?

Enduring Understandings:

- Waves transfer energy and information, and their behavior depends on their type and the medium through which they travel.
- The properties of waves determine how they interact with matter and with other waves.
- Modern communication technologies rely on the transmission and processing of wave-based signals.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• MS-PS4-1. Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. • MS-PS4-2. Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. • MS-PS4-3. Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.	• distinguish between mechanical and electromagnetic (EM) waves. • distinguish between transverse and longitudinal waves. • describe a wave in terms of amplitude, wavelength, and frequency. • explain how wave speed is affected by the medium through which it travels. • compare and contrast the absorption, transmission, reflection, refraction, and diffraction of waves in various mediums. • identify the various types of wave interference. • distinguish between digital and analog signals.	• Developing and Using Models • Constructing Explanations and Designing Solutions • Analyzing and Interpreting Data • Obtaining, Evaluating, and Communicating Information • Planning and Carrying Out Investigations • Using Mathematics and Computational Thinking • Engaging in Argument from Evidence



6th Grade

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
9.4.8.TL.3 – Select appropriate tools to organize and present information.
9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 4: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes

Summative Assessments:

- Teacher-created quizzes
- Teacher-created unit assessments
- Labs

Alternative Assessments:



6th Grade

Unit 4: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)

Unit 5

Electrical Energy	Pacing: 5 weeks
Unit Summary: In this unit, students investigate the structure of atoms and explore how the movement of electrons produces electricity. Students build and analyze electrical circuits, apply Ohm's Law, compare different types of current and circuits, and examine the importance of electrical safety in everyday life.	
Essential Questions: - How do electric charges create and transfer electrical energy? - How do the components and design of a circuit affect its performance? - How can an understanding of electricity help us use electrical systems safely and efficiently?	Enduring Understandings: - Electricity is the movement of electric charges, and its behavior is governed by predictable physical principles. - Electric circuits transfer electrical energy, and their design affects how electricity flows and powers devices. - Understanding electricity promotes the safe and effective use of electrical systems in everyday life.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic	- identify parts of an atom and their charges. - describe electricity in terms of the movement of electrons.	Planning and Carrying Out Investigations



6th Grade

forces. - MS-PS2-5. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. - MS-PS3-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.	- make distinctions between static and current electricity. - describe the interaction of electric forces as a result of distance and strength of charge. - create charge by using friction, conduction, and induction. - describe how lightning forms. - build a simple circuit and identify its parts. - measure and identify voltage, current, and resistance in a circuit. - Use Ohm's Law. - compare direct and alternating current. - build and compare the effectiveness and use of series and parallel circuits. - describe electrical safety devices.	- Developing and Using Models - Using Mathematics and Computational Thinking - Analyzing and Interpreting Data - Constructing Explanations and Designing Solutions - Obtaining, Evaluating, and Communicating Information - Engaging in Argument from Evidence
---	---	---

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

9.4.8.CT.2 – Develop criteria and constraints for a solution to a problem.

9.4.8.TL.3 – Select appropriate tools to organize and present information.

9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.

9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources



6th Grade

Unit 5: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes

Summative Assessments:

- Teacher-created quizzes
- Teacher-created unit assessments
- Labs

Alternative Assessments:

Unit 5: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)

Unit 6

Magnetic Forces

Pacing: 5 weeks

Unit Summary: In this unit, students explore the relationship between electricity and magnetism by investigating magnetic fields, electromagnets, electric motors, and electromagnetic induction. Students also examine how electricity is generated, transmitted, and transformed, while evaluating renewable and nonrenewable energy resources and the technologies that power modern society.



6th Grade

Essential Questions:

- How are electricity and magnetism related?
- How do electromagnetic devices transform energy to perform useful work?
- How do different methods of producing and delivering electricity impact society and the environment?

Enduring Understandings:

- Magnetism and electricity are closely connected and together form the basis of many modern technologies.
- Energy can be transformed from one form to another through electromagnetic processes to power homes, industries, and devices.
- Understanding electromagnetic systems and energy resources helps people make informed decisions about energy production, efficiency, and sustainability.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. • MS-PS2-5. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact • MS-PS3-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.	• describe a magnetic field in terms of a non-contact force. • define a magnet in terms of its poles and domains. • determine the properties of magnetic materials. • demonstrate the interactions from two or more different magnetic fields. • describe Earth's magnetic field (magnetosphere) and its importance. • identify the relationship between magnetism and electricity. • create and use an electromagnet. • create and use an electric motor. • identify and describe the energy transformations that occur in electromagnets and motors. • describe and demonstrate how current electricity is created from electromagnetic induction. • trace the energy transformations that occur in a power plant. • categorize renewable and nonrenewable energy resources. • trace and describe the use of voltage	• Developing and Using Models • Planning and Carrying Out Investigations • Constructing Explanations and Designing Solutions • Using Mathematics and Computational Thinking • Analyzing and Interpreting Data • Obtaining, Evaluating, and Communicating Information • Engaging in Argument from Evidence



6th Grade

transformers.

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.CT.1 – Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to solve a problem.
- 9.4.8.CT.2 – Develop criteria and constraints for a solution to a problem.
- 9.4.8.TL.3 – Select appropriate tools to organize and present information.
- 9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
- 9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 6: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes

Summative Assessments:

- Teacher-created quizzes
- Teacher-created unit assessments
- Labs



6th Grade

Alternative Assessments:

Unit 6: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)

Unit 7

Geology- Plate Tectonics

Pacing: 3 weeks

Unit Summary: In this unit, students investigate the evidence supporting continental drift and plate tectonic theory while exploring Earth's internal structure and the processes that shape its surface. Students examine the rock cycle, weathering, seafloor spreading, and plate boundary interactions to understand how Earth's landscapes have formed and continue to change over geologic time.

Essential Questions:

- What evidence shows that Earth's surface has changed over time?
- How does plate tectonics shape Earth's landforms and geological activity?
- How do Earth's internal and external processes continuously change the planet?

Enduring Understandings:

- Earth is a dynamic planet whose surface is constantly changing because of internal and external geological processes.
- The movement of tectonic plates shapes Earth's landforms and causes many geological events.
- Earth's materials are continuously recycled through processes that change rocks and reshape the planet over time.

New Jersey Student Learning Standards

Student Learning Objectives

Practices



6th Grade

- | | | |
|---|---|---|
| <ul style="list-style-type: none"> • MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process • MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales • MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. • 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-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 | <ul style="list-style-type: none"> • describe the theory of Continental Drift and supporting evidence. • identify evidence for and explain the process of seafloor spreading. • diagram and describe the layers of the Earth. • identify and describe the geological processes involved in plate tectonics. • describe the rock cycle. • describe how weathering and the passage of time affect geological formations i.e. the abyssal plain, mountains) • describe the interactions of forces along plate boundaries. • name and explain the resultant landforms along plate boundaries. | <ul style="list-style-type: none"> • Developing and Using Models • Constructing Explanations and Designing Solutions • Analyzing and Interpreting Data • Planning and Carrying Out Investigations • Obtaining, Evaluating, and Communicating Information • Engaging in Argument from Evidence |
|---|---|---|

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
- 9.4.8.TL.3 – Select appropriate tools to organize and present information.
- 9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
- 9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos



6th Grade

- Glencoe ConnectEd online resources

Unit 7: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes

Summative Assessments:

- Teacher-created quizzes
- Teacher-created unit assessments
- Labs

Alternative Assessments:

Unit 7: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)

Unit 8

Geology- Earth Dynamics

Pacing: 3 weeks



6th Grade

Unit Summary: In this unit, students investigate how tectonic stresses, faulting, and vertical crustal movement continually reshape Earth's surface. Students explore the roles of weathering, erosion, hot spots, and plate interactions in creating and modifying landforms while developing models to explain Earth's dynamic geological processes.

Essential Questions:

- How do forces within Earth shape and reshape the planet's surface?
- How do tectonic stresses create faults, landforms, and geological hazards?
- How do internal and external processes work together to change Earth's landscapes over time?

Enduring Understandings:

- Earth's surface is continuously shaped by tectonic forces and surface processes that operate over varying lengths of time.
- The movement and interaction of Earth's crust create predictable geological features and natural hazards.
- Understanding geological processes helps explain Earth's changing landscapes and supports informed decisions about natural hazards and resource management.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process • MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales • MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. • 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	• model and identify the stresses and resultant faults associated with the interaction of forces at plate boundaries. • distinguish between the effects of subsidence and uplift. • identify the various landforms resulting from specific stresses and faults. • identify the effects of weathering and erosion on landforms. • describe the causes and effects of hot spots on Earth's crust.	• Developing and Using Models • Constructing Explanations and Designing Solutions • Planning and Carrying Out Investigations • Analyzing and Interpreting Data • Obtaining, Evaluating, and Communicating Information • Engaging in Argument from Evidence

Interdisciplinary Connections



6th Grade

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
- 9.4.8.TL.3 – Select appropriate tools to organize and present information.
- 9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
- 9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 8: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes

Summative Assessments:

- Teacher-created quizzes
- Teacher-created unit assessments
- Labs

Alternative Assessments:



6th Grade

Unit 8: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)

Unit 9

Earthquakes and Volcanoes

Pacing: 4 weeks

Unit Summary: In this unit, students investigate the causes and characteristics of earthquakes and volcanoes while exploring the technologies scientists use to monitor and measure these geologic events. Students apply engineering design principles to develop earthquake-resistant structures and evaluate the impacts of geologic hazards on both Earth's systems and human societies.

Essential Questions:

- What causes earthquakes and volcanic eruptions, and where are they most likely to occur?
- How do scientists measure, locate, and study geologic hazards?
- How can engineering and technology reduce the risks associated with earthquakes and volcanoes?

Enduring Understandings:

- Earthquakes and volcanoes are natural processes driven by Earth's internal energy and the movement of tectonic plates.
- Scientists use evidence, models, and technology to study, predict, and reduce the impacts of geologic hazards.
- Engineering and scientific innovation can help communities prepare for and minimize the effects of earthquakes and volcanic eruptions.

New Jersey Student Learning Standards

- 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.

Student Learning Objectives

- identify and describe the types of seismic waves associated with earthquakes.
- differentiate between the focus and epicenter of an earthquake.
- identify where earthquakes and volcanoes are

Practices

- Developing and Using Models
- Planning and Carrying Out Investigations



6th Grade

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> • 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-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. • MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. • MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. • MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. | <p>most likely to occur (Ring of Fire)</p> <ul style="list-style-type: none"> • identify and describe the function of instruments used to measure earthquakes. • demonstrate the process of triangulation to locate the epicenter of an earthquake. • use the Richter scale to compare the energy magnitude of various earthquakes. • discuss how earthquakes impact human activity.. • describe construction techniques used to minimize earthquake damage. • design, test, and modify an earthquake-resistant building that meets predetermined criteria. • identify and describe the three main types of volcanoes. • describe the parts of a volcano. • describe how the energy and composition of matter affect the type of volcanic eruption. • identify the role of volcanoes in the rock cycle. • explain the geological and human impact from a volcanic eruption. | <ul style="list-style-type: none"> • Constructing Explanations and Designing Solutions • Analyzing and Interpreting Data • Using Mathematics and Computational Thinking • Obtaining, Evaluating, and Communicating Information • Engaging in Argument from Evidence |
|---|--|--|



6th Grade

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.CT.1 – Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to solve a problem.
- 9.4.8.CT.2 – Develop criteria and constraints for a solution to a problem.
- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
- 9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
- 9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 9: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes

Summative Assessments:

- Teacher-created quizzes
- Teacher-created unit assessments
- Labs

Alternative Assessments:



6th Grade

Unit 9: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)