Unit 1: Earth’s Systems

Content Area: **Science**
Course(s):
Time Period: **Full Year**
Length: **Full Year**
Status: **Published**

Unit Overview

In this unit of study, students use information and models to identify and represent the shapes and kinds of land and bodies of water in an area and where water is found on Earth. The crosscutting concept of patterns is called out as an organizing concept for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in developing and using models and obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas. Students apply their understanding of the idea that wind and water can change the shape of land to compare design solutions to slow or prevent such change. The crosscutting concepts of stability and change; structure and function; and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in asking questions and defining problems, developing and using models, and constructing explanations and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Enduring Understandings

Changes of the plant Earth can happen very slowly, and very quickly.
Wind and water change the shape of the land.
Maps show where items are located.
Water is found in the ocean, rivers, lakes, and ponds. Water exists in solid ice and liquid form.

Essential Questions

How does the Earth's changes occur?
What changes the shape of the land?
What shows where things are located?
What are the forms of water and where is it found?

Learning Objectives

Use evidence to explain that some changes to Earth happen slowly.
Find solutions to prevent wind from changing the land.
Understand how technology has impacted the natural world.
Explain how scientists study the natural and material world.
Understand the design process.
Career Exploration - Explore careers related to farming and geoengineering.

Climate Change - Explain why and how climate change happens, the impact it has on our local and global communities, and how to act in informed and sustainable ways

Standards: Content

2-ESS1-1	Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
2-ESS2-1	Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
2-ESS2-2	Develop a model to represent the shapes and kinds of land and bodies of water in an area.
2-ESS2-3	Obtain information to identify where water is found on Earth and that it can be solid or liquid.

Standards: Interdisciplinary

RI.CR.2.1	Ask and answer questions to demonstrate understanding of key details in an informational text, referring explicitly to the text as the basis for the answers.
RI.CI.2.2	Recount a text in oral and written form and determine main topic (in multi-paragraph informational text, focusing on specific paragraphs).
RI.IT.2.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in a sequence within a text.
RI.TS.2.4	Describe the overall structure of a text and effectively use various text features (e.g., graphs, charts, images, captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information.
RI.PP.2.5	Identify the main purpose of a text, including what the author seeks to explore, answer, explain, or describe.
RI.MF.2.6	Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
RI.AA.2.7	Describe and identify the logical connections of how reasons support specific points the author makes in a text.
W.IW.2.2.A	Introduce a topic clearly.
W.IW.2.2.B	Develop a topic with facts definitions, concrete details, text evidence, or other information and examples related to the topic.
W.IW.2.2.C	Provide a conclusion.
W.WP.2.4.A	Identify audience and purpose before writing.
W.WP.2.4.B	Participate in self-evaluation of written work.
W.WP.2.4.C	With feedback and digital or print tools such as a primary dictionary, find and correct errors.
W.WR.2.5	Generate questions about a topic and locate related information from a reference source to obtain information on that topic through shared and independent research.
W.SE.2.6	Prioritize information provided by different sources on the same topic while gathering ideas and planning to write about a topic.
SL.II.2.2	Recount or describe key ideas or details from a text read aloud or information presented

	orally or through other media.
SL.ES.2.3	Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
SL.PI.2.4	Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
SL.UM.2.5	Use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
SL.AS.2.6	Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

Assessment Evidence

Formative	Teacher observations, Class discussions, Lab Activities, Key concepts and vocabulary quizzes, Science Starter's/Do Nows, Open Ended Responses, Modeling, Simulations, Innovators Monthly Research, Lab Activities, Vocabulary Responses, Exit Questions, Interactive Digital Assessments embedded in Exploring Science Digital Book
Summative	In correlation with the NGSS, students must demonstrate the following as summative assessments: 2-ESS1-1., Use information from several sources to provide evidence that Earth events can occur quickly or slowly. 2-ESS2-1., Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. [2-ESS2-2., Develop a model to represent the shapes and kinds of land and bodies of water in an area. Other summative assessments will include but are not limited to: projects, summative tests, lab skills demonstrations, and vocabulary quizzes.
Alternative & Benchmark	Alternative - Read to the student and chart oral responses. Word banks, sentence frames, oral responses, graphic organizers, observations, portfolios of student work, orally administered assessments, and anecdotal notes. Benchmark – LinkIt Benchmark Assessment, Teacher Generated Assessments
Assessment Evidence Resource	

Instructional Resources

Smartboard, Computers, Websites and digital interactives/models, Multi-media presentations, Video Streaming, Brain Pop, Middle School Science, Generation Genius Digital Curriculum, Digital Curriculum, Amplify Digital Curriculum, Microsoft 365, Primary and Secondary Source Documents, Assorted lab materials, Extension Activity: Bodies of Water Demo & Venn Diagram Activity, Crayons, Scissors, Markers, Paper, Graph Paper, Rulers, Tape, Construction Paper. Second Grade Science Labs,

Instructional Resource List

Curricular Mandates

Below are the curricular requirements as defined in NJ Administrative Code and Statute

	Amistad		Diversity, Equity, and Inclusion
	Holocaust		LGBT and Disabilities (Grades 6-12)
X	Climate Change		Asian American & Pacific Islander

Social Emotional Learning (SEL) Competencies

NJ Social and Emotional Learning Competencies & Sub-Competencies

	Self-Awareness	X	Relationship Skills
X	Responsible Decision-Making	X	Social Awareness
	Self-Management		

21st Century Skills & Themes

X	Global and Cultural Awareness		Technology Literacy		Planning and Budgeting
X	Creativity and Innovation		Financial Institutions		Risk Management and Insurance
	Information and Media Literacy		Digital Citizenship		Economic and Government Influences
X	Critical Thinking and Problem Solving		Credit Profile	X	Career Awareness and Planning
	Civic Financial Responsibility		Financial Psychology		