Unit 3 - Earth's Systems

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

Unit Overview

The Earth is made up of different systems called spheres. These spheres interact to help to make the Earth whole. The interactions are constantly changing the Earth's surface. Through the development of a model using an example, students are able to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

Enduring Understandings

The geosphere, hydrosphere, atmosphere, and biosphere all interact to keep the Earth whole.
The ocean supports a variety of organisms and helps to shape the land.
Weather happens because of the interactions between systems, most specifically within the ocean.

Essential Questions

What are the systems of the Earth?
How do they interact?
Why is the ocean important to the Earth?
How do weather patterns form?

Learning Objectives

Identify Earth's major systems.
Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.
Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
Recognize that these systems interact and affect Earth's materials and processes.
Describe the geosphere, one of Earth's major systems.
Explain how the geosphere interacts with other Earth systems to affect Earth's surface materials and processes.
Describe the hydrosphere, one of Earth's major systems.
Explain how the hydrosphere interacts with other systems to affect Earth's surface materials and processes.
Describe the atmosphere, one of Earth's major systems.
Explain how the atmosphere interacts with other systems to affect Earth's surface materials and processes.

Describe the biosphere, one of Earth's major systems.
Explain how the biosphere interacts with other Earth systems to affect Earth's surface materials and processes.
Describe how interactions of Earth's systems result in weather patterns known as monsoons.
Model the interactions of Earth's major systems.
Describe how the geosphere, atmosphere, hydrosphere, and biosphere interact.
Describe the variety of ecosystems and organisms in the ocean.
Describe how the ocean shapes the land.
Explain the processes of erosion and deposition.
Describe how the ocean influences climate.
Explain the difference between weather and climate.
Describe how winds and clouds in the atmosphere interact with landforms to determine patterns of weather.
Explain how processes in Earth's atmosphere interact with and change the shape of landforms.
Work with a group to develop a model that describes an interaction between two of Earth's systems, or spheres.
Explain the interactions demonstrated in their model.
What Climate Change is and ways that the geosphere, biosphere, hydrosphere, and/or atmosphere interact. (Geosphere (i.e solid and molten rock, soil, sediment, continents, mountains). Hydrosphere (i.e. water and ice in the form of rivers, lakes, glaciers). Atmosphere (i.e, wind, oxygen). Biosphere (i.e. plants, animals [including humans]).
Explore careers related to environmental science.

Standards: Content

SCI.5-PS2-1	Support an argument that the gravitational force exerted by Earth on objects is directed down.
SCI.5-ESS1-1	Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.
SCI.5-ESS1-2	Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

Standards: Interdisciplinary

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	Projects, Tests, Quizzes, lab skills demonstrations, projects, and vocabulary quizzes.
Alternative &	Alternative - Read to the student and chart oral responses. Word banks, sentence frames,

Benchmark	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, Mystery Science Digital Curriculum, Amplify Digital Curriculum, Microsoft 365, Primary and Secondary Source Documents, tape, ruler, scissors, colored pencils, crayons, markers, construction paper, graph paper, Assorted lab materials. 5th Grade Science Course,

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

21st Century Skills & Themes

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