

Unit 5: Earth Systems

Content Area: **Science**
Course(s):
Time Period: **Generic Time Period**
Length: **4 weeks**
Status: **Published**

Disciplinary Core Ideas

ESS2.A: Earth Materials and Systems [?](#)

Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1)

ESS3.C: Human Impacts on Earth Systems [?](#)

Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)

Standards

LA.5.W.5.8	Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
LA.5.W.5.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
MA.K-12.2	Reason abstractly and quantitatively.
SCI.5-ESS2-1	Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
MA.K-12.4	Model with mathematics.
LA.5.RI.5.7	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

LA.5.RI.5.9	Integrate and reflect on (e.g. practical knowledge, historical/cultural context, and background knowledge) information from several texts on the same topic in order to write or speak about the subject knowledgeably.
CAEP.9.2.8.B.3	Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.
TECH.8.1.5.F.CS2	Plan and manage activities to develop a solution or complete a project.
MA.5.5.G.A.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
LA.5.RI.5.1	Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.5.SL.5.5	Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
SCI.5-ESS3-1	Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
TECH.8.1.5.E.CS2	Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
CAEP.9.2.8.B.1	Research careers within the 16 Career Clusters [®] and determine attributes of career success.

Objectives and Essential Questions

Student Learning Objectives

- A) Develop a model using an example to describe the ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
- B) Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.

Essential Questions

In what ways do the geosphere, biosphere, hydrosphere, and/or atmosphere interact?

How do individual communities use science ideas to protect Earth's resources and environment?

Concepts

Part A

- A system can be described in terms of its components and their interactions.
- Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans).
- The Earth's major systems interact in multiple ways to affect Earth's surface materials and processes. • The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate.
- Winds and clouds in the atmosphere interact with landforms to determine patterns of weather.

Part B

- A system can be described in terms of its components and their interactions.
- Science findings are limited to questions that can be answered with empirical evidence.
- Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space.
- Individuals and communities are doing things to help protect Earth's resources and environments.

Activities and Lessons

Mystery Science - Watery Planet - Mystery 3 Exploration, Activities and Optional Extras

Mystery 3) Can we make it rain?

(5-ESS2-1)

5th Grade NGSS Science Notebook

Earth's Four Systems

Earth's Interactions: Deserts

(5-ESS3-1)

5th Grade NGSS Science Notebook

Human Impact on the Environment

Alternative Energy Resources

Agricultural Runoff Fact Sheet

Agricultural Runoff Model

McGraw Hill Science

Vanishing Bald Eagles (pg. B13) - Line graphs

Materials and Resources

www.mysteryscience.com

Mystery Science - Watery Planet Mystery 3

5th Grade NGSS Science Notebook

The Boy Who Harnessed the Wind Young Readers Edition by William Kamkamba

Energy Island by Allan Drummond

NEWSELA Text Set: Protect Your Planet

NEWSELA Text Set: Expeditionary Learning: Sustainability

McGraw Hill Science

Youtube, Brainpop Videos

NJ Model Curriculum Open Education Resources: NOAA What-a-Cycle -
<http://ngss.nsta.org/Resource.aspx?ResourceID=13>

Shower Curtain Watershed - <http://ngss.nsta.org/Resource.aspx?ResourceID=64>

Assessment

Part A

Students who understand the concepts are able to:

- Describe a system in terms of its components and interactions.
- Develop a model using an example to describe a scientific principle.
- Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. (The geosphere, hydrosphere, atmosphere, and biosphere are each a system. Assessment is limited to the interactions of two systems at a time.)

- Examples could include:

The influence of oceans on ecosystems, landform shape, and climate.

The influence of the atmosphere on landforms and ecosystems through weather and climate. □

The influence of mountain ranges on the wind and clouds in the atmosphere.

Part B

Students who understand the concepts are able to:

- Describe a system in terms of its components and interactions.
- Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.
- Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment

Assessment Options

-Mystery Science Assessment - Wateyr Planet Assessments Tab

Mystery 3, Summative Assessment

-NGSS 5th Grade Science Notebook

Accommodations and Modifications

Group lab/experiment groups

Additional time for classwork

Additional time for assessments

Tests in small group

Use of videos and visual models

Preferential seating

Notes/outlines provided

