

Unit 4: Earth's Place in the Universe

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

Disciplinary Core Ideas

ESS1.C: The History of Planet Earth

- Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. (2-ESS1-1)

Standards

Science —

2-ESS1-1 Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

ELA/Literacy —

RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-ESS1-1)

RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-ESS1-1)

W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (2-ESS1-1)

W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-ESS1-1)

W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-ESS1-1)

SL.2.2 Recount or describe key ideas or details from a text read aloud or information presented orally or through other media. (2-ESS1-1)

Mathematics —

MP.2 Reason abstractly and quantitatively. (2-ESS1-1)

MP.4 Model with mathematics. (2-ESS1-1)

2.NBT.A Understand place value. (2-ESS1-1)

Essential Questions

In what ways do humans slow or prevent wind or water from changing the shape of the land?

Guiding Questions:

What evidence can we find to prove that Earth events can occur quickly or slowly?

In what ways do humans slow or prevent wind or water from changing the shape of the land?

Learning Objectives

Changes to Earth's Land 2-ESS1-1

SWBAT Use information from several sources to provide evidence that Earth events can occur quickly or slowly. (2-ESS1-1)

SWBAT Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. (2-ESS2-1)

SWBAT Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1)

SWBAT Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. . (K-2-ETS1-2)

Concepts taught:

1. Some events happen very quickly; others occur very slowly over a time period much longer than one can observe.
2. Things may change slowly or rapidly.

3. Developing and using technology has impacts on the natural world.
4. Scientists study the natural and material world.
5. The shape and stability of structures of natural and designed objects are related to their function(s).
6. Wind and water can change the shape of the land.
7. Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
8. A situation that people want to change or create can be approached as a problem to be solved through engineering.
9. Asking questions, making observations, and gathering information are helpful in thinking about problems.
10. Before beginning to design a solution, it is important to clearly understand the problem.
11. Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.

Students who will understand will be able to...

Students who understand concepts #1-2:

- Make observations from several sources to construct an evidence-based account for natural phenomena.
- Use information from several sources to provide evidence that Earth events can occur quickly or slowly. (Assessment does not include quantitative measurements of timescales.)

Some examples of these events include:

*Volcanic explosions

*Earthquakes

*Erosion of rocks

Students who understand concepts #3-11:

- Compare multiple solutions to a problem.
- Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
Examples of solutions could include:
 - *Different designs of dikes and windbreaks to hold back wind and water
 - * Different designs for using shrubs, grass, and trees to hold back the land.
- Ask questions based on observations to find more information about the natural and/or designed world.
- Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- Define a simple problem that can be solved through the development of a new or improved object or tool.
- Develop a simple model based on evidence to represent a proposed object or tool.
- Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Activities

Mystery Science

-Works of Water Unit:

-Mystery 2: Why is there sand at the beach?

-Mystery 3: What's strong enough to make a canyon?

McGraw Hill Explore Activities

-How can you change rocks? (Chapter 5, Lesson 2)

-How can Earth's surface change? (Chapter 5, Lesson 3)

Materials & Resources

Science Textbook - McGraw Hill 2002

* Chapter 5, Lessons 2-3

www.mysteryscience.com

Brainpopjr.com

-Slow Land Changes video

-Fast Land Changes video

Assessments

Create a poster to demonstrate understanding of fast/slow Earth changes

Class discussion

Venn Diagrams

Vocabulary games

End of unit written test

Create a plan to limit erosion in our community

Mystery Science Assessments

Accommodations and Modifications

-Use of scribe

-Partnered with classmate

-Use of scribe

- Adaptive computer to type assignments
- Adjustable tables and lab equipment within reach
- Flexible seating
- Additional time and/or small-group for testing
- Additional time and/or small-group for assignments
- Captioned videos
- Visual and tactile instructional demonstrations
- Computer with voice output, spelling and grammar checker
- Preferential seating
- Tactile drawings and graphs, and three-dimensional models
- Directions repeated/clarified. Check for understanding.