

Unit: Earth's Surface

Content Area: **Science**
Course(s): **Science - Grade 2**
Time Period: **1 marking period**
Length: **Weeks**
Status: **Published**

Unit Overview

- Working in pairs, students make a model of Earth's land and water areas and use it to answer questions about Earth's surface.
- Students play lotto and identify different kinds of land and water on Earth's surface. Then they make a book of the different forms of land and water.
- Students draw a map of the schoolyard and mark an X on the map to show where they hid a "treasure." Then they use a map to find a classmate's treasure.
- Students study Earth materials and find out how they move and change shape. They observe slow and fast changes.
- Students see how a new volcano changed the land. They perform act-it-outs to show how nearby villagers experienced the volcano. Then they make books to tell the story.
- Students go on a virtual "trip" to the beach to see changes to the land. They share their experiences with a younger student and explain how wind and water change the land.
- Students design a way to protect a road from a landslide. They compare the strengths and weaknesses of all the models.

Transfer

Students will be able to independently use their learning to...

- Obtain, evaluate, and communicate information
- Develop and use models
- Construct explanations and design solutions

Meaning

Understandings

Students will understand...

- What is on Earth's surface.
- Kinds of land and water are found on Earth.
- How maps show land and water.
- How Earth's surface changes.
- How earthquakes and volcanoes change the land.
- How wind and water change the land.
- How problems caused by wind and water can be solved.

Essential Questions

Students will keep considering...

- What is on Earth's surface?
- What kinds of land and water are found on Earth?
- How do maps show land and water?
- How does Earth's surface change?
- How do earthquakes and volcanoes change the land?
- How do wind and water change the land?
- How can problems caused by wind and water be solved?

Application of Knowledge and Skill

Students will know...

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- What is on Earth's surface.
- Kinds of land and water are found on Earth.
- How maps show land and water.
- How Earth's surface changes.
- How earthquakes and volcanoes change the land.
- How wind and water change the land.
- How problems caused by wind and water can be solved.

Students will be skilled at...

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- Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question.
- Develop a model to represent patterns in the natural world.
- Make observations from several sources to construct an evidence-based account for natural phenomena.
- Compare multiple solutions to a problem.
- Analyze data from tests of an object or tool to determine if it works as intended.

Academic Vocabulary

- globe
- soil
- glacier
- island
- lake
- river
- valley
- compass
- compass rose
- map key
- flood
- landslide
- earthquake
- lava
- seismograph
- volcano
- cliff
- sandbar
- sand dune
- levee
- windbreak

Learning Goal 1 - Lessons 1 & 3

Develop a model to represent the shapes and kinds of land and bodies of water in an area.

- Develop a model to represent the shapes and kinds of land and bodies of water in an area.

LA.RL.2.8

(Not applicable to literature)

SCI.2-ESS2-2

Develop a model to represent the shapes and kinds of land and bodies of water in an area.

Target 1 - Lesson 1 & 3

Maps show where things are located. One can map the shapes and kinds of land and water in any area.

- Maps show where things are located. One can map the shapes and kinds of land and water in any area.

Target 2 - Lesson 1

Land is composed of different materials including soil, rocks, and sand

- Land is composed of different materials including soil, rocks, and sand

Learning Goal 2 - Lessons 1 & 2

Obtain information to identify where water is found on Earth and that it can be solid or liquid.

- Obtain information to identify where water is found on Earth and that it can be solid or liquid.

LA.W.2.8

Recall information from experiences or gather information from provided sources to answer a question.

SCI.2-ESS2-3

Obtain information to identify where water is found on Earth and that it can be solid or liquid.

Target 1 - Lesson 1

Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.

- Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.

Target 2 - Lesson 2

Describe and compare the different types of landforms.

- Describe and compare the different types of landforms.

Target 3 - Lesson 2

Describe and compare the different types of bodies of water.

- Describe and compare the different types of bodies of water.

Learning Goal 3 - Lessons 4,5,6

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

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

SCI.2-ESS1-1

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

Target 1 - Lesson 4

Describe the different ways the earths' surface changes.

- Describe the different ways the earths' surface changes.

Target 2 - Lesson 4

Explain the types of fast and slow changes to the earth's surface.

- Explain the types of fast and slow changes to the earth's surface.

Target 3 - Lesson 5

Describe how volcanos and earthquakes change the surface of the Earth.

- Describe how volcanos and earthquakes change the surface of the Earth.

Target 4 - Lesson 6

Explain how wind and water change the surface of the Earth.

- Explain how wind and water change the surface of the Earth.

Target 5 - Lesson 6

Describe and compare the types of changes caused by wind and water.

- Describe and compare the types of changes caused by wind and water.

Learning Goal 4 - Lesson 7

Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.

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LA.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).

LA.W.2.8 Recall information from experiences or gather information from provided sources to answer a question.

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

Target 1 - Lesson 7

Make inferences about how wind and water can cause problems.

- Make inferences about how wind and water can cause problems.

Target 2 - Lesson 7

Compare the types of solutions that protect land from wind and water.

- Compare the types of solutions that protect land from wind and water.

Target 3 - Lesson 7

Determine the best options for solving problems caused by wind and water.

- Determine the best options for solving problems caused by wind and water.

Learning Goal 5 - Engineering and Design Standards

Analyze data from two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

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SCI.K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Target 1

Compare multiple solutions to a problem.

- Compare multiple solutions to a problem.

Target 2

Analyze data from tests of an object or tool to determine if it works as intended.

- Analyze data from tests of an object or tool to determine if it works as intended.

Formative Assessment and Performance Opportunities

- **Lesson Game**
Students test their understanding of key concepts with an education game.
- **Interactive Tutorial**
Students can work independently to check their understanding in a safe environment that provides instant feedback but is not graded.
- **Interactive Student Notebook**
Students record their understanding of both the reading and activity. Review during the lesson to gauge student understanding.
- **Vocabulary Cards**
Students check their understanding of key vocabulary terms with digital flip cards.
- **Class Participation**
Throughout the lesson, you'll have opportunities embedded in the lesson to check for student understanding.

Summative Assessment

- TCI Assessment: What Is on Earth's Surface? - English
- TCI Assessment: What Kinds of Land and Water Are Found on Earth? - English
- TCI Assessment: How Do Maps Show Land and Water? - English
- TCI Assessment: How Does Earth's Surface Change? - English
- TCI Assessment: How Do Earthquakes and Volcanoes Change the Land? - English
- TCI Assessment: How Do Wind and Water Change the Land? - English
- TCI Assessment: How Can Problems Caused by Wind and Water Be Solved? - English

Accommodations/Modifications

English Learners

- Support the Processing Assignment
- Create an Illustrated Dictionary
- Allow Students to Use Pictures When Giving Directions
- Break Up the Investigation

- Pay Attention to the Group Composition and Role Assignments
- Annotate the Role Cards
- Verify Students Know Their Colors in English
- Support Note Taking During the Virtual Trip to the Beach
- Paraphrase Presentations Before Recording Notes

Students with Special Needs

- Place Students in Mixed Ability Pairs
- Restructure the Game
- Adjust the Mapping and Treasure Hunt
- Ensure Students Understand How the Models Connect to Earth's Surface
- Provide Audio Scripts
- Give Text for the Storybooks
- Cut the "Beach Trip" in Half
- Modify the Process of Sharing the Beach Experience with Younger Students
- Thoughtfully Assign Groups and Roles
- Allow Groups to Test and Revise Their Designs Earlier

Advanced Learners

- Rearrange The Continents
- Add To Your Book
- Write Directions
- Find The Hardest Rock
- Draw Before And After Pictures
- Same Features, Different Location
- Design A Windbreak

Unit Resources

TCI Online Manual/Materials

Vocabulary Cards

TCI Kit

Student Textbook

21st Century Life and Careers

CAEP.9.2.4.A.1	Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.
CAEP.9.2.4.A.2	Identify various life roles and civic and work - related activities in the school, home, and community.
CAEP.9.2.4.A.3	Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.
CAEP.9.2.4.A.4	Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Interdisciplinary Connections

LA.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.
LA.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).
LA.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
LA.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.
LA.RI.2.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
LA.RI.2.9	Compare and contrast the most important points presented by two texts on the same topic.
LA.SL.2.2	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
MA.2.MD.B.5	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
MA.2.NBT.A	Understand place value.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.