

03 Earth Science

Content Area: **Science**
Course(s):
Time Period: **Full Year**
Length: **1 Trimester**
Status: **Published**

General Overview, Course Description or Course Philosophy

In this unit, students explore how water shapes the Earth's surface. Students construct and use models of mountains to demonstrate that water flows downhill, and in the process, transforms huge rocks into the tiny grains of sand we find at the beach. Students also construct and use model hills to determine the causes of erosion, and to design solutions to problems caused by erosion.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

How do the properties and movements of water shape Earth's surface and affect its systems?

CONTENT AREA STANDARDS

SCI.K-2-ETS1-1	Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.
SCI.K-2-ETS1-2	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.
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.
2-ESS2-2	Develop a model to represent the shapes and kinds of land and bodies of water in an area.
2-ESS1-1	Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
2-ESS2-3	Obtain information to identify where water is found on Earth and that it can be solid or liquid.
2-ESS2-1	Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion)

Standards are Required)

MA.2.NBT.A	Understand place value.
MA.2.NBT.A.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
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.
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.
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.SL.2.5	Use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
TECH.8.1.2.A.CS1	Understand and use technology systems.
TECH.9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
TECH.9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
TECH.9.4.2.CT.1	Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).
TECH.9.4.2.CT.2	Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

STUDENT LEARNING TARGETS

Declarative Knowledge

Students will understand:

- the obligations and responsibilities of being a member of a community and demonstrate this understanding every day through their interactions with others.
- that the impacts of their decisions on others and the environment around them.
- that near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace.
- that they are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
- career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive.
- they make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

- Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods.
- They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas.
- They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

Procedural Knowledge

Students will be able to:

- use information from several sources to provide evidence that Earth events can occur quickly or slowly.
- compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
- develop a model to represent the shapes and kinds of land and bodies of water in an area.
- obtain information to identify where water is found on Earth and that it can be solid or liquid.
- ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
- describe the logical connections of how reasons support specific points the author makes in a text.
- Compare and contrast the most important points presented by two texts on the same topic.
- Use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
- identify the logical connections of how reasons support specific points the author makes in a text.
- write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a conclusion. use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings
- 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)

EVIDENCE OF LEARNING

Formative Assessments

- Whole-Class Conversations
- Turn and Talk Discussions
- Participation
- Lab Experiments
- Science Journal Pages and Drawings

Summative Assessments

Benchmark Assessments

- Multiple Choice Assessment administered at the end of each trimester (T1, T2, T3)

Alternative Assessments

- Oral Presentations
- Questions for Comprehension
- Performance Tasks
- Scientific Journals/Notebooks
- Self-Assessment
- WebQuests

RESOURCES (Instructional, Supplemental, Intervention Materials)

- Brain Pop Jr. "Fast Land Changes" Video
- [Brain Pop Jr-Climate Change](#)
- Mystery Science
- <https://mysteryscience.com/water/erosion-earth-s-surface>

INTERDISCIPLINARY CONNECTIONS

- Google
- Educational Tech Applications
- Engineering Design Challenge-How do we stop a landslide.

- How does climate change impact our landslide design project?

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.