SECOND GRADE: WEATHERING AND EROSION

Standards Bundle

Standards are listed within the bundle. Bundles are created with potential instructional use in mind, based upon the potential for related phenomena that can be used throughout a unit.

2-ESS1-1 Use information from several sources to construct an explanation that Earth events like volcanic explosions, earthquakes, weather, erosion, etc. can occur quickly or slowly. (SEP: 6; DCI: ESS1.C; CCC: Stability/Change) [Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly, and erosion of rocks, which occurs slowly.] [*Assessment Boundary: Assessment does not include quantitative measurements of timescales.]*

2-ESS2-1 Compare multiple solutions to develop a model designed to slow or prevent wind or water from changing the shape of the land. (SEP: 6; DCI: ESS2.A, ETS1.C; CCC: Stability/Change) Alignment may include K-2-ETS1-3 [Clarification Statement: Examples of solutions could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land.)

Content Overview

This section provides a generic overview of the content or disciplinary core ideas as an entry point to the standards.

Land is always changing around us. Sometimes changes occur quickly such as volcanoes and earthquakes which are easy to observe and take place right in front of us. Other changes are very slow, such as the erosion of rocks, but these turn into big changes over time. Wind and water cause many changes in the land, but there are things that can reduce the effects of these changes on the Earth.

Phenomena

Phenomena can be used at varying levels of instruction. One could be used to anchor an entire unit, while another might be more supplemental for anchoring just a unit. Please remember that phenomena should allow students to engage in the SEP and use the CCC/DCI to understand and explain the phenomenon.

- We built a sandcastle in the morning, but throughout the day it changed.
- Show pictures of houses on the coast before, during, and after a landslide.
- Watching rain runoff carry debris down the street.
- Observe waterways or dams.
- The Colorado River carved out the Grand Canyon.

Storyline

This section aims to decode not only the DCI connections but also the SEP and CCC in a detailed account of how they possibly fit together in a progression for

student learning, including both rationale and context for the bundle.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Constructing Explanations and Designing Solutions • Make observations from several sources to construct an evidence-based account for natural phenomena. • Compare multiple solutions to a problem.	**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. **Constructing Explanations and Designing Solutions** • Compare multiple solutions to a problem.	**Stability and Change** • Things may change slowly or rapidly.

The Earth changes every day. Some changes are fast, while others are slow. Students should be able to gather information from several sources to explain why Earth events occur both quickly and slowly. Slow changes are hard for students to understand because they occur continuously around us without us even realizing they are even happening. Students will be able to describe fast and slow changes in our Earth's systems such as hurricanes, landslides, erosion, and weathering. Many different forces in nature can cause changes in the shape of the land.

The movement of wind and water is the main cause of changes to Earth's surface. Students can make observations about the different ways that wind and water shape the Earth's surfaces both quickly and slowly. Working together, students can develop solutions for wind and water erosion by making models, such as retaining walls and snow fences. Students can compare their models to real-life solutions, such as how dams help to control water flow. Students will construct explanations as to by the solutions were effective.

Formative Assessment

Formative assessment is crucial because all learners benefit from timely and focused feedback from others. It promotes self-reflection, self-explanation, and social learning. It can also make learning more relevant. Each of the questions below might be used throughout the formative assessment process. Specific prompts may focus on individual practices, core ideas, or crosscutting concepts, but, together, the components need to support inferences about students' three-dimensional science learning as described in a given bundle, standard, or lesson-level performance expectation.

SEP Constructing Explanations and Designing Solutions

- Design a solution to keep a house from sliding down a hill. (Use classroom or recycled materials to develop a model for the design)
- Explain why it is necessary to control water flow through a dam.

- Observe rain or sprinkler system run-off at your school. Identify problems and explain why they occur. As a class, design a few possible solutions, and then test them.

CCC Stability and Change

- Students will explain how structures are affected differently by the wind. (Sandcastles, statues, buildings, coastlines)

Performance Outcomes

These are statements of how students use knowledge and are similar to the standards in how they blend DCI, SEP, and CCC, but at a smaller grain size. These are potential outcomes for instruction as it plays out in lessons and activities in the classroom. It is important to also think of these as smaller outcomes that build toward the larger goal of mastering the standards.

- **Observe** that wind and water *can change the shape of land.*
- **Gather information and design solutions** to prevent or slow wind and water *from changing the shape of the land.*
- **Gather evidence to help understand** that Earth's changes *happen both slowly and quickly*.
- **Construct an explanation** to explain that changes to the Earth *can happen slowly or quickly.*