**NGSS AND CCSS FROM VIGNETTE**

**K-2-ETS1 Engineering Design**

| 2. Earth's Surface Systems: Processes that shape the Earth |
| 2-PS1 Matter and its Interactions |

Students who demonstrate understanding can:

- **2-ESS2-1.** Compare multiple solutions designed to slow or prevent wind and water from changing the shape of the land.
- **2-ESS2-2.** Develop a model to represent the shapes and kinds of land and bodies of water in an area.
- **2-PS1-1.** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
- **K-2-ETS1-1.** 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.

The performance expectations above were developed using the following elements from the NRC document *A Framework for K–12 Science Education*.

### SCIENCE AND ENGINEERING PRACTICES

#### Developing and Using Models
Modeling in K-2 builds on prior experiences and progresses to include using and developing models that represent concrete objects or design solutions.
- Develop a model to represent patterns in the natural world.

#### Constructing Explanations and designing Solutions
Constructing explanations and designing solutions in K-2 builds on prior experiences and progresses to the use of evidence or ideas in constructing explanations and designing solutions.
- Compare multiple solutions to a problem.

#### Planning and Carrying Out Investigations
Planning and carrying out investigations to answer questions or test solutions to problems in K-2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.
- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.

### DISCIPLINARY CORE IDEAS

#### ESS2.A: Earth Materials and Systems
- Wind and water can change the shape of the land.

#### ESS2.B: Plate Tectonics and Large-Scale System Interactions
- Maps show where things are located. One can map the shapes and kinds of land and water in any area.

#### ETS1.C Optimizing the Design Solution
- Because there is always more than one solution to a problem, it is useful to compare designs, test them, and discuss their strengths and weaknesses.

#### PS1.A: Structure and Properties of Matter
- Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.

### CROSSCUTTING CONCEPTS

#### Patterns
- Patterns in the natural world can be observed.

#### Stability and Change
- Some things stay the same while other things change.

#### Energy and Matter
- Objects may break into smaller pieces and be put together into larger pieces, or change shapes.

#### Structure and Function
- The shape and stability of structures of natural and designed objects are related to their function(s).

### CCSS Connections for ELA and Mathematics

- **SL.2.1** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and large groups.
- **2MD.1** in Measure and estimate lengths in standard units: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.