

Unit 2: The Forces of Wind and Water

WEEK 7 Lesson 4

Science and Engineering: Earth's Systems

Testing Approaches to Slowing and Preventing Erosion:
Barriers, Planting, Walls, Windbreaks, and Terracing

Big Ideas	Wind and water can change the shape of the land. The changing shape of the land impacts people. Changes happen over time.
S & E Guiding Question	What resources can we use to understand changes in the shape of the land?
Content Objectives	I can make a prediction about my group's approach to slowing and preventing erosion. (Practice 3, 2-ESS2-4 (MA)) I can compare my prediction to what I observed in my group's investigation. (Practice 4, 2-ESS2-1)
Language Objective	I can discuss my observations with my group. (SL.1.2)
Vocabulary	approach: a way of doing something force: great strength impact: to have a strong effect on someone or something replicate: to copy, repeat
Materials and Preparation	● Replicating Investigations chart, from Lesson 3 ● investigation trays, from Week 6, Lesson 3 and Week 7, Lesson 3 ● Science and Engineering packets ● writing tools ● collection of materials such as sticks, popsicle sticks, straws, rocks, scraps of wood, container lids, pieces of fabric Prepare a new tray for each group including: ● sand, 1 cup ● soil, 1 cup ● straws, one for each child in the group

	containers for pouring water
Opening 5 minutes	Have children gather in groups according to their choices for replicating investigations. (Refer to the chart created at the end of the previous lesson.) Distribute a prepared aluminum tray to each group. <i>Yesterday you shared your investigations and received some feedback. You also decided which investigation you would like to replicate today.</i> <i>Take a moment with your group to review your investigation plan, thinking about the feedback you received yesterday.</i> Show the Replicating Investigations page. <i>Today you will use a new page to record the results of your investigation. Write the names of all group members, and then write which approach you are testing. [Indicate these spaces on the page.]</i> <i>On the next line, you will record your group's prediction. What do you think will happen?</i> <i>Then, as you have done before, circle the force or forces you want to use in your investigation.</i> <i>After conducting the investigation, draw and write about the impact on the land.</i> Turn to the Reflection page. <i>After conducting your investigation, compare your results with the results that were presented yesterday. Were your results the same or different? Check one box, and then write how your results were the same or different and why you think that is</i> Send the children to the tables with materials, packets, and writing tools.
Investigation 20 minutes	Guide the set up of the investigation as in previous lessons. As the children work, circulate to support them. Remind them to refer to and follow their plans, to discuss their observations, to record their findings, and to discuss and record their reflections.
Discussion 5 minutes	Gather the children back together for a brief discussion about their results and reflections.

Closing	<i>Today you replicated investigations and compared the results of your investigation with previous results. Tomorrow during Text Talk we will look at all of the approaches we have tested and decide which we think will be the most effective for Popham Beach.</i>
Standards and Practices	SL.1.2 Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. 2-ESS2-1. Investigate and compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land.* Clarification Statements: • Solutions to be compared 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. • Solutions can be generated or provided. 2-ESS2-4(MA). Observe how blowing wind and flowing water can move Earth materials from one place to another and change the shape of a landform. Clarification Statement: • Examples of types of landforms can include hills, valleys, riverbanks, and dunes. Practice 3. Planning and carrying out investigations Practice 4. Analyzing and interpreting data
Ongoing assessment	Observe and take notes as the children conduct investigations. What do the children observe? Are their observations accurate? How effective are their investigations? Collect and analyze the Replicating Investigations pages in children's Science and Engineering packets. How do children articulate similarities and differences in results? What do they understand about this comparison? What do the children understand about replicating investigations and getting the same or different results?

Notes
