WEEK 4 Lesson 2

Science and Engineering: Earth's Systems

The Forces of Water on Land

S & E **Big Ideas**	Wind and water can change the shape of the land. Changes happen over time.
S & E **Guiding Question**	What resources can we use to understand changes in the shape of the land?
Content Objective	I can evaluate my investigation about how water erodes land and creates landforms. (Science 2-ESS2-4(MA), Practice 4)
Language Objective	I can communicate my observations about how water erodes land and creates landforms. (SL.3.2.a)
Vocabulary	**deposition**: when particles of soil and rocks settle in a new location **fertile**: able to produce farm crops or other plants **runoff**: water that runs off the surface instead of soaking in the soil **stream table**: a table used to model the way water flows like a stream **topsoil**: the layer of soil in which plants grow
Materials and Preparation	• Science and Engineering packets • Discussion Prompts chart, from previous weeks • stream tables, from Lesson 1 Have stream tables set up and available for children to reference during the discussion. • projector and screen • Runoff slide
Opening 1 minute	*Today you will share your observations from your stream table investigations.*
Discussion 29 minutes	Distribute Science and Engineering packets. *Turn to your notes from your last investigation, with topsoil in the stream tables. Talk with your partner to review your notes. Think about which observations you would like to communicate to the*

	other scientists in the class. Mark these observations by underlining or drawing a star next to them. Allow the children several minutes to reread and mark their notes. During the discussion, direct children to respond to one another using classroom Discussion Prompts. Encourage children to use precise landform vocabulary. As they share their observations, have them show the maps they drew and, as appropriate, refer to the stream tables. Use the following questions to guide the discussion. ● *What happened to the topsoil as the water flowed over it?* ● *What happened at the other end of the stream table?* ● *What landforms were created? [canyon, delta, river bank]* ● *Does this remind you of anything you have seen before?* *Think back to the tray that collected the water from the stream table. Did you notice the water? What color was it? Why do you think it was that color?* *Sometimes there is so much water that the topsoil cannot absorb it all. In these cases, the water that is not absorbed flows over the topsoil and carries particles with it. This water is called **runoff**.* Show the Runoff slide. *During a rainstorm, this farm field in Iowa experienced runoff. As the water flowed over the farm, it picked up topsoil and fertilizer and carried it along. Now the topsoil has been eroded, so the farm is not as fertile.* *We have now done two investigations to model the process of water erosion. We tested the effects of water on sand and on topsoil. Think about what you observed in each investigation, and refer back to your notes. What was the same about each? What was different?* In this discussion, encourage children to cite evidence from their notes and the stream tables to support their responses. *How does this investigation help us understand the effect of water on soil? How do you think this affects animals and humans?* Harvest children's ideas.
Closing	Summarize the understandings that surfaced during the conversation. *At the Discovery Studio this week, you can continue investigating with water and topsoil. Just like last week, you might want to*

	explore how water affects topsoil in a landscape with a slope. Make sure to record your findings in your packets.
Standards and Practices	**SL.3.2.a** Describe people, places, and things, tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences. **Science 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 4**. Analyzing and interpreting data
Ongoing assessment	Reflect on the class discussion. What new vocabulary do children incorporate in their discussion? What do they understand about water erosion? What confusions remain?

Notes