



Topic: Science, erosion

Overview

In this lesson, students will identify erosion, identify different types of agents that cause erosion, and explain the causes of erosion. Students will observe changes in soil through viewing a unitedstreaming video and hands on experiments.

Grades 2-3

Time Allotment

One hour and forty-five minutes over 2 class periods

Learning Objectives

On completion of this lesson, students will be able to:

- Identify erosion
- Explain the causes and results of erosion
- Explain ways to control erosion

This lesson addresses Va. SOL Science 2.7, 2.8, 3.10, 5.7

Media Components

- Videostreaming: [Weathering and Erosion](#). 100% Educational Videos. 2002. 25 October 2005 [wvpt.unitedstreaming.com](http://www.wvpt.unitedstreaming.com). Segment: Erosion (05:54).
- LCD Projector
- Teacher computer station

Materials and Student Handouts

Per group (of 2):

- bag of soil
- 5-6 rocks
- disposable aluminum pan
- container for water
- 2-3 newspapers

Per class:

- potted plant
- bottle of water

Teacher Preparations

- set up teacher demonstration technology (computer, LCD projector)
- download and preview video clip
- collect materials for experiments
- divide students into groups of 2

Introductory Activity

1. **Focus:** Display a potted plant. What right now is holding the soil onto the roots? (the pot). What do you think will happen if I take the plant out of the pot? (the soil will come off and the roots will be exposed). Demonstrate.

Activity: Take the potted plant out of the pot with soil intact. Most of the soil should stick to the roots.

Follow-up: Discuss how the roots of the plant help to hold the soil in place.

2. **Focus:** What do you think would happen if water ran over these roots?

Activity: Hold the plant over an aluminum tray and pour water over the roots.

Follow-up: What did you notice? (Allow responses.) If water kept running over the roots, eventually all of the roots would be exposed. This is called erosion. Today we're going to learn about 2 kinds of erosion.

Learning Activities

1. **Focus:** Today we are going to explore the concept of erosion. We will be watching a video clip that explains erosion and what happens to our land when erosion occurs. As the video is playing, I want you listen for what causes erosion.

Play: Time: 10:06. Visual: You will see the word EROSION above the earth.

Pause: Time: 10:36. Visual: when you see rocks falling

Follow-up: Erosion occurs due to the movement of the Earth's crust being picked up and carried away. How often does this occur? (constantly) What causes erosion? (wind, flowing water, waves, ice, and gravity)

2. **Focus:** We will be focusing on just two of the five agents of erosion. First we will learn more about wind erosion. I want you to listen for how wind causes erosion.

Play: Time: 13:33. Visual: You will see a picture of a funnel shaped cloud above the earth.

Pause: Time: 14:16. Visual: when you see sand dunes

Follow-up: How does wind cause erosion? (when particles of sand are picked up and moved by the wind) Why is this not good for our earth? (the soil gets moved, people could lose their homes)



3. **Focus:** Next we will learn more about water erosion. I want you to listen for how water causes erosion.

Play: Time: 15:00. Visual: You will see a rain drop above the earth.

Pause: Time: 15:47. Visual: when you see crashing waves

Follow-up: How does water cause erosion? (the waves crash into the rocks and break them into smaller pieces) What would happen if you lived near the water? (your home could drop into the ocean or river if the water washed the soil away)

4. **Focus:** Finally we will learn about ways people can help control erosion. I want you to listen to the techniques that are being used to help protect our soil and prevent erosion.

	Erosion: See the Land A-Shrinking Jeannie Lambert Rockingham County Public Schools	
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Play: Time: 16:23. Visual: You will see a hill covered with bushes.

Pause: Time: 16:50. Visual: when you see rocks

Follow-up: What can people do to help control erosion? (build walls and use terracing on hills)

Culminating Activities

1. **Focus:** Have you ever seen the effects of erosion? We're going to go outside to see if we can find any evidence of erosion and the effects it might have on our playground and school property. Remember our first activity with the potted plant? What helped to hold the soil on to the plant? (the roots) I want you to pay special attention to the placement of trees and shrubs to determine why they might have been placed where they are. Take a pencil and notebook with you so that you may write down and draw evidence of erosion on school property.

Activity: As a class, point out evidence of erosion on the school grounds. Some good examples are often near drains, drainpipes, and at the edges of the blacktop. Then have the students pair up with a partner to examine the rest of the area to look for other signs of erosion. When students find examples of erosion, they are to describe it in their journals and draw a labeled rough sketch of the erosion.

Follow-up: After students are back in the room, ask them to share what they have written in their journals about the effects of erosion on the playground and school property. Ask if anyone noticed the placement of trees and shrubs. Ask the students if the trees and shrubs were placed in particular areas to help stop the effects of erosion.

2. **Focus:** Let's review the term erosion and how plants help stop erosion. (Discuss the forms of erosion that were witnessed on the playground and school property. Explain that most of the erosion that was witnessed on the playground was caused by water.) Now we're going to do an activity that will help us see what happens when erosion occurs.

Activity: Provide each pair of students with a disposable aluminum tray, enough soil to fill the tray, water in a small container, newspapers and some rocks. Cover each working area with newspapers. Instruct students to fill their tray with soil, patting to firm in place. Position rocks in the soil so that they cannot move about freely. Place the narrow side of the tray filled with soil and rocks on a book, so as to place the tray on a slant. Next have one of the students pour little drops of water, starting at the highest part of the tray, so the water can run down the soil. Ask students to notice if any changes are taking place in their trays. See if the soil or rocks are moving out of position. Direct the other student to pour larger amounts of water at the highest part of the tray. Again, ask the students to describe what changes are taking place in the tray. Are they seeing signs of erosion?

Follow-up: Have students write in their journals what they have observed and then share with the class..

Assessment

- Students' journals will be assessed to determine their understanding of the causes and effects of erosion as well as the ways erosion can be controlled.
- Informal assessment will be conducted throughout the lesson as students respond to questioning and conduct the activity.



Erosion: See the Land A-Shrinking
Jeannie Lambert
Rockingham County Public Schools



Community Connections

- Students may take a field trip to Natural Bridge to explore erosion.
- Students may observe incidences when erosion has occurred at their home.
- Students may locate examples of actual erosion by reading local newspaper stories on natural disasters such as mudslides.
- Invite a local garden center owner to come discuss what types of plants and trees are best suited to be erosion-controllers and how people can design plantings to minimize erosion.

Cross-Curricular Extensions

Language Arts

- Pretend you are the soil during a thunderstorm or windstorm and write a journal entry.

Art/Technology

- Have students take digital pictures of erosion and have other students guess which agent caused the erosion.
- Additional unitedstreaming video: Junior Geologist: How does the land wear down?

Social Studies

- Students can study the area of the United States known as the Dust Bowl.

Science

- Students can investigate areas around the country and world prone to erosion disasters. (mudslides in California, coastal areas losing sand, etc.)

About the Author

Jeannie is a second grade teacher at Lacey Springs Elementary School in Rockingham County, Virginia.

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