

## S.O.S. (Save Our Soil)

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<b>Strand</b>	Interrelationships in Earth/Space Systems
<b>Topic</b>	Soil conservation
<b>Primary SOL</b>	3.7 The student will investigate and understand the major components of soil, its origin, and its importance to plants and animals including humans. Key concepts include d) soil is a natural resource and should be conserved.
<b>Related SOL</b>	3.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which a) observations are made and are repeated to ensure accuracy; h) data are gathered, charted, graphed, and analyzed; j) inferences are made and conclusions are drawn; k) data are communicated.

### Background Information

Soil is a renewable resource; however, it does take a long time for soil to be made. Soil conservation is needed to help preserve our soil. Planting trees, grass, and other plants help to reduce erosion.

### Materials

- Paper
- Pencil
- Chart paper

### Vocabulary

*conservation, soil conservation, soil, weathering, natural resource*

### Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

#### Introduction

1. Prompt thinking about the importance of soil and the conservation of soil by asking the students the following questions: What do you think would happen if all the soil were to erode away into the waterways? What are some ways to help conserve or save our soil?

#### Procedure

1. Have the students investigate soil conservation, using the library and the Internet. Instruct them to look for the meaning of *soil conservation* and what is being done or can be done to make it happen. Have them write their findings down.
2. Take the students on a schoolyard field trip during which they will look for areas that have evidence of soil erosion.
3. Have the students draw and label a map of the schoolyard, giving a detailed description of the area(s) where there is evidence of erosion and what can be done to reduce erosion. For example, they might draw and label areas needing retaining walls to hold

loose rocks, areas needing drainage pipes to direct flowing water to appropriate areas, areas needing grass or other plants to hold loose soil in place, or areas needing fences, walls, or windbreaks to help prevent movement of soil.

4. Have the students work in small groups to discuss the best ways to conserve the identified schoolyard areas. Also, have them list reasons why soil is important to people and why it should be conserved.

### *Conclusion*

- In their groups, have students create a poster. Instruct them to divide the poster in half by drawing a line down the center. Have the students label each side: Problem and Solution. On one side of the poster labeled Problem, the students will illustrate and write a sentence describing the current condition of the soil. On the other side, labeled Solution, the students will illustrate and write a sentence describing the best way to conserve the soil.

### **Assessment**

- **Questions**
  - What are three things that you could do to help preserve the soil around your school?
- **Journal/Writing Prompts**
  - Write a letter to your principal suggesting a way to keep the schoolyard from eroding.
- **Other**
  - Assess the students' soil-conservation research, which they recorded as well as their schoolyard diagrams.
  - Have the students do a presentation to parents, the principal, or to the class, about the erosion problem and the projected solution.

### **Extensions and Connections (for all students)**

- If possible, have the students take the information they collected and diagrams they made and implement them. Have them maintain data about the conservation area over a period of several months as well as keep a photographic journal of the project. Finally, have them graph the results of their data collection and draw conclusions.
- Have a guest speaker from the soil/water district in your community speak to the class about soil-conservation measures being taken and being planned.
- Give each student a plastic egg and a sugar cube. Place the cube (representing a rock) inside the egg. Have the students shake the egg for two minutes to simulate weathering of the rock. Have the students open the eggs, pour out the soil, and draw a picture of their observations. Then, have them place the larger portions of the sugar cube back into the egg and repeat the process. Have the students examine their particles of soil. Identify each small grain as a soil particle and the larger pieces as pebbles, rocks, etc. Explain that the results of the weathering are similar to what happens to rocks over time. Have the students draw or write about what their parent rock looks like after each shaking.
- Create a soil erosion prevention model. Plant grass in the lower portion of a paint tray

filled with dirt. After several days (when the grass is about an inch tall), pour water in the upper portion of the paint tray. Allow the water to trickle down and show erosion to the soil and how the grass prevents erosion.

- Create an experiment to measure soil erosion or erosion prevention.
  - Use a 1-cup milk carton, cut out the side portion of it, turn it upside down to use the spout, and fill it with materials they believe will slow down water flow (runoff).
  - Use a plastic cup, punch 20 small holes in the bottom of it to produce rain and allow water to flow into the milk carton.
  - As the water exits the milk carton, students catch the water that flows through and measure it.
  - Students draw conclusions about what types of materials will prevent erosion.

### **Strategies for Differentiation**

- Have students write a skit, rap, poem, or song about the problem and solution for soil erosion around the school.
- Have students use a digital camera to take actual pictures of soil erosion around the school.
- Have a class town meeting and discuss soil conservation ideas.
- Participate in a soil conservation community project such as tree planting along waterways.
- Invite your local cub and girl scouts to discuss ways students might conserve soil.
- In small groups, video tape a public service announcement on soil conservation to share with your school or submit to local television station or the local 4-H extension office.
- Use activities such as making an electronic slideshow of soil erosion in the community.
- Use video clips to demonstrate the effects of soil erosion.
- Have students write short essays or stories on “Save our Soil.” Encourage them to use their own personal experiences or imagination.