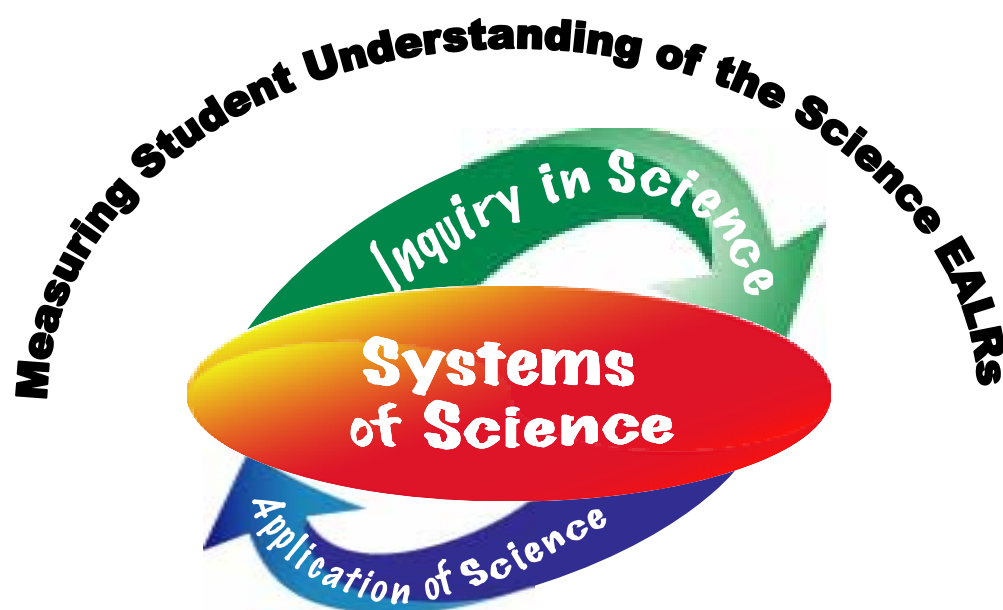


Hold That Soil

Grade 5 Inquiry Scenario 2004 and 2005 WASL



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Hold That Soil

Directions: Use the following information to answer the question 1 through 11 on pages 4 through 9.

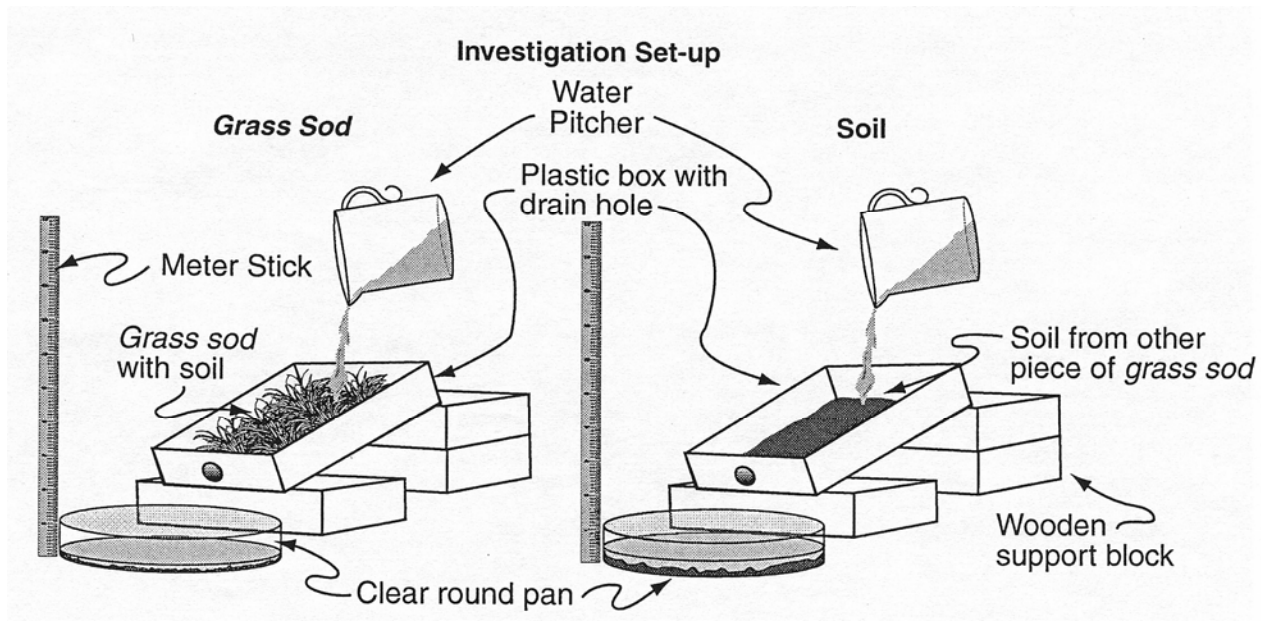
After a rain storm, Margo saw a lot of soil on the sidewalks. Sidewalks next to areas without grass were covered with soil. Sidewalks next to grassy areas stayed much cleaner. Margo did the following investigation to see if grass would help protect soil from being washed away. Margo used *grass sod* (a layer of grass with its roots in soil) in her investigation.

Question: What is the effect of grass on the amount of soil washed away by water?

Prediction: Water will wash away less soil from the plastic box with *grass sod* compared to the plastic box with only soil.

Materials:

- plastic boxes with drain holes
- clear round pans
- pieces of *grass sod*
- water pitchers
- water
- meter sticks
- wooden support blocks
- timer



Hold That Soil, an Elementary Science Powerful Classroom Assessment (PCA)

Procedure:

1. Place one piece of *grass sod* into a plastic box with a drain hole as shown in the Investigation Set-up diagram.
2. Remove the soil from the other piece of *grass sod* and place the removed soil into the second plastic box as shown in the Investigation Set-up diagram.
3. From a height of 75 centimeters, pour 1 liter of water into each plastic box.
4. Let the soil that collects in each clear round pan settle for 15 minutes.
5. Measure and record the depth of the soil at the bottom of each clear round pan.
6. Repeat steps 3-5 two more times.

Data:

Material in Plastic Boxes vs. Depth of Soil in Clear Round Pans

Material in Plastic Boxes	Depth of Soil in Clear Round Pans After Pouring Water (centimeters)		
	1 st Pour	2 nd Pour	3 rd Pour
<i>Grass Sod</i>	1.0	1.8	2.5
Soil Only	2.0	3.7	5.0



Hold That Soil, an Elementary Science Powerful Classroom Assessment (PCA)

- 1** Which variable was kept the same (controlled) in this investigation?
 - A. Amount of grass in each plastic box
 - B. Size of the soil material in clear round pans
 - C. Volume of water poured into each plastic box

- 2** Which variable was the changed (manipulated) variable in this investigation?
 - A. Material in plastic boxes
 - B. Type of soil in each plastic box
 - C. Amount of water poured into each plastic box

- 3** Which variable was the measured (responding) variable in this investigation?
 - A. Depth of soil in each clear round pan
 - B. Height of the wooden support blocks
 - C. Type of grass in each plastic box

- 4** What can Margo do to be more sure of the results of this investigation?
 - A. Investigate a different type of soil.
 - B. Repeat the investigation the same way.
 - C. Use a larger container for the water and soil.



Hold That Soil, an Elementary Science Powerful Classroom Assessment (PCA)

- 6** Which of the following parts of soil would most likely be carried into the clear round pans by the poured water the fastest?
- A. Small parts of the soil such as dirt
 - B. Medium parts of the soil such as sand
 - C. Large parts of the soil such as gravel
- 7** Where does the energy come from that washes away the soil in the plastic box?
- A. The size of the plastic boxes
 - B. The water poured into the plastic boxes
 - C. The Earth material in the plastic boxes
- 8** Which forces cause the movement of soil in the plastic boxes?
- A. The forces caused by air rising
 - B. The forces caused by wind blowing
 - C. The forces caused by water flowing
- 9** Based on the results of Margo's investigation, what might happen to a stream ecosystem if people removed all the plants from a hillside next to the stream?
- A. More water would flow into the stream ecosystem.
 - B. More soil would be washed into the stream ecosystem.
 - C. More oxygen would be carried into the stream ecosystem.



Hold That Soil, an Elementary Science Powerful Classroom Assessment (PCA)

10 The process of water carrying soil from the plastic boxes into the clear round pans is called erosion. Erosion can be caused by more than just water flowing.

Describe a cause of erosion other than water flowing.

In your description, be sure to:

- Identify another cause of erosion.
- Describe how and where this other cause of erosion would happen.

Use words, labeled pictures, and/or labeled diagrams in your answer.

Another cause of erosion (other than water flowing):
How and where the erosion happens:



