

5th Grade: Weathering and Erosion Activities

Activity I – Erosion Chamber Experiment

Place the erosion chambers on a visible table in the classroom. Tell the students that they will be conducting an experiment on water erosion. Have the students discuss each of the three sections of the erosion chamber and label them as (1) bare soil, (2) scarce vegetation, and (3) vegetated.

*Use the Erosion Lab Worksheet to follow along with the experiment.

Have the students sketch the apparatus and label the sections. Ask the students to predict and record what they think will happen when 2 liters of water are poured into each section.

- What will the soil look like?
- What will the runoff look like?
- Will it make a difference if the water is poured on in a stream or "sprinkled?"

Begin the experiment with the vegetated section. Have the students make observations about what the soil looks like as the water runs over the surface.

- How much water soaks in?
- How much runs off?

Consider having students measure the time it takes for all excess water to run out of the chamber.

Start the timer when the water is poured on the soil and stop the timer when there is no additional water draining from the pan. Discuss student observations. You may need to pour in 2 or 3 liters of water to see water draining from the end of the pan. The amount of water needed will depend upon the amount of moisture in the soil before you began the lab.

Repeat the process in the other sections. Time each experiment and record the results in a journal. Invite students to think about an explanation for the results they recorded.

When all three of the sections have received the same amount of water, measure the amount of water that was collected at the end of each chamber.

Note: Marking the soil level in each of the jars with a transparency pen at the conclusion of the lab will allow students to compare the amount of soil that eroded in each pan.

Compare the amount of time that water continues to drain from each pan.

- It is similar or different?

Discuss the results of this activity. Soil erosion will be the greatest in the area with no vegetation, followed by the pan with scarce vegetation. There will be little erosion from the fully vegetated pan. It can take decades to millions of years to make new soil. Pose the following questions to the students.

- Why is soil erosion a concern?

- What can be done to prevent soil erosion?

Ask the students:

- does gravity affect the rate of erosion?
- Would a steep hill be more likely to erode than a gentle hill? Why or why not?

*Change the angle of the apparatus to compare the amount of soil erosion on a gentle incline versus a steep incline.