

Rock Eater

by Mary Larson and Tami Morrison

Grade level 3 - 4

Time required
30 to 60 minutes

Materials/Technology

Chalk
Vinegar
Glasses
Limestone and other
Minerals
Science log/journal
Clock or timer

Summary

In this lesson students will examine the effects of acid rain by performing a simulation experiment. They will also view the effects of acid rain on the reservation.

Objectives

The student will:

- 1) gain an understanding of the effects of acid rain and erosion.
- 2) become aware of some sites where acid rain is affecting the reservation environment.

Montana Science standards addressed

- 1) Students design, conduct evaluate and communicate scientific investigations.
- 2) Students demonstrate knowledge of characteristics, structures and functions of living things, the process and diversity of life, and how living organisms interact with each other and their environment.

Procedure

1. Discuss with students the materials being used for the experiment (vinegar, which simulates acid rain, and chalk, which simulates land/limestone/rock). Ask students to predict and record in their science observation log/notebook or on graph paper the answer to the following questions:
 - What do you think will happen to the chalk?
 - Why do you think this?
2. Model how to make a data table on the chalkboard. Ask students to make the same table in their science log/journal. (see below)
3. Divide students into partners or small groups. Instruct students to fill a glass 1/4 full with vinegar.
4. Assign a member of the group to be the timer for the observation. Then add a piece of chalk to each glass. Students should observe the reaction at the following inter-vals: 0 seconds, 30 seconds, 1 minute, 10 minutes, and 1 hour.
5. Ask students to individually record in their science logs their observations of what happened at each time interval and their ideas as to why the reaction occurred.
6. Students should discuss, compare and list in small groups why they believe the reaction occurred. Ask a student recorder to list all group members' conclusions on a separate piece of paper.

7. Discuss as a whole class why the reaction occurred. Discuss how the experiment simulates the effects of erosion and acid rain. Explain why the reaction in the experiment took place and the effects of acid rain today, including information about limestone, chemical reactions and changes, and the vocabulary above.
8. Ask students to record in their science observation logs what they learned from today's experiment.
9. Discuss the quality of land within the reservations today. Arrange a visit with an employee of Tribal Environmental Services who could discuss and show students examples of the effects of acid rain on the reservation.

Time	Observations
0 seconds	
30 seconds	
1 minute	
10 minutes	
1 hour	

Assessment

Evaluate students based on the discussion of the class predictions and lab conclusions.

Further information

For further information about this activity, contact Mary Larson or Tami Morrison via electronic mail at linderln@digisys.net.

References

Van Cleave, J. (1992). 200 Gooney, slippery, slimy, weird & fun experiments: John Wiley & Sons, Inc., 76.