Weathering Landforms

Science Standard II:
Students will understand that volcanoes, earthquakes, uplift, weathering, and erosion reshape Earth's surface.

Objective 1:
Describe how weathering and erosion change Earth's surface.

Objective 3:
Relate the building up and breaking down of Earth's surface over time to the various physical land features.

Intended Learning Outcomes:
1. Use Science Process and Thinking Skills
3. Understand Science Concepts and Principles

Content Connections:
Math IV-2

Science Standard II

Objectives 1 & 3

Connections

Background Information

There is a process called *weathering* that is constantly changing Earth's surface. *Chemical weathering,* such as acid rain, eats away at certain types of rocks, creating cracks and holes. *Extreme hot and cold temperatures usually cause physical weathering.* Water seeps into cracks in rocks, freezes, and expands, causing further breakdown of rocks. *Biological weathering* is caused by plants and animals and also contributes to the breaking down of rocks and landforms. These weathering processes cause rocks and landforms to fragment, crack, and breakdown. *Erosion* carries away debris and soil.

Science language students should use:
earthquakes, erode, erosion, faults, uplift, volcanoes, weathering, buttes, arches, glaciers, geological, deposition

Invitation to Learn

Brainstorm all the ways the surface of Earth can change. Discuss weathering, erosion, wind, and the effect that frozen water has on Earth's surface.

Materials

- ❑ Plaster of Paris
- ❑ Water balloons
- ❑ Paper cups
- ❑ Colored markers or watercolor paints

Instructional Procedures

1. Fill water balloons (about 11/2" in diameter).
2. Mix Plaster of Paris (runny).
3. Pour into cups (small milk cartons work well).
4. Quickly push balloon into plaster.
5. Set aside to dry.
6. When completely dry, peel off cup.

7. Color plaster landforms with permanent markers, or paint with watercolors.
8. See *Family Connections.*

Possible Extensions/Adaptations/Integration

- Take students outside and look for evidence of weathering. Pay special attention to evidence of weathering in the sidewalks, blacktop, and in the form of a frost heave.
- Record discoveries in science journals.
- Pay special attention to students who need help smoothing the plaster during activity.
- Fill a plate with Plaster of Paris. Germinate seeds on the plaster to demonstrate biological weathering.

Assessment Suggestions

- Read science journals. Use *Science Writing Rubric* (p. 3-34) to evaluate student progress.
- Have classroom discussion of results. Students journal how they felt when they discovered their landforms were broken.

Additional Resources

Books

Eyewitness Earth, by Susanna Van Rose; ISBN 0-7894-5575-7

Icebergs and Glaciers, by Seymour Simon; ISBN 0-688-16705-5

Web site

Fifth Grade USOE SciberText:
http://www.usoe.k12.ut.us/curr/science/core/5th/sciber5/index.htm

Family Connections

- Have students make predictions with families about what will happen to the plaster landform when placed overnight in freezer. Place in freezer and record the results the following day.
- Look for evidence of weathering around homes.