Mechanical Weathering Can

OBJECTIVE: To explore how mechanical weathering wears down different types of rocks at different rates

Get It Together

- Small empty coffee can (for each group of students)
- 4 different rock specimens, each about 1 inch (2 cm) across (for each group of students)
- Small cup of sand
- Newspaper
- Large rock sample
- Hammer
- Safety goggles

Science Buzz

All rocks wear down over time through a process called *weathering*. *Physical* or *mechanical weathering* occurs when rocks split and break due to temperature changes, ice, or simply banging together. Some rocks are more resistant to weathering than others. Hard minerals, like quartz and feldspar, can take a great deal of punishment, while soft minerals, like talc and mica, can be easily worn away.

The way minerals are joined together in a rock is another important factor in determining how resistant a rock is to weathering. Sedimentary rocks, like sandstone and limestone, tend to wear down easily because they are composed of individual mineral grains that have been cemented or compacted together. In igneous rocks, like granite, the minerals are fused together because they crystallized from molten rock.

Before You Start

Wash all the rock specimens and the inside of the coffee cans. Make sure the plastic lids fit tightly on the coffee cans.

What to Do

1. Introduce the activity by passing around a cup of sand. Invite students to examine the sand closely. Ask: What is sand? *(Small broken fragments of rocks)*
2. Spread newspaper on a desk or table where students can see, and invite a volunteer to assist you. Place the large rock sample on the paper and give the volunteer safety glasses. Have the volunteer use the hammer to gently hit the rock a few times. Ask: What are we making when we hit the rock with the hammer? *(Sand)*
3. Explain that in the real world, most sand doesn't come from people pounding on rocks with hammers. Instead, sand is created naturally through a process called *mechanical weathering*. Have students think about how sand gets created in the natural environment. Ask: Do you think all rocks weather the same way? *(No)*
4. Invite students to put some rocks to the test. Photocopy and distribute "Rock and Roll" (p. 42) to each student.