ROCK RAP

BENCHMARK and TASK

SC.D.1.1.1 The student recognizes that the solid materials making up the Earth come in all sizes, from boulders to grains of sand.

- The student recognizes that the surface of the earth is composed of different types of solid materials (e.g., sand, pebbles, rocks, clumps of dirt).

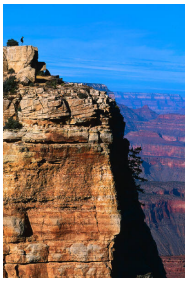
KEY QUESTION

Why do rocks come in many different sizes?

MATERIALS

Teacher

1 piece chart paper
marker
safety goggles



Per group

1 coffee can w/lid
2 or 3 rocks
safety goggles
masking tape
paper towel

Per student

Rock Rap Chart
pencil, crayons, or markers
magnifier

BACKGROUND INFORMATION

Earth's surface is constantly changing. Movements at plate boundaries build up the earth's surface, forming mountains. At the same time, two processes wear down the earth's surface. Weathering changes earth by breaking rocks and other matter into smaller particles called sediment. Erosion sweeps these weathered particles away.

Mechanical weathering includes ice wedging, release of pressure when a large mass of rock reaches the earth's surface, abrasion, and plant action.

Chemical weathering includes oxidation and dissolving by acids.

Weathering means breaking rock apart by water, wind, and other forces. **Erosion** means the movement of those rock particles.

ENGAGE

1. Review some of the properties of rocks that the students discovered in *Rock Detectives,* such as shiny, dull, rough, smooth, many colors, made of different materials, etc.
2. Ask: *Do you think your rock from the previous lesson has always been the same size as it is now?*
   Have you ever taken a trip to the mountains?
   What are mountains made of?
   If you look at the bottom of the mountain, what do you think you'll find?

EXPLORE

1. Students should sit in small groups.
2. Distribute the materials to each group and the materials to each student. Read and discuss the information on the *Rock Rap Chart*.
3. Ask students in each group to take turns observing their group's rocks. They should take turns making a record of the rocks' sizes by tracing around them in the top section of the *Rock Rap Chart*. Remind students to use the magnifiers to closely observe their rocks, and then color the rock pictures and show any special features of their rocks.
4. Direct students to place their rocks in the coffee can, put on the lid, and tape it with masking tape.
5. Tell students that they will be taking turns shaking the can for 4-5 minutes as a group. You will tell them when to begin and when to pass the can to the next group member. Each student should shake the can for about a minute and a half.
6. After shaking, tell the students to carefully remove the lid from the can and pour the rock pieces out on a paper towel.
7. Allow enough time for the groups to count and examine the pieces of rock and make their second drawing on the chart.

EXPLAIN

1. Allow groups to share their findings.
   Ask:
   How many rocks did you put in the coffee can?
   Are your rocks still the same size?
   Did the color of the rocks change?
   Do the rocks feel the same after they were shaken?
   Why are some rocks smoother than others?
   Do you think your rock from the previous lesson has always been the same size as it is now?
   How do you think rocks get broken in nature?

EXTEND/APPLY

Discuss ways rocks are changed by weathering, erosion, and human and animal interaction. See Background Information.

EXTENSION

Bury some rocks that are the same kind (e.g., limestone) in a large tray of soil. Have various sizes of the rock to reinforce that the same kind of rock comes in many sizes. Allow students to "mine" the rocks. Relate this to mining.
Change the type of rock after all students have had the opportunity to dig.

Student Scientists: _____

Rock Rap Chart

Trace around your group's rocks before shaking.

How many minutes did you shake your rocks?	How many pieces of rock were there after shaking?

Draw a picture of your group's rocks after shaking.