Observing Rocks

Lesson Overview

In this lesson, students use their senses to make observations of rocks. They sort rocks based on observable features and then explore the question if all rocks are the same.

Suggested Grade Levels: K-2

Standards for Lesson

Content Standard A: Science as Inquiry
K-4: Ask questions about objects, organisms, and events in the environment.

Time Needed

This lesson takes several class periods. Sample schedule:

Day One:	Complete the **Engage** and **Explore** portion of the lesson
Day Two:	Complete the **Explain** portion of lesson
Day Three:	Complete the **Elaborate** and **Evaluate** portion of the lesson

Materials for Lesson

Materials:

- egg cartons
- masking tape
- black marking pen
- construction paper
- rocks - assorted colors and sizes
- plastic bowls

- water
- rock collection
- crayons
- paper towels
- rocks of assorted sizes and weights
- white glue
- a worksheet with a scale drawn on it
- a balance scale –

Content Background

Rocks offer students a great opportunity to practice using their senses to make observations. The senses help scientists to observe properties and then use those properties to sort and classify. This activity also helps children to generate questions they may have about their rocks and to explore if all rocks are the same on the inside. This lesson engages students in exploring geodes. A geode is a sphere shaped rock which contains a hollow cavity lined with crystals. Geodes are rocks that are plain on the outside but can have beautiful crystals on the inside. In the Greek language, geode means "shape of the earth", and geodes are round like earth or oblong like an egg. They can be a couple inches or several feet in size. Geodes are created in the hollow areas of soil such as animal burrows or tree roots. They are also formed in the bubbles in volcanic rock. Over time, dissolved minerals seep into a hollow area and harden into an outer shell creating the geode. The minerals continue to form on the inside walls of the shell, growing towards the center. The most common dissolved mineral is quartz, but amethyst and other minerals are also found.

It can take hundreds of millions of years for the space inside a geode to be filled, and many geodes remain partly hollow. A geode which is completely filled with crystals is called a nodule. Agate-filled nodules are called thunder eggs.

Engage

Each child should have an egg carton. Take the children outside and have them look for rocks. Once back in the classroom, give the students a toothbrush and have them “clean” their rocks. Students should then put their rocks in their egg cartons. Ask children which rocks are big and which rocks

are small. Be sure and explain the terms big and small. These are words that we can use to describe objects.

Next, have the children sort the rocks by size. The children should then write a sentence about their rocks and the sizes of their rocks.

Explore

Directions:

1. Take your students outside to collect rock specimens.
2. Have each student make observations about their specimen through touch, sight, and smell.
3. Introduce the rock kit to the students and have them make observations of the new rocks, comparing and contrasting similarities and differences among the rocks.

The rocks you see around you - the mountains, canyons & riverbeds, are all made of minerals. A rock is made up of two or more minerals. You need minerals to make rocks, but you don't need rocks to make minerals. All rocks are made of minerals.

Explain

Begin by asking the class how rocks they looked at yesterday were different. They usually answer by size. Tell them that size is one characteristics, attribute, or property that can be used to sort objects (post these words on the board). Ask the students to look at their rocks and see if they can identify another way to sort the rocks. If the students do not say color, ask them if they have ever found a rock that was a pretty color. Ask how many colors a rock can be? Tell that today they are going to find out!

1. First, ask students to look at their rock collection and tell what colors they see.
2. Next, ask them to put a rock in the bowl of water. "Did the rock change colors? Can you see the color better?" Have the students dry the rock and put the rock back into the egg carton.

3. Tell the children that putting something in water does not always make it change. Have the children write a sentence about the color of their rock. Go to next lesson, Some Rocks are Heavier Than Others.

Day Three:

Tell the students that they now know that rocks are different in colors and sizes. Today they are going to find out which rocks are the heaviest.

Elaborate

Ask the children can the children think of other ways that rocks are different besides their size and color?

Show several rocks. Tell them today they will find out which rocks are the heaviest.

Have the children try to tell by first looking and then by feeling which rock will be the heaviest and which one will be the lightest.

Have the children take turns putting two rocks at a time in the balance scale to see which rock is the heaviest.

They then draw a picture of a light rock and a heavy rock.

To end the lesson, ask students if they think all rocks are the same on the inside? Post the student's predications.

Next, give each student a geode. Have them use the hammer and break open their rocks. Discuss with students that sometimes

Evaluate

Have students write how rocks can be the same and yet be different.