

# Activity 3: Rocking Around

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In this activity students collect and compare rocks and observe them moving with wave action. It can be paired with Activity 2, "What is Sand?"

**Grades: K-3**

**Subject Areas: Science, Art, Language Arts**

Anyone who has walked a Great Lakes beach has made friends with rocks. They come in reds, greys, greens, black with speckles, brown with white lines and dozens of other colors and mixtures. Most have smooth sides and rounded corners. Flat ones are especially good for skipping across the water with a side-arm throw.

Pebble, stone or "skipper," they are all rocks to the geologist - "an aggregate of minerals." Smaller rocks are broken down from large geologic formations by the action of weather and water. When the giant ice formations called glaciers covered the Midwest 20,000 years ago, they picked up and carried rocks of all sizes. Giant boulders and tiny pebbles moved over the land with the glaciers.

When summer heat melted portions of the glaciers, the streams of water carried loosened rocks away and piled them along the water's path. This explains why many rocks found around the Great Lakes region are from geological formations many miles north. The glaciers carved the basins of the Great Lakes and water from their melting ran into the basins and helped fill them. This water carried along the rocks and sand that cover the lake bottoms and beaches.

By watching waves at a beach we can see rocks being picked up and rolled over each other again and again. Wave action helps polish rocks and make them round. It helps grind larger rocks into small pebbles and finally into tiny sand grains.

This activity introduces younger children to the characteristics of rocks using various observational techniques. A simple model shows wave action. Optional activities show rocks in their natural settings and display the unique characteristics of rocks.

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## Procedure

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For the activities in this section you will need the following materials:

- magnifying glasses
- assorted rocks
- drawing paper and pencils/crayons
- sand
- dish pan or other basin

1. Have students collect rocks together at school on the playground. Make a trip to a nearby beach, a gravel pit or some other source. Make sure the rocks are not all the same type and size. Collecting the rocks might be fun for your students and their parents to do together as well.

2. Each child may select several rocks. Ask them to sort rocks by size. Ask:

- What words can you use to describe the rocks in this group of rocks?
- Which is a heavy rock? (or some other *one* characteristic)
- Show me a rock which is rough and dark-colored. (or *two* other characteristics)
- Show me a rock with *three* colors in it (or three other characteristics)

Ask your students to sort the rocks in ways other than by size.

3. Have each child select 2 rocks. Ask:

- How are these two rocks different? List three ways.
- How are they similar? List three ways.
- What color is the first rock? Second rock?
- Which rock is bigger? Heavier? Smoother? Rougher?
- Pick one rock. What makes this rock special to you?

4. Have the children return "their" rocks to a sack with all the other rocks. Mix rocks up and spread them in a pile on the table. Have your students try to find their own rock. (You may want to put the child's initials on the bottom of the rock with ball point or marker to help verify the identification.)

5. Have the children take their rocks back to their desks and look at them with a magnifying glass. Have them compare their rocks to another under the magnifying glass. Ask:

- How are they similar? List five ways.
- In what ways are they different? List five ways.

Give *each child* a small amount of sand and help him/her to isolate one or two grains and look at it through the magnifier. Ask:

- Tell us three ways that the sand grain is similar to your rock.
- Tell us three ways that they are different.

6. Have students draw a picture of their rocks.

7. Make a simple wave tank. Take a dish pan or other basin with relatively deep sides. Have students heap sand and small rocks at one end of it. Add one or two inches of water, enough to move around, but not so much as to submerge your rock and sand pile. Lift the end opposite the "beach" gently up and down so "waves" move the rocks and sand. Ask:

- What's happening to the rocks?
- What's happening to the sand?
- Why do they respond differently to the wave?
- Have you ever been to a beach at a lake? How is this like that? How is it different?
- Imagine what it feels like to be a rock or grain of sand in the wave. (Optional:

Have students do a creative dramatics exercise in which some are waves and some are rocks and sand. Have them show the movements.)

8. Have children create a story about how the rock got its shape, color, etc. What other things beside a rock does it look like? Tell a story about that. For younger children (kindergarten and first grade) you may wish to read the story *Sylvester and the Magic Pebble* before or after they make up their own stories.

#### Other Activities With Rocks:

1. Have students glue small rocks to cardboard to form a mosaic or picture.
2. Help students create their own rock critter by painting faces, gluing eyes, adding pipe cleaner "feelers", etc.
3. Paint scenes on flat rocks.

## Taking It Further

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1. Put rocks into their natural context by:

- Taking a field trip to a beach or rock quarry.
- Showing pictures of Great Lakes beaches.
- Having students bring in pictures from magazines or snapshots showing beaches with rocks.
- Taking a field trip to a local rock collection or museum.

2. Plant a rock. Place a rock outdoors on the playground. Observe its surroundings. Draw a picture. Go back and observe it after 3 months, 6 months and 9 months. Look at the rock when it rains and compare it with your original picture. Look at the rock after it rains. What do you notice? Have your students keep a daily log to record changes in their rock and its surroundings.

### Resource:

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#### Books

Steig, William, *Sylvester and the Magic Pebble*, Windmill Books, E.P. Dutton, New York, 1969.