

KINDERGARTEN ROCKS AND SOILS

TOTAL TIME: 45 Minutes (15 minutes per station)

STATION 1: CLASSIFYING ROCKS

STATION 2: ROCKS & SOIL

STATION 3: LET'S FIND A ROCK

MATERIALS

Station 1: Classifying Rocks

- The Classroom Rock Collection (containers with blue tops)
- The Floating Rock Experiment (container with red top)
- Scale
- Cup of Water

Station 2: Rocks & Soils

- Jar
- Sugar Cubes
- Vinegar
- Soap
- Red Food Coloring
- Funnel
- Baking Soda
- Tupperware

Station 3: Let's Find a Rock

- One Baggie per child
- Sharpie Marker

Station 1: Classifying Rocks

Materials: Classroom Rock Collection, Floating Rock Experiment, Scale, Cup of Water

Activity: The idea of this activity is for the children to understand that rocks can be sorted in many ways.

Take out the rocks from the Introductory Rock Collection and lay them on the table.

1. Tell the students that the rocks can be sorted according to where they came from.
 - a. Some rocks come from volcanoes. They are called igneous rocks. These rocks were very hot and cooled very quickly so they often look glassy or have shiny crystals in them. Rocks #8-14 are from volcanoes.
 - b. Some rocks are pressed or heated together and therefore usually show signs of layering. They are called metamorphic rocks. These are Rocks #15-22.
 - c. Some rocks come from seas or lakes. They are called sedimentary rocks and they often look cemented. These are rocks #23-30.
2. Rocks can be sorted by the kinds of minerals that are in them. Most rocks (like the rocks we already looked at) are made up of lots of different minerals mixed together. Other rocks such as gold and silver are made up of only one element. Rocks #1-7 are made up of 2 or more minerals.
3. Rocks #31-44 are made up of metals & non-metals.
4. Rocks #45-50 are gemstones. Gems are minerals that have been cut and polished to be used as jewelry or other kinds of decorations.
5. Rocks can be sorted by how hard or soft they are. The softest rock is Talc (#1) and the hard rock we have is Beryl (#41). The hardest rock of all is a diamond.
6. Rocks also can be sorted by size (big & small) and by color.

7. Finally, tell the students that there is only one rock that floats. Using The Floating Rock Experiment (rocks in the container with the red top ONLY), see if they can find which one it is. Taking turns, have each child pick a rock and drop it into the cup of water. You can then use the scale to determine which rock is the heaviest and which rock is the lightest.

Station 2: Rocks and Soil

Materials: Jar, Sugar Cubes, Vinegar, Funnel, Liquid Soap, Red Food Coloring, Baking Soda, Tupperware.

Activity:

1. What is a rock?

- A collection of minerals.
- Under all surfaces.
- The Earth's outer shell (crust).
- A natural material.
- Not man-made.

2. Uses of rocks?

- Buildings
- Cement
- Chalk
- Roofs
- Statues
- Floors
- Soap
- Baby Powder
- Jewelry

3. What is soil?

- Ground-up rocks and plants.

4. Show how rocks become soil with the sugar cube experiment. Put sugar cubes into a jar and pass the jar around to each student. Ask each student to shake the jar hard. This shaking represents the wind. You can also add a small amount of water to the jar to represent rain. Show the process of erosion whereby over time, wind and water cause rocks to break down and become soil.
5. Show how volcanoes form rocks by bring the Earth's crust up to the surface. Volcanic rock is very hot and then cools extremely quickly giving it a glassy look. Here's the experiment:
 - a. Pour a pile of baking soda on the bottom of the Tupperware.
 - b. Put some liquid soap and red food coloring on the baking soda.
 - c. Put the large end of the funnel over the baking soda and push down hard.
 - d. Pour the vinegar into the small end of the funnel.
 - e. Watch the foam push out of the funnel.
 - f. Explain that this is how the Earth's crust is released to the surface and makes rocks.

Station 3: Let's Find a Rock

Materials: One baggie per child, sharpie marker, scale.

Activity:

1. Take the children for a 10-minute walk using the nature trail. Observe the surrounding including which objects are made of rocks around the school. Ask the children to observe the soil and see if they can identify some living and non-living materials found in the soil.
2. What is a rock?
 - A collection of minerals.
 - Under all surfaces.
 - The Earth's outer shell (crust).
 - A natural material.
 - Not man-made.
3. Uses of rocks at school? Rocks are all around us!
 - Buildings
 - Cement
 - Chalk
 - Roof
 - Soap
 - Floors
 - Countertops
4. What is soil?
 - Ground-up rocks and plants.

5. Minerals and gems are rocks too. Are we likely to find them on our walk? No, because minerals and gems are:

- Inside of some rocks.
- Very rare.
- Hard to find.
- Natural substances - not man-made.
- Valuable.

a. Ask each child to find one rock. Place that rock in their baggie and bring it back to the classroom. Have each child wash off his or her rock. Compare the rocks.

- i. Color
- ii. Size
- iii. Shape
- iv. Weight (use the scale)