

# **R is for Rocks!**

(Earth, Rocks, and Minerals)  
(Science Unit for Elementary Grades)  
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## **Elementary Standard**

**K-7 Standard (E)lementary.(S)olid(E)arth:** Develop an understanding of the properties of Earth materials and how those properties make materials useful. Understand gradual and rapid changes in Earth materials and features of the surface of Earth. Understand magnetic properties of Earth.

## **Kindergarten Content Expectation**

*E.SE.00.11* - Identify Earth materials that occur in nature (sand, rocks, minerals, soil, water).

Each expectation has been coded with a discipline, standard, grade-level, and content statement/expectation number. For example, E.SE.00.11 indicates:  
E (Earth Science *Discipline*)  
SE (Solid Earth *Standard*)  
00 (Kindergarten)  
11 (First *Content Statement* of the First *Expectation*)

## **Elicit/Engage**

Start talking with students about rocks and what they know about them before going outside to look for cool, interesting, or pretty rocks. Have students ask family to help collect interesting rocks that they can bring to school. Once collected, students wash the rock collection and store them in a small tote or bucket until needed for classroom activities.

Contents of Teacher-Made Classroom Read-Aloud/Reference Book:

- The whole Earth is made of rocks and minerals.
- Inside the Earth, there is a liquid core of molten rock, and on the outside, there is a hard crust.
- If you compare the Earth to an egg, the shell on an egg is like the crust of the earth.
- The crust of the Earth is made up of rocks and minerals.
- Much of the crust is covered by water, sand, soil, and ice.
- If you dig deep enough, you will always find rock.
- Below the loose layer of solid, sand and crumbled rock found on Earth is bedrock, which is a solid rock.
- Rocks are made up of 2 or more minerals.
- There are about 3,000 different minerals in the world. Some minerals you may know are copper, silver, gold, and quartz.

- Rocks are like chocolate chip cookies. The cookies are solid. They are hard and have a shape.
- The cookie is made with different ingredients. Those ingredients are like minerals. They can be different shapes, sizes, and colors. Some are hard and some are soft. Together they form into a rock.
- Rocks can be any shape or size. Some are as big as mountain while some are as tiny as grains of sand.
- Some rocks are smooth and round while some are sharp and pointy.
- Rocks can also be different colors.
- There are three different types of rocks on the Earth.

## **Explore**

### Rocks and Minerals Exploration

Samples provided (cookies/rocks):

Draw: Cookie. Answer: My cookie is like a rock because ... .

Draw: Broken cookie. My cookie shows me what minerals are because ... .

### Rock Size Sorting Exploration

Print/laminate sorting sheets on cardstock (tiny, very small, small, medium, large, very large, extremely large, gigantic). Pass out assortment of rocks. Students place the rocks on the sorting sheets by size. Students then fill out the rock size tally sheet.

### My Rock Size Sorting Data Sheet Completion

Using the tally sheets, teacher records answers to these questions for each team:

- How many rocks did you sort?
- How many medium rocks did you sort?
- How many large rocks did you sort?
- How many tiny rocks did you sort?
- How many gigantic and small rocks did you sort together?
- How many more small rocks than very large rocks did you sort?
- Most of the rocks were \_\_\_\_\_.
- Fewest of the rocks were \_\_\_\_\_.
- Write one fact about your data.

### Rock Color Sorting Exploration

Print/laminate color sheets on cardstock (white, gray, brown, black, red, orange, purple, green, yellow, other). Pass out assortment of rocks with colors. Try not to give out more than a couple of rocks with 2 colors. The “other” pile can be for rocks with 2 or more colors. Students place the rocks on the sorting sheets by color. They then fill out the rock colors graph.

## My Rock Colors Data Sheet Completion

Using the rock colors graph, teacher records answers to these for each team:

- How many white rocks did you sort?
- How many brown rocks did you sort?
- How many gray rocks did you sort?
- How many black rocks did you sort?
- How many brown and orange rocks did you sort?
- How many more brown rocks than white rocks did you sort?
- Most of the rocks were \_\_\_\_\_.
- Fewest of the rocks were \_\_\_\_\_.
- Write one fact about your data.

## Rock Word Bank

Round, oval, jagged, smooth, square, polished, rough, lumpy, crumbly, bumpy, heavy, sharp, pointy, light, wide, speckled, clean, long, flat, dirty, rectangular

## My Descriptive Rock Web Exploration

Have students draw their rock in the center of the web. In the 7 descriptive work bubbles, have students write 7 words from the rock Work Bank that describes their rock.

## Rock Jar Estimation Exploration

On cardstock, print/laminate different sized rock jars. On cardstock, print/laminate/cut out the estimation rocks. Students must estimate how many rocks will fit in the different sized jars. They fill out their estimates on the data sheet. Then, they place the rocks on each jar and count how many rocks actually fit in the jars. They record the actual results on the data sheet.

## Rock Scratch Test Exploration

Pass out four rocks to each team. Take the nail and try to scratch a line in the rock. If you can see a line where you scratched, write soft on the data sheet under one of the four rocks shown. If you cannot see a line, write hard on the data sheet under the picture of a rock. Do this for all 4 rocks. Complete: I had \_\_\_\_\_ hard rocks. I had \_\_\_\_\_ soft rocks.

## **Explain**

### Igneous Rocks

Igneous rocks are solids that form directly from the cooling of magma. This process involves a phase change from the liquid to the solid state. The Earth is made of igneous rock—at least at the surface.

### Sedimentary Rocks

Sedimentary rocks are accumulations of little pieces of broken up rock that have piled up together.

### Metamorphic Rocks

Metamorphic rocks get their name from “meta” (change) and “morph” (form). Any rock can become a metamorphic rock. All that is required is for the rock to be moved into an environment in which the minerals that make up the rock become unstable. There may be a change in temperature or pressure that causes the change. Common metamorphic rocks include slate, gneiss, and marble.

### **Elaborate**

#### The Pet Rock Project

Have each student find/bring from home one fist-sized rock. (Write student’s name on underside of the rocks.)

Students create a pet rock using paint, googly eyes, and yard.

Students write/tell about their pet rock.

Students design/draw a home for their pet rock and answer questions about their designs.’

#### My Pet Rock Profile Completion

Draw a picture of the Pet Rock.

Answer:

- My Pet Rock’s name: \_\_\_\_\_
- My Pet Rock’s favorite game: \_\_\_\_\_
- My Pet Rock’s favorite food: \_\_\_\_\_
- My Pet Rock’s favorite color: \_\_\_\_\_
- My Pet Rock’s favorite TV show: \_\_\_\_\_

#### My Pet Rock’s Home Design Project

Have students draw/design a home for their pet rock.

#### My Pet Rock’s Home Data Sheet Completion

- My pet rock has a \_\_\_\_\_ because \_\_\_\_\_.
- My pet rock likes to \_\_\_\_\_ because \_\_\_\_\_.
- The best part about my pet rock’s house is the \_\_\_\_\_ because \_\_\_\_\_.

### **Evaluate/Extend**

Have students write/tell an “I Know About Rocks!” story.