



Nature-Watch Activity Kit

Rock-O-Rama

(Nature Watch Kit #103)

Kit Contents

<u>Item:</u>	<u>Qty</u>
Mineral, Igneous, Sedimentary Metamorphic Rocks	1 lb. ea.
Rock Collection Cards	25
Baggies	25
Rock Collection Set	1
Mineral Testing Kit	1
Books about Rocks & Minerals	2
Instructor Manual	1
Glue	1

Additional Items Needed:

- Shovels
- Markers
- Cups for collecting

Next Generation Science Standards Alignment

- 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
- 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
- 2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
- 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.
- 5-PS1-3. Make observations and measurements to identify materials based on their properties.
- MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

**See Back for
STEM Extensions**

This page includes the Next Generation Science Standards (NGSS) mapping for this kit and Science, Technology, Engineering, and Math (STEM) extensions (on back) to use in adapting and extending this activity to other subject areas.

This Nature Watch Activity Kit contains an Instructor Manual and materials to implement the curriculum. The kit was designed to be used with adult supervision only. Unsupervised use is not recommended.



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STEM Extensions

Science

- Make models of a few common minerals using candy for the elements and for the bonds to connect the elements. Find pictures of the molecular structure of the minerals to base your models on.
- Play *Inorganic vs. Organic!* Make a list of organic materials and inorganic materials. Write each item on a card, then jumble up the cards in a box. One player picks a card and draws the item. The other players try to guess what the item is and once they guess it, they have to correctly identify it as organic or inorganic. If they are correct, they are the next player to draw a card from the box, and so on.
- Stalactites (which form from the roof of a cave) and stalagmites (which form from the floor of a cave) are stone formations that form from minerals combined with water that enters the cave. Make your own stalactites and stalagmites. Fill two glass jars with hot water. Dissolve baking soda (as much as you can dissolve) in each one. Place the two jars in a warm place and put a small plate between them. Twist several strands of yarn or heavy cotton string together and add a small weight to each end. Drop one end (with the weight attached) into each jar and leave the middle hanging over the plate. Watch what happens for a few days. Compare the result to pictures of stalactites and stalagmites, and research to learn more about them.

Technology

- Go to the U.S. Geologic Survey's website (mrdata.usgs.gov/geology) to explore a geologic map of your state. What kinds of rocks are found in your state?
- When we think of technology today, we usually think of electronic devices and other gadgets. In prehistoric times, though, technology consisted of materials like sticks and rocks made into tools that solved some problem for early humans. Find out how what kinds of technological applications rocks were used for in prehistoric times. Do we have any similar tools that we still use today?

Engineering

- Find out what kinds of objects are made using the following minerals: granite, iron, gold, titanium, marble, slate, gypsum, asbestos, and graphite. Make or draw a mineral shop where you display for sale objects made from minerals. Add a small sign for each object that tells about the properties of the mineral which make it a good ingredient to use for the object it's in.
- To build transportation infrastructure such as roads and tunnels, engineers have to decide the safest places to build, sometimes cutting through rock. Build a natural landscape using play-dough and other materials. Make it a mountainous and complex landscape. Then, work together as a group of engineers to decide the best way to build a road from one corner to the opposite corner. What part of the landscape will you have to modify? Where will you have to cut through rock? Research how we cut through rock to build tunnels and roads, and simulate this on your landscape. Finally, add roads to your landscape using black paper.

Math

- Arrange your rocks in a pattern that uses shape, size, color, or another characteristic (or multiple characteristics) to determine the order of the pattern. See if your classmate can guess what your pattern is and what kind of rock would come next. Then switch roles and you guess your classmate's rock pattern.
- There are thousands of different minerals found in the Earth's crust. Among these minerals, there are eight elements that make up 98% of the crust. Find out what these eight elements are and their abundance in the crust. Make a pie chart showing how much of each is present.