

# GEOLOGIST

- To make it more exciting making lists of rocks and minerals, ask the boys to imagine a really cool sports car (have them name one and decide on the color). A Rock Star (name one) drive the sports car into a full service gas station for a fill-up. The Rock Star has on lots of jewelry - gold chains, diamonds, rubies, etc. The station attendant fills up the car with gasoline - premium of course. What kinds of metals make up the car? The tires are checked and filled (tires are an oil-related product). The gas station is a new limestone building with a beautiful concrete drive with lots of pebbles and a brick design (sand for bricks, limestone for the building and concrete driveway). Next door, Wolfe or Cornelius Nursery is having a sale on fertilizer, potash, and peat moss (nonmetallic products). The jewelry are also non-metals. By doing this, the boys have just completed requirement #1, and they might even remember it!
- Have the boys make 'rock sifters' and search for rocks through buckets of sand. Identify the rocks using color, clarity and cleavage. To demonstrate the cleavage of rocks, take a paper towel and tear it from top to bottom. Take another piece and tear it from side to side. The towel will tear cleanly one way - on its cleavage line, and it will tear jagged the other way. Minerals line up and the rock can be split smoothly on the cleavage line, but the rock can be broken if it is hit across its cleavage line. (req. #2)
- Make a mineral hardness scale. Using the rocks just 'found' through the sifters, use the fingernail, penny, nail and knife test. (req. #3)
- Display a group of rocks and have the boys try to identify them using their Webelos book.
- Hand out index cards with the materials listed - Aluminum (windows, doors), Calcium (cement), Silicon or Boron (glass), Lead or Zinc (pipes), Iron (nails, screws), Copper (gutters or wiring). Have a contest - which team can correctly locate the materials first. They have to stick the card on the part of the house that matches the card (req. #4)
- Make a volcano using a plastic cup with the bottom removed. Find a plastic tub that fits inside the hole of the cup. Put a few drops of liquid detergent into the cup. Add a few drops of red food coloring. Add 1/8 cup of vinegar, or 2/3 of 'tub'. Put about ¼ teaspoon of baking soda, and mix quickly. The volcano will 'explode' (req. #5).
- Explain one way in which a mountain is formed. Do all 3 ways! The **volcano** is one way. The second is **erosion**. Discuss erosion. Tell the boys that they will each need a small pool of water where can they find one for each boy? Let them think about this, and then tell them that their mouths can be a pool of water with acid and enzymes to 'dissolve rocks' just like a stream does. Then you need rocks - hand out 2 Sweettarts to each boy - but they have to listen first. The contest will be which boy can make his 'rocks' dissolve first in his mouth. The candy cannot be chewed or swallowed whole. They can jump around, swish the candy around in their mouth, whatever they want to do, except chew it. Have the boys stand up for this - it's worth video taping. The third way is **uplift** from a basin. Layers of erosion can be uplifted into mountains. Glaciers can also help cause this. Take a Styrofoam plate with toothpicks cracked but not broken at the midpoint. Stick these 'mountains' onto the plate. Take a large block of ice (or a book, or your hand) and pretend it is a glacier moving over the mountains, flattening, them, and pushing the material up against the side of the plate. This would eventually cause a mountain. Uplift is seen when the road has been carved through a hill or mountain. The layers of rock are not straight. They are at angles or forced up. Give each set of 3-4 boys a small mound of Playdough. Each of the 3-4 boys should have a different color. They need to flatten the dough into a small pancake. Stack the 3-4 pancakes. One member of the team takes the multi-colored pancake, and pushes in

from the sides. This causes uplift. Now, take a knife and cut down the middle of the uplift. Separate, and it looks like a mountain that has been cut for the road to go through. (req. #6)

- If the boys collect rocks, have them bring them to the meeting.
- Visit a Rock shop, or talk to a rock collector.
- Buy 2 geodes and let the boys take turns trying to break these open. Wear safety glasses!
- Burn some sulfur - explain the smell of leaking gas smells like this in order for it to be detected.
- Throw some pumice into a bucket of water - the boys will be surprised that it floats!
- Make a sedimentary sandwich - crunchy peanut butter and strawberry preserves on multigrain/nut whole wheat bread. Look at all the layers and 'rock' particles mixed together.
- Show the pressure required to fold the earth's crust or to have an earthquake. Take 1 sheet of newspaper and fold it in half, then again, again, etc. Fold it until you can no longer fold it. As 1 sheet of newspaper, very little strength or pressure is required, just like the loose dirt on the ground. It takes a lot of pressure to move layers of the earth.

### **GEOLOGIC MATERIALS IN HOUSE CONSTRUCTION**

Refer to page 186 in the WEBELOS Book. Match the Ore with the appropriate Metal. Draw a line from the ore to the correct metal. Then, use the book, and write down 3 uses per ore/metal.

ORE	METAL	USE
Magnetite	Calcium	
Azurite	Silicon	
Galena	Mercury	
Bauxite	Lead	
Borax	Copper	
Limonite	Iron	
Malachite	Boron	
Shalerite	Copper	
Quartz	Iron	
Limestone	Calcium	
Hematite	Copper	
Chalcocite	Iron	
Kernite	Aluminum	
Cinnabar	Zinc	

Resources:

- Houston Gem & Mineral Society 713-530-092
- Houston Museum of Natural Science 713-639-4609
- Houston Geological Society 713-785-6402
- Rock & Mineral Show (usually in October)