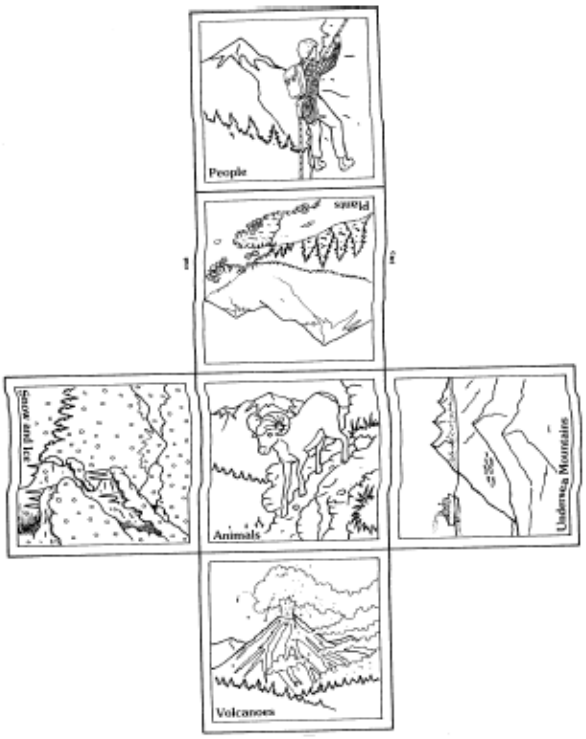
MOUNTAIN BLOCKS

Majestic, snow capped, mysterious, massive. All of these adjectives describe mountains – the tallest landforms on Earth. Mountains cover about one-fifth of the world's total land area and they exist on every continent, including Antarctica. Introduce your group to these diverse landforms and then have them make a mountain picture cube to review what you discuss. During you discussion, you will describe what mountains are made of, how they change over time, and where they are located, as well al how mountains affect people and wildlife.

Preparation: pictures of the Himalayas, Rocky Mountains and Appalachian Mountains; enlarged copy of the mountain block pattern for each boy (or make your own blank pattern and have the boys draw their own pictures), crayons or markers, glue, scissors, tape, map of the world, heavy construction paper or manila folders



First, have the boys sit in a circle as you show them pictures of the mountains and ask mountain-related questions. Choose questions that fit the level of your group. After talking about mountain landforms, distribute a copy of the mountain block to each boy. Have them color the pictures, then make a mountain picture cube to review the den's discussion. To make the blocks: first, have the boys color their blocks or, if using bland patterns, draw their own pictures and color. Glue the colored mountain blocks to a manila folder or heavy piece of construction paper or card stock and let the glue dry. Cut along the outer solid lines, then fold along the solid inner lines to make a cube. To make the folding easier, you might want to show the boys how to score the fold. Finally, tape the faces of the cube together to form the block.

Here are some sample questions to get your discussion underway:

MOUNTAIN BLOCKS, continued

What are all mountains made of?
Rocks

How do mountains differ?
Show them pictures of the Himalayas, the Rockies, and the Appalachians. Explain that some mountains are very steep with jagged cliffs and high peaks, while others look more like low, tree-covered hills.

What's the difference between a mountain and a mountain range?
Explain that sometimes a mountain, such as a large volcano, may stand alone. But most mountains form clusters, with many grouped very close together. These mountains form a mountain range.

Do mountain ranges exist underwater?
Yes, some of the longest mountain ranges in the world are beneath the oceans. Some of the peaks in these ranges, which are usually volcanic peaks, stick up through the surface, forming islands.

What is the highest continental mountain in the world?
Mt. Everest, in Tibet and Nepal. It is 29,028 feet high.

What is the highest oceanic mountain in the world?
Mauna Kea, on the island of Hawaii. It rises 33,476 feet off the ocean floor.

How does the temperature change when you climb a mountain?
It gets colder as you get higher. That is one of the reasons different kinds of plants and animals live in different places on a mountain.

How does the temperature affect the types of plants that grow on a mountain?
Near the bottom of a mountain where the air is warmer, there are many plants and some of them are very tall. As you get higher and the temperature gets colder, there are fewer plants and most are short and stubby. At the very top of a high mountain, it is too cold for most plants, including trees, to grow. On the tops of high mountains, you'll find either bare rock or rock covered with ice and snow.

Can you name some animals that live on mountains?
Mountain sheep, mountain goats, giant pandas, pikas, mountain quail, snow leopards, etc. Explain that some of these animals have special adaptations for mountain life.

Where do mountains exist today?
Point out major mountain ranges on a map of the world.

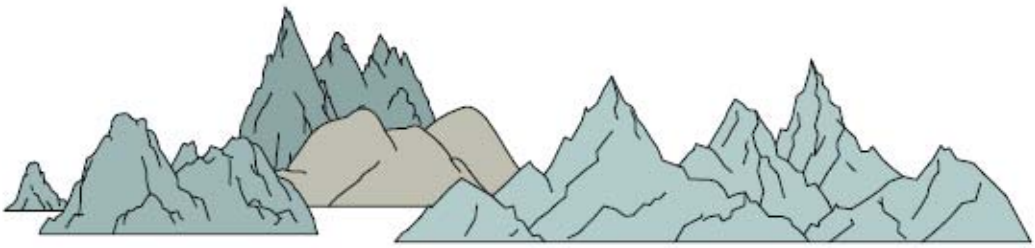
MOUNTAIN BLOCKS, continued

What are some ways people use mountains?
For hiking, skiing, mountain climbing, farming, and mining ores and other minerals. The beauty of the mountains also inspires the arts, like music, poetry, and photography.

Do mountains ever change?
All mountains are constantly changing. They erode from the action of wind, water, and ice. They rise as plates collide. Most changes occur slowly over time but sometimes, as in the case of Mount St. Helen's in 1980, the change is large and rapid.

Can you explain what a glacier is?
Some mountains are so high that the snow that falls on them does not melt. Sometimes, this snowfall packs together to form huge sheets of moving ice, called glaciers. Glaciers move very slowly – usually only a few inches a day – but they can carve deep valleys, scratch rock surfaces, and shape mountain peaks.

How do mountains form?
All mountains form as a result of changes deep inside the earth. For example, volcanoes form when melted rock form inside the earth erupts and piles up. Other types of mountains form when huge pieces of the lithosphere, called plates, interact with each other.



GEOLOGIST REQUIREMENT #1
Preparation: Gather maps or satellite photos of the world (or make enlarged copies) and a world atlas which has mining resources mapped on a worldwide basis. This is a common feature in world atlases. Samples of rocks and minerals, if available. Have your Webelos team up or work individually, depending on your map resources and the number of Webelos.

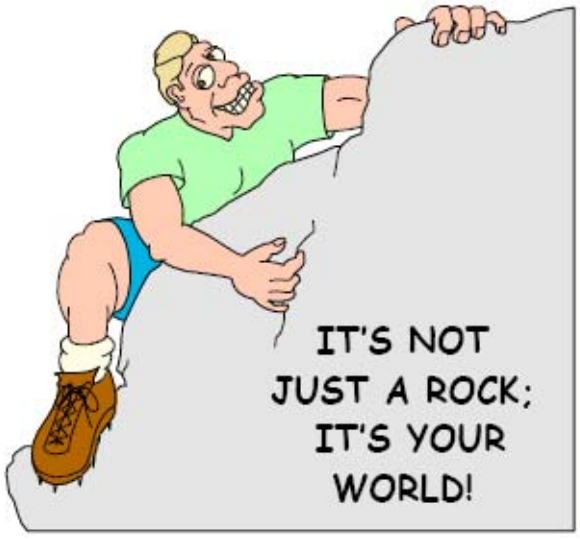
Ask the boys to locate, on their map, where the earth minerals and ores listed in the following chart are found. Have them mark their map with different colors or pieces of tape with the mineral name written on it. This will reinforce the lesson and allow for an overall discussion of America's role in supplying some of our consumer goods. If possible, have some samples of the minerals, rocks, or products made from the list of minerals they are locating. Ask the boys how each is used.

GEOLOGIST REQUIREMENT #1, continued

CARBON MINERALS			
MINERAL	**LOCATION**	**USES**	
Graphite	Korea	pencil lead, lubricants (derby car axles!)	
Coal	USA, South Africa, China, England, Australia	heaters, cooking, foil pack cooking	
Diamond	India, Africa, Arkansas	jewelry, saw blades, abrasives	
Petroleum	Russia, USA, Persian Gulf, Venezuela, Indonesia	natural gas for heating and engines, oil for fuels, lubricant, plastic, toys	
METALS/ORE			
MINERAL	**LOCATION**	**USES**	**ALLOYS**
Iron/hematite/ magnetite	USA (Great Lakes), Cuba, W Europe, S Africa, Chile, Brazil, India	stainless utensils, steel screws, bridges, beams for buildings	steel = iron + a little carbon castiron = iron + lots of carbon
Copper/azurite/ chalcopyrite/ malachite	Canada, USA (Rockies), Argentina, Chile, Peru, N Rhodesia, Japan, Congo, Scandinavia	pennies, electrical wire, pipes	brass = copper + zinc
Tin/cassiterite	Malaya, Indonesia, Bolivia, China	cans for food, bronze statues	bronze = tin + copper
Zinc/sphalerite	British Columbia, USA, Germany, Belgium, France, Poland	brass doorknobs, coating for iron	galvanized iron = zinc + iron
Gold/hematite	USA (Alaska, Rockies, California), South Africa	jewelry, coins	copper, silver, nickel added for hardening
Silver	Mexico	jewelry, dinnerware, coins, photographic chemicals, solders	copper added for hardening
Platinum	Ural Mountains	jewelry	iridium and ruthenium for hardening

GEOLOGIST REQUIREMENT #1, continued

METALS/ORE			
MINERAL	**LOCATION**	**USES**	**ALLOYS**
Aluminum/ bauxite/ corundum	Jamaica, South Africa, Burma, Ceylon	rubies and sapphires are aluminum gems, cans for food items, abrasives, cements	occurs only as aluminum oxide in nature
Nickel/ pentlandite	Ontario, New Caledonia, former Soviet Union	coins, steel alloy	alloyed with copper for USA nickel and British silver coins
Mercury/ cinnabar	Spain	scientific instruments such as thermometers	
Uranium/ pitchblende	England, Congo	atomic energy fuel	
Lead/galena	Australia, USA, Canada, Germany, Mexico	batteries, ammunition, cables, solders, shield for radioactive material	
Phosphate/ apatite	Russia, Tunisia, Morocco, USA, Algeria, Egypt	fertilizer	
Salt	England, USA (Texas, Louisiana)	food seasoning, preservative	



TEXAS FOSSILS