

Basalt

Basalt is the most common volcanic rock in the world. It often is made up of lava that has cooled and hardened. Sometimes entire islands are formed from volcanic rock. You can see basalt on the slopes of old volcanoes in the state of New Jersey.

Basalt is usually black or gray-black. Although basalt is a volcanic rock, it is not shiny like obsidian, and it is not light like pumice. Basalt is hard and dense. Its texture is fine.

Basalt is a source of iron ore and copper. The basalt in the area around Lake Superior in Canada has large copper deposits. Beautiful dark-blue sapphires, used for jewelry, are among the valuable minerals found in basalt. If you were born in September, the sapphire is your birthstone!

Basalt is one of the strongest and most durable of all rocks. Because of this, it is used for the outside of buildings, for roads, and for tombstones.

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Conglomerate

Conglomerate is found all over the world. It is a sedimentary rock that forms from small pieces of other rocks that become pressed together at the bottom of a lake or an ocean.

Sometimes conglomerate contains pebbles of older rocks and looks like a chocolate chip cookie! Other times, conglomerate has tiny pieces and looks like a chunk of concrete. The pebbles in conglomerate are usually round and smooth. Sometimes they look polished. This is because they have been worn down by wind, rain, ice, or snow.

Conglomerate is often softer than other rocks. It can wear down easily. Because of this, it is not used by itself to make buildings. Conglomerate is used in concrete building foundations.

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Gneiss

Gneiss (pronounced “nice”) is a hard, coarse metamorphic rock. It is formed when shale and granite are heated and pressed together under the surface of the earth. Gneiss and granite can look alike, even to rock experts. As a joke, they often warn, “Don’t take gneiss for granite!”

There are many different kinds of gneiss. Its color may be dark or light. Gneiss often has bands, or layers, that are formed when its minerals flatten under heat and pressure.

Gneiss is found all over the world. It can be seen in mountain ranges such as the Alps in Switzerland, the Andes in South America, and the Rocky Mountains in the western United States.

Polished gneiss is used for the fronts of buildings. It is considered one of the most beautiful rocks in the world. Some gneiss contains garnets, dark-red minerals that look like rubies.

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Granite

Granite is one of the hardest of all rocks. For this reason, some people call it the “rock everlasting.” Granite is the most common rock in the earth’s crust. It is an igneous rock, formed when molten rock cools underground.

Granite is usually light in color. It may be speckled or banded. Its crystals may be large and easy to see. Can you see crystals in your granite? What minerals do you think they could be?

Granite is found in high mountains like the Rockies. It is also found in older, smaller mountains like the Appalachians. Granite is common in the eastern United States; in fact, New Hampshire is called “The Granite State.” In some places in England, granite blocks as large as houses cover the hillsides. These huge rocks are called “tors.”

Granite is used for buildings, monuments, bridges, and curbstones. Tin and copper are mined from granite.

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Limestone

Limestone is not green and has nothing to do with a fruit! Its name comes from a Latin word that means “mud” and an old English word for “glue.”

Limestone is a sedimentary rock. It may be white, gray, or yellowish. Rain and wind can wear it down, making it look rounded.

Fossils are often found in limestone. Some types of limestone are formed from the shells of sea animals. Coral reefs, or fossil reefs, are made up of many thousands of these tiny creatures.

Limestone is used to make cement and glass. It is an ingredient in agricultural lime, which farmers put on soil. Limestone is also used for building materials. Chalk is a form of pure limestone. Gas and petroleum may be found in large limestone deposits.

Limestone was once used in buildings. What do you suppose has happened to some of those buildings?

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Marble

Marble is a beautiful, very hard metamorphic rock that is formed from limestone. Because it contains thousands of sparkling crystals, marble is sometimes called the “shining stone.”

Sculptors use pure white marble, which is rare and expensive. Many of the famous statues of the Italian artist Michelangelo, who lived in the 1600s, are made of white marble. Marble is often streaked with green, rose, or pink. Some marble is even black.

Marble has been used for centuries on the floors, walls, and ceilings of churches and important buildings. The Romans used marble to build their temples.

One of the world’s most famous marbles, which is called “Carrara,” comes from Italy. In the United States, marble is found in the Adirondack Mountains in New York State and in the Sierra Nevada Mountains in the West. Marble is cut in large blocks from quarries, which are large pits in the earth that have been dug out by miners.

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Obsidian

Obsidian is sometimes called “natural glass” or “volcanic glass.” It is a black, shiny rock that forms when lava erupts from a volcano and quickly cools.

Because obsidian cools very quickly, its crystals are usually very small. Snowflake obsidian, however, is a rare form of the rock that is dotted with large white crystals.

Obsidian got its name from a man who found this rock in Ethiopia, which is in eastern Africa. It is found near volcanoes throughout the world. In the United States, obsidian has been found in Yellowstone National Park in Wyoming.

Obsidian is one of the first materials known to be used in trade among ancient peoples. They used it to make weapons and tools. Knives made of obsidian were used to cut meat.

Can you find obsidian in your set of rocks?

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Pumice

Pumice is a volcanic rock. Its surface is covered by tiny holes. These holes were made by gases that bubbled out when the lava erupted from a volcano.

Some pumice is so light that it will float in water! According to one story, sailors walked two miles to shore on floating pumice after a volcanic explosion on an island in the Pacific Ocean. Because it is so light, pumice is often used on movie sets. When you see Superman pick up a heavy boulder, it's probably made of pumice!

Around the house, you may use pumice for polishing or cleaning. It's also used in sandpaper. And if you get a callus on your foot, you can smooth it down with a pumice stone. In industry, pumice is used to make heat and sound insulation materials.

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Sandstone

Sandstone is a sedimentary rock that sometimes looks like pieces of beach sand that have been glued together. The color and strength of sandstone vary. Some sandstones are soft, almost crumbly. The grains may be small, medium, or large. The edges may be rounded or sharp, depending on how much the rock has been weathered.

Red sandstone is common in the canyons and mountains of New Mexico, Utah, and Arizona. Members of ancient American civilizations such as the Anasazi built their homes into the sides of these canyons. If you walk to the bottom of Canyon de Chelly in Arizona, you can still see parts of these ancient homes.

When sandstone is squeezed by underground pressure, it forms quartzite. Quartzite contains quartz crystals. Sounds confusing, doesn't it? But by now you probably can explain the difference between quartz and quartzite. Which is a rock? Which is a mineral? Why?

Sandstone is found worldwide. It is used in building materials. It is also used to make . . . sandpaper!

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Schist

Schist is a metamorphic rock made from shale and mud. It can be brown, black, or dark green. You can see it when you are riding along a road that cuts through low mountains like the Blue Ridge in the eastern United States. It also is found along glaciers in Alaska.

Schist is broken up and used in making roads. It may have large crystals that can be used in jewelry. For example, garnets, a red gemstone, are often found in schist. Schist sometimes contains shiny flecks of biotite or muscovite.

Do you see minerals in your schist?

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Shale

Shale is the most common sedimentary rock. It is made of clay and mud. In fact, shale is often called “mudstone,” because it smells like mud when it is wet. Shale is very smooth and has a fine texture. It splits easily into flat layers. Shale may be gray, black, red, brown, or yellow. Fossils are often found in shale.

Today, mining engineers drill through the earth’s crust to find petroleum, or oil, which formed from decaying sea plants and animals. Oil and natural gas collect in large pools between layers of shale.

Petroleum and natural gas are called “fossil fuels.” Do you know why?

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Slate

Slate is a metamorphic rock that is formed when shale, a sedimentary rock, is put under pressure. Like shale, it splits easily into layers. Slate has a muddy smell when it is wet. It may be gray, green, or even purple. Its texture is very fine and even.

Slate is cut out of quarries in huge blocks. Next, it is split into sheets and cut into pieces. These large, flat pieces of slate, sometimes called flagstone, are used for patios, terraces, and other types of paving. Slate is also used for roofing.

Old-fashioned classroom blackboards are made of slate. Before notebooks were invented, every student carried a “slate” to class every day.

Which rock do you think you could use to write on slate?

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