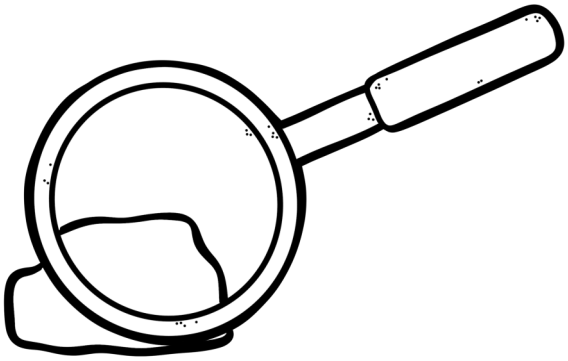
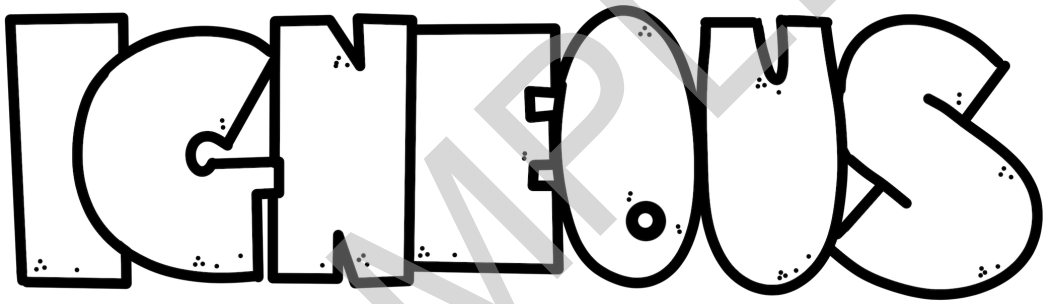
Discovering Rocks, Minerals, & Crystals

When most of us look at rocks, we see just rocks. They might be different colors, but they are pretty much all the same. Or are they? Actually, rocks come in all sorts of sizes, shapes, and colors, and they have many different uses in our world today. There are many ways to separate rocks into groups, but before we start, there are a few words we need to be sure to understand.

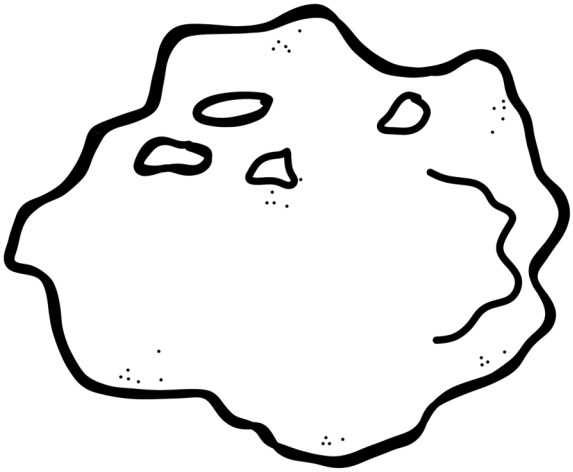


- A rock is a mass of minerals.
- Minerals occur in nature and are not living. Their atoms are arranged in a specific way, and each mineral has a different arrangement.
- Minerals are usually found in the form of crystals.

Now let's look at three types of rocks—igneous, sedimentary, and metamorphic.



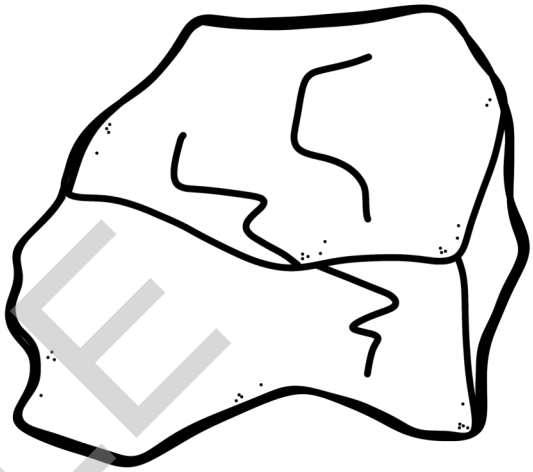
Igneous rocks are rocks formed from magma. Remember magma is molten rock beneath the earth's surface, but it is not the same as lava. When magma erupts out of a volcano, chemical changes take place. So the lava we see outside a volcano is not the same as the magma we see inside a volcano.



Igneous

SEDIMENTARY

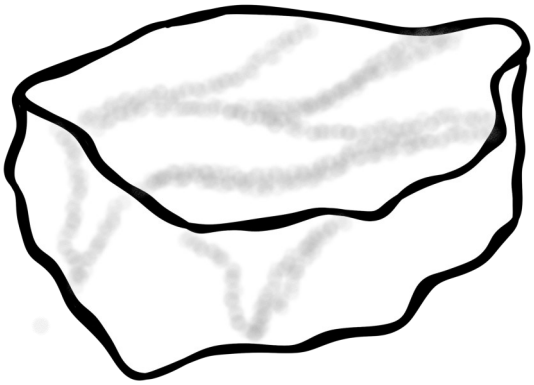
Sedimentary rocks are rocks that are formed when water, wind, or ice carry away small pieces of rocks. They can also be made from decayed plants and animals or from minerals that settle out of a liquid like water. When Mount St. Helens erupted in 1980, it deposited a layer of sediment 25 feet (8 meters) thick in just three hours.



Sedimentary

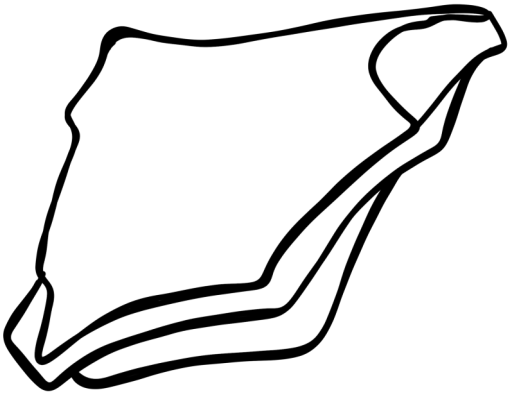
METAMORPHIC

Metamorphic comes from the Greek for "change of form." Sometimes, heat, pressure, or chemicals interact with igneous rocks or sedimentary rocks. When this happens, metamorphic rocks are formed.

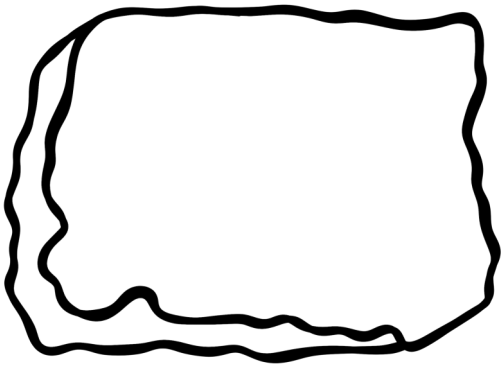


Metamorphic

Shale is a sedimentary rock made up of mud and clay compacted together. It breaks easily into thin layers with sharp edges. We use shale nearly every day. In the past, clay was used to make things like brick, tile, pipes, and pottery, but manufacturers now often grind shale and combine it with water to make a strong clay to use in making these things. It's also used to make cement.



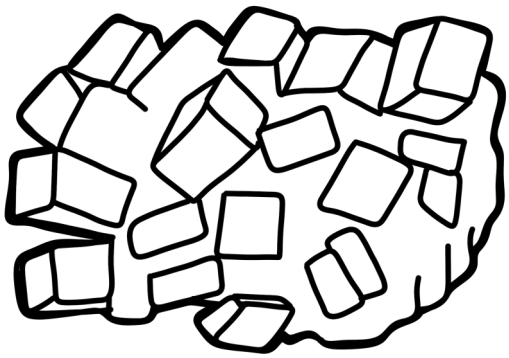
Shale



Limestone

Limestone is a fine-grained sedimentary rock. Limestone forms when calcium carbonate crystallizes out of a solution. It can do this in many different ways. Some of it happens when water evaporates in places like the hot lagoons of a coral reef. Sometimes, it happens as animals such as oysters, clams, snails, corals, and sea urchins die, and their shells, made up of calcium carbonate, are broken apart by the water. Limestone is used as a building material and is used in countless other ways such as making cement, refining metals, and improving soil.

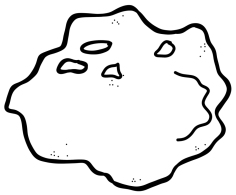
Dolomite is a sedimentary rock made from magnesium carbonate replacing calcium carbonate in marine animal skeletons or from minerals that settle out of seawater. It is often shades of white, gray, and light brown, though it can be other colors if impurities are mixed in. Dolomite is very helpful in manufacturing iron and steel, and it can also be used in paint, putty, and rubber.



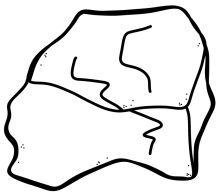
Dolomite

Review

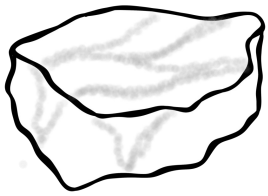
Which of the following is a rock formed from magma? Draw a circle around it.



Igneous



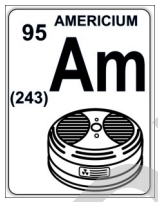
Sedimentary



Metamorphic

Which element is not found in the minerals rocks are made of? Draw an X through it.

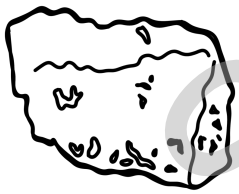
Oxygen



Americium

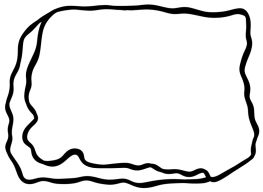
Silicon

Which of these is not an igneous rock? Draw an X through it.



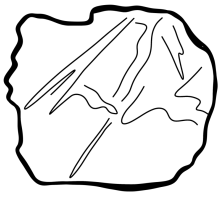
Diorite

Granite



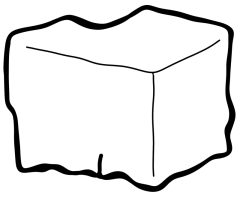
Limestone

Which of the following metamorphic rocks is a popular material for sculptors? Draw a circle around it.



Marble

Schist



Quartzite