

HOW ROCKS ARE FORMED

Videos

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Rocks are continuously changing.

Temperature, weathering through rain or wind, pressure — rocks move through a cycle back and forth, back and forth.

Let's take a look at the different types of forms rocks can be found in:

Igneous

Igneous rocks are formed through the cooling and solidification of magma, or lava. The atoms and molecules of the minerals in the magma are rearranged, and as they cool, they form together into rock.

Igneous rock formations are found in Yosemite National Park in California, Sunset Crater Volcano National Monument in Arizona and through the U.S.

Sedimentary

When rocks are weathered and eroded they break up into smaller pieces called sediment — think of dirt or sand. Over time, this sediment can be moved by wind, rain and flows of ice.

Sediment compress over a long period of time and form sedimentary rock. It can even form from the skeletons of animals, from plants and from other living things. We find fossils in sedimentary rock.

Sedimentary rocks make up 75 percent of the rocks on the Earth's surface. Sedimentary rock formations are found in Arches National Park in Utah, Grand Canyon National Park in Arizona and more.

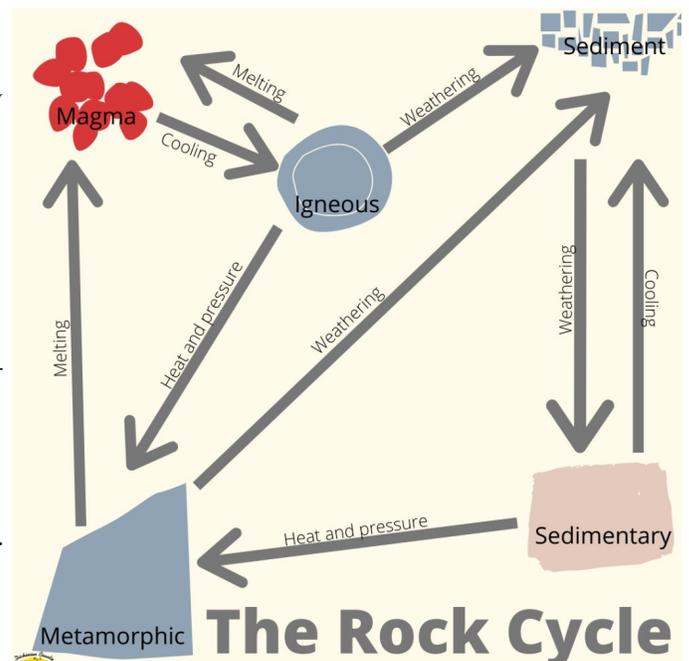
Metamorphic

Metamorphic rocks are rocks that have been changed by heat, pressure or both. They started off as either igneous or sedimentary rocks, were buried, squeezed, folded and heated as mountain ranges were pushed up from the Earth's crust.

Metamorphic rocks are found in Rocky Mountain National Park in Colorado, Shenandoah National Park in Virginia and Harper's Ferry National Historic Park on the east coast.

Minerals

Minerals actually aren't rocks but are the building blocks for rocks. Minerals are natural, solid, inorganic substances. They aren't formed from plants or animals but are made up of chemicals. Most minerals are made of repeating crystals. They grow or cement together to form rocks.



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IOWA'S STATE ROCK: GEODE

Iowa's State Symbols

State rock: Geode

State flower: Wild rose



State tree: Oak



State bird: American goldfinch



A geode has many definitions, comes in many shapes and sizes and has an interior that can look many different ways.

This interesting natural phenomenon is Iowa's state rock.

Geodes begin when a cavity is formed inside of a rock, which can happen in different ways.

First, geodes can form in igneous rock.

When lava or magma cools and a bubble of carbon dioxide or water vapor flows in, an empty space is left behind. Lava can also solidify underwater, and any water inside will crack the rock and leak out, leaving a cavity.

Geodes can also form in sedimentary rock. What starts as a solid core could begin to dissolve, or a piece of organic matter like a fossil or wood buried in the sediment could weather out over time, leaving a cavity.

That's when the real magic begins to happen.

These hollow rock shells are porous, so over time mineral-rich groundwater or rainwater will begin to seep inside. Layers upon layers of minerals begin to line the cavity.

Because the mineral-rich water that seeps inside geodes is different, that is why the insides of geodes look different. The inside could be filled with quartz crystals, hematite, dolomite, calcite and agate.

Geodes can be small, a few inches across, or up to several meters in length. They separate from their host rock because of their strong outer shell that stays even when the rock around them is worn away. They can then be dug from the land or soil or found in stream beds whole.

Geodes are Iowa's state rock because one of the best-known occurrences of geodes in the entire world is in Keokuk. Formed in limestone, these geodes are usually a few inches wide and have outer layers of chalcedony with interiors of quartz crystals. They are often found in soil and streams.

