

MINERALS, ROCKS, AND THE ROCK CYCLE

You might be surprised that rocks don't stay the same forever. New rocks are always forming, and old rocks are always changing.

Rocks are formed from **minerals**, solids that occur naturally and have a crystal shape. Instead of only one kind of rock, there are three types:

Igneous rocks are formed from hot magma that cools below the surface or lava that cools quickly above the surface.

Sedimentary rocks are formed from weathered bits of rocks (sediments). These sediments are deposited into layers called strata.

Metamorphic rocks are formed when igneous or sedimentary rocks are exposed to heat, pressure, or both heat and pressure.

The **rock cycle** is the journey rocks take as they change from one type of rock to another. It is dynamic. Rocks form, break down, and then continue to move through the cycle. There are different stages in the rock cycle, though they don't have to follow in order. Several stages may even happen at once. They occur over thousands or millions of years. The first stage is when magma cools and crystallizes beneath the earth's surface. The second stage is when magma flows to the surface of the earth through volcanic activity, hardening to form igneous rock. The third stage is when weathering, erosion, and movement carry sediments of rocks to low-lying places. The fourth stage is when sediments pile up, compact, and cement.

In addition to these changes, weathering and erosion take place. Three types of weathering break down rocks, including physical, chemical, and biological weathering.

Physical weathering is when temperature changes cause rocks to heat and cool, expanding, contracting, and cracking rocks.

Chemical weathering is when chemical reactions break down rocks, like when acidic rainwater and air pollution cause rocks to weather and break apart.

Biological weathering is when animals and plants grow and crack and widen rock.

Finally, **erosion** is an important factor in the rock cycle. It is the movement of weathered rock from one place to another by wind, ice, water, and even gravity.