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Background information: Rock cycle

Rock cycle is a model that describes the slow transformation of rock from one type to another. Geologists divide rock into three basic types. They are (1) *igneous rock*, (2) *metamorphic rock*, and (3) *sedimentary rock*. Igneous rock is formed when molten rock cools and hardens. Sedimentary rock consists of tiny particles called *sediments* cemented together. Metamorphic rock forms from other rock through heat, pressure, or both. Changes in a rock's surroundings can cause it to change among the three types of rock. The rock cycle describes these changes.

In one stage of the rock cycle, igneous rock forms from *magma*. Magma is molten rock beneath Earth's surface. Magma can flow to the surface through volcanoes. Upon reaching the surface, the molten rock cools and hardens into solid igneous rock.

In the next stage of the cycle, igneous rock on the surface is exposed to *erosion* and *weathering*. Erosion is the wearing away of rock by the action of water, wind, or ice (see [Erosion](#)). There are two basic forms of weathering. *Physical weathering* is a breaking down of rock often caused by repeated heating and cooling. *Chemical weathering* results when minerals in a rock are dissolved, usually by water, carbon dioxide, or volcanic gasses. Erosion and weathering break down the rock into sediments. Wind, water, and ice can carry these sediments and deposit them elsewhere. If such sediments accumulate into a thick layer, they can harden into sedimentary rock. Another type of sedimentary rock can form when water from weathering evaporates, leaving behind any previously dissolved minerals.

In a third stage of the cycle, sedimentary rock becomes buried under additional layers of rock forming above. As the rock is buried deeper and deeper, it is exposed to increasing heat and pressure. Some combination of the heat and pressure may eventually transform it into metamorphic rock. Continued exposure to heat at even greater depth may cause metamorphic rock to melt into magma, completing the cycle.

A particular sample of rock rarely proceeds straight through the entire rock cycle. It may skip, repeat, or even reverse steps. For example, some igneous rock transforms directly into metamorphic rock. Sedimentary rock can itself erode and weather, reforming as another sedimentary rock. Metamorphic rock can also undergo erosion and weathering, forming sedimentary rock.