



All beaches are covered in pieces of rock. Some beaches are covered in tiny pieces of rock called sand, while others, like this one, are covered with larger rocks.

Rocks on the Beach

Imagine you're standing on a beach in Washington state. It's a sunny day, the ocean waves are crashing against the beach, and a bald eagle sits in a nearby tree. You might expect the beach to be covered in fine, white sand—but this beach is covered with rocks of all shapes and sizes. Some of the rocks are smooth and round. Others are rough or jagged. Where did all those rocks come from, and how did they form? That depends on the type of rock. It turns out that whether a rock is smooth, jagged, pink, or brown doesn't tell us what type of rock it is. Geologists study rocks to find clues about how the rocks were formed. Once they know how a rock was formed, they can tell what type of rock it is.



This sedimentary rock is made of sediment that has been pressed together over a long period of time.

Some rocks form from sediment, which is made up of small bits of rock such as sand and pebbles. How does sediment turn into new rocks? Loose sediment moves downhill, usually into a low place where there's water, like a lake or the ocean. Layers of sediment begin to build up in the water. Over time, all those

layers press on the layers below, compacting the sediment at the bottom. Minerals in the water also create a kind of “glue” that holds the compacted sediment together in a process called cementation. Together, the compaction of many layers and the mineral “glue” transform sediment into new layers of rock. Since it’s formed from sediment, this type of rock is called sedimentary rock.

Other rocks form from cooled magma—liquid rock. Some magma cools and hardens while it’s still underground. Liquid magma can also be spewed onto the surface through volcanic activity. At Earth’s surface, whether it is in open air or underwater, the magma cools and hardens into new rocks. Rocks that are made from magma are called igneous rocks. The rocks you find on the beach may be made from sediment or cooled magma, and there may be some of each type.



This igneous rock is made from cooled magma.