

Rocks ▪ *Section Summary*

Sedimentary Rocks

Key Concepts

- How do sedimentary rocks form?
- What are the three major types of sedimentary rocks?
- How are sedimentary rocks used?

Sediment is small, solid pieces of material that come from rocks or living things. **Most sedimentary rocks are formed through a series of processes: erosion, deposition, compaction, and cementation.**

Erosion occurs when running water, wind, or ice loosen and carry away fragments of rock. Eventually, the moving water, wind, or ice slows and deposits the sediment in layers. **Deposition** is the process by which sediment settles out of the water or wind carrying it. The process that presses sediments together is **compaction**. Over millions of years, thick layers of sediment build up. These heavy layers press down on the layers beneath them. While compaction is taking place, the minerals in the rock slowly dissolve in the water. **Cementation** is the process in which dissolved minerals crystallize and glue particles of sediment together.

There are three major groups of sedimentary rocks: clastic rocks, organic rocks, and chemical rocks. Most sedimentary rocks are made up of broken pieces of other rocks. A **clastic rock** is a sedimentary rock that forms when rock fragments are squeezed together. Clastic rocks are grouped by the size of the rock fragments, or particles, of which they are made. Common clastic rocks include shale, sandstone, conglomerate, and breccia.

Organic rock forms where the remains of plants and animals are deposited in thick layers. Two important organic sedimentary rocks are coal and limestone. Coal forms from the remains of swamp plants buried in water. Over millions of years, they slowly change into coal. Limestone forms in the ocean, where many living things, such as coral, clams, and oysters, have hard shells or skeletons made of calcite. As they die, their shells pile up in layers on the ocean floor. Over millions of years, compaction and cementation change the sediment to limestone.

Chemical rock forms when minerals that are dissolved in a solution crystallize. Limestone can form when calcite that is dissolved in lakes, seas, or underground water comes out of solution and forms crystals. **Chemical rocks** can also form from mineral deposits left when seas or lakes evaporate.

People have used sedimentary rocks through history for many different purposes, including building materials and tools. Sandstone and limestone have been used as building materials because they are soft enough to be cut easily into blocks or slabs. Limestone is used in making cement.