

VOCABULARY

Look for these words as you read:

fossil

sediment

sedimentary rock

What Fossils Tell Us

Sedimentary rock forms from sediments that are pressed together in layers. **Sediments** are tiny bits of soil or rock that have been broken down and deposited. Wind and water deposit most of the sediments. Over time, layers of sediment are formed with new sediments, which are deposited on top of older layers. Sedimentary rocks are formed by the weight of the top layers, or of water covering the sediment, pressing the sediment together. It can take millions of years for sediment to become rock.

Fossils, remains or imprints of living things from the past, are preserved in sedimentary rocks. Fossils give scientists information about environments of the past. Ammonites once lived in Earth's oceans. Ammonite fossils are found in rock that is now on dry land. This indicates that the land was once covered by water.

Ammonites lived in water. These fossil ammonites were found on land.



Scientists can also determine the relative age of fossils based on the layer of rock in which they are found. Some fossils also provide clues to a rock layer's relative age. How deep an organism is buried also gives clues as to when the organism lived. Fossils found in layers closest to the surface are usually younger than fossils that are found in deeper layers of rock.

Talk About It

What are the differences and similarities between sediment and sedimentary rock? Discuss with a partner.

Earth's Forces

Earth forces can affect the formation and patterns found in rock layers. Some of these forces include volcano eruptions, earthquakes, and the flow of rivers.

When a volcano erupts, it releases rocks, gases, and hot liquid rock called lava. Lava flows onto the surface, it cools, and hardens into new rock. A new layer of rock forms on top of the old layer each time a volcano erupts, like a stack of pancakes. This happens on continents and under oceans. An island can slowly form when enough underwater rock builds up to reach above the ocean surface. The Island of Hawaii formed this way.

Like volcanoes, earthquakes can change Earth's surface. During an earthquake, the sudden slip of two plates can cause cracks or can cause huge rocks to slide up over another layer. These changes can sometimes look like s-shaped folds in the rock layer.

Slow movements of Earth's plates can be very powerful too. When plates push together, they push up land. Over millions of years, these forces can form mountains. The Rocky Mountains, in Colorado, formed this way.

Water can interrupt rock layers by slowly removing rock particles. It slowly carves a gap in the layers, like when you cut and remove a piece of cake. Eventually a canyon forms. It took millions of years for the Colorado River to form the Grand Canyon.

Do you wonder what Earth was like when dinosaurs roamed the planet? Some scientists do too. **Paleontologists** are scientists who study living things, or organisms, that lived long ago. Paleontologists take detailed notes when researching in the field. Most of their work is focused on observing and collecting data from fossilized remains of ancient organisms. These organisms could be plants, animals, or microbes. They could range in size from a microscopic single cell to the fossilized remains of a dinosaur.