

# How Fossils Formed

The image displays a dense field of fossilized ammonites. These marine mollusk shells are preserved in a light-colored, sandy matrix. The fossils exhibit a variety of colors, including shades of brown, tan, and grey, and are shown in different orientations, some in cross-section and others in profile. The intricate spiral patterns of the shells are clearly visible, showing the characteristic whorls of these ancient creatures.

# What are fossils?

Fossils are the remains or impressions of plants and animals that have been preserved in rock, soil or amber. Traces of ancient life such as footprints are also considered fossils.

The oldest fossils on Earth formed billions of years ago. The youngest fossils formed from organisms that lived 10 000 years ago.



The remains of most plants and animals are usually either scavenged and eaten by animals or they are decomposed by microorganisms. Fossilisation is a rare occurrence.

A fossil can only form if an organism is quickly buried in sediments. Being buried reduces the oxygen supply which slows the decay of the organism. The sediments surrounding the organism become compacted and eventually turn into rock with the organism inside. Hard plant stems and body parts such as bones, teeth and shells can become fossilised when they absorb minerals from the sediments around them.

Sometimes the organism completely dissolves away, leaving an imprint or a hole in the rock. This is called a *mould*. It can sometimes fill with sediment making a *cast* of the organism.



Many fossils are found in *sedimentary* rock layers that were once under the oceans.

Organisms that died were quickly submerged and settled into the muddy sediments on the ocean floor.

The Earth's surface has changed dramatically over millions of years due to the movement of its tectonic plates. Many places that were once covered by oceans are now exposed on the continents. These are the places where fossil evidence is most abundant.

The fossil in this picture is an extinct sea creature called an ammonite that lived between 400 - 65 million years ago. It had similarities to the squid and the nautilus that live in our oceans today.



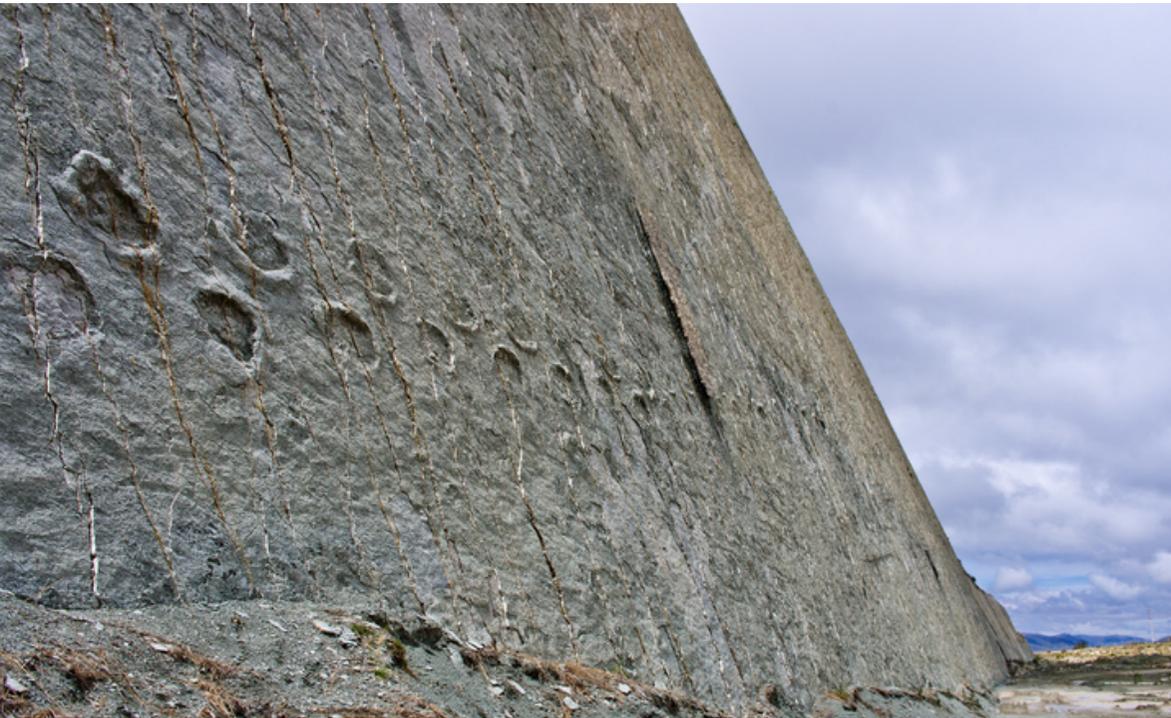


Some creatures trapped in tree sap became fossilised when the sap hardened, forming amber.

Dinosaur tracks can also become fossilised. When herds of dinosaurs walked across the muddy shores of a waterhole they left footprints.

During a period of drought the mud dried up and the footprints remained. The sediments became hard leaving a mould of the dinosaur's footprints. Over time these may have been filled with sediments which compacted and became casts of the prints.

How do you think the footprints on this quarry wall in Bolivia (see the picture below) were formed?



Dinosaur Tracks on the Wall of Cal Orko, Sucre, Bolivia



Morrison Fossil Area, Colorado, USA.