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Fossils: Clues to the Past

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Everybody knows that dinosaurs once roamed the earth. But how do we know that fact? Dinosaurs lived many millions of years ago and there were no photos taken of them (or any people around to take those photos!). Yet scientists do have proof of dinosaurs, thanks to fossils.

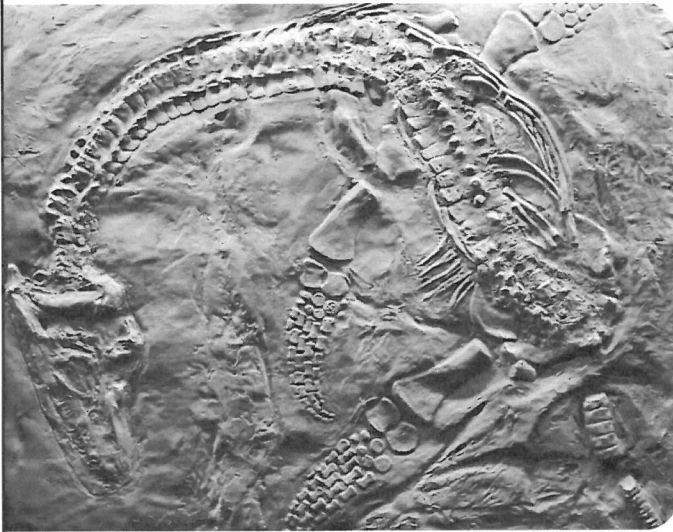
A fossil is what is left of an animal or a plant a long time after it dies. Fossils are the buried parts of living things that have been preserved from a different geological time period. You can think of fossils as the ancestors of today's animals and plants. To be considered a fossil, the remains must be at least 10,000 years old.

Usually when an animal or plant dies, it decomposes. That means it rots away to nothing over time. But sometimes, an animal gets buried at the bottom of an ocean in layers of sand or mud called sediment. Over many years, the animal's skeleton gets crushed by more layers of sediment. Eventually, the sediment hardens into rock over the bones, which decay. When that happens, minerals slowly replace the bones and make a cast of the skeleton in the same shape as the original. Millions of years later, the rock surrounding the skeleton surfaces after an earthquake or after erosion from wind and rain. The fossil is then just waiting to be found, perhaps by someone like you digging it up from the ground!



There are some other, more unusual ways for fossils to form. Scientists have discovered skeletons of animals that died instantly when a volcano erupted, their bones preserved in the ash. Small bugs or insects caught in tree sap can become fossils when the sap hardens into a golden material called amber. And animals trapped

in sticky natural asphalt or tar can turn into fossils. The most famous example of these fossils can be found right in the middle of California's biggest city, Los Angeles. Scientists have uncovered more than three million fossils from the Ice Age at the *La Brea Tar Pits*, including saber-toothed cats and mammoths. And scientists there continue to dig up more fossils all the time!



Huge dinosaur skeletons are probably the most famous kinds of fossils. The largest ever found is a dinosaur called *sauroposeidon* (sore'-oh-puh-sie'-dun). Scientists think this type of dinosaur was 60 feet long and weighed 60 tons—that equals 120,000 pounds! But fossils are not always huge. The tiniest dinosaur fossil was found in China. *Microraptor* was only about a foot long, which is about the

size of a box of cereal. Even tinier are the smallest fossils ever discovered, blue-green algae that lived on some rocks in Africa more than three billion years ago. Blue-green algae are also the very oldest fossils ever found.

Fossils give us a wonderful window into our past. Today the science of studying fossils is alive and well. *Paleontology* (pay-lee-un-tall'-uh-gee) is the study of the history of life on earth, using fossils as the evidence. So if you love dinosaurs and you want to know more about what happened on Earth thousands or millions of years ago, maybe someday you can make your living by digging up fossils!