



## Background Information

The word “fossil” comes from the Latin word **fodere** which means “**to dig up.**” In ancient times, anything that was uncovered from the earth such as minerals, tree limbs, bits of rock, etc. were called fossils. **Fossils** are studied scientifically now and are thought to be plant and animal remains, or some indication of their remains, that have been preserved in the earth’s crust. Scientists who study the remains of ancient life are called **paleontologists.**

If a plant or animal is going to become fossilized, it seems that the following two conditions are necessary: first, the plant or animal must have **hard parts** such as roots, stems, bark, or wood in plant; and bones, teeth, or shells in animals; and second, the plant or animal must be **buried quickly** before the hard parts can be broken or destroyed.

Many fossils show signs of being altered or changed from their original form. Some fossils form from **preservation of actual remains.** Sharks teeth buried in sedimentary rock or mammoth bones that have been buried in tar pits are a few examples. Insects have been embedded and fossilized in thick, sticky resin of ancient pine trees, called amber. Some dinosaurs have been found mummified in dry, arid desert climates allowing scientists to find dinosaurs with their skin intact.

Other fossils form from **molds, casts, or imprints.** Some animals, such as worms and graptolites (animals without hard parts) are fossilized by a method called distillation. In this case, the remains are subjected to great pressure by the weight of the sediments above them. The remains are pressed until only a carbon imprint is left in the sedimentary rock. Some fossils, such as trilobites, are formed from casts and molds. The original animal leaves a cast in sedimentary rock that is filled by other sediments to form a mold.

**Replacement by mineral matter** is another way fossils may form. Petrified wood is formed as the original hard parts of the wood were replaced by minerals contained in the ground or water around it.

Some fossils, called **trace fossils**, are not the remains of animals, but burrows, footprints, and evidence of feeding. Coprolite, or dinosaur dung, is an example of a trace fossil.

## Age of Dinosaurs

Reptiles arose and diversified during the Pennsylvanian Period, one of the last periods of the Paleozoic Era. **Dinosaurs**, called “**terrible lizards**”, ruled the land during the **Mesozoic Era**. They made their first appearance during the **Triassic Period** and lasted until a mass extinction at the close of the **Cretaceous Period**. They were the dominant life form on the land for about **150 million years**.

About 350 kinds of dinosaurs are known to have roamed the earth and their fossils have been found on every continent. They are divided into two categories based on the structure of their hip bones. The lizard-hipped dinosaurs are called **Saurischians**, while the bird-hipped dinosaurs are called **Ornithischians**.

At the end of the Mesozoic Era, about 65 million years ago, the dinosaurs and many other living creatures died out. The cause of their **extinction** remains a mystery and several possibilities are being explored.

Many scientists believe the extinction is due to an **asteroid or comet** hitting the earth at the end of the Mesozoic. The impact of the hit lifted dust particles into the atmosphere that blocked sunlight for months. Fires raged, temperatures dropped, plants died, and many forms of life froze or starved to death.

Other scientists believe **disease** may also have been a contributing factor. Towards the end of the Mesozoic, the positions of the continents allowed dinosaurs to migrate between Asia and North America. Such a mixing of animals would have introduced diseases among animals that did not evolve together.

Your site contains the fossilized remains of an ancient creature. You may also find evidence of other organisms during your dig. As a team, you will work together to excavate your site and document your finds. Daily journal entries and detailed site maps from all the groups working at your site will enable you to decode this scientific mystery!

## Have fun “Diggin’ Into Science”!