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### What is a Fossil?

A fossil is any direct evidence of an organism which is more than 10,000 years old. Fossils provide us with evidence of evolutionary change dating back to over 3 billion years ago.

Although multicellular organisms were possibly abundant in the seas of the Precambrian period, they were exclusively soft-bodied, which caused most of them not to become fossilized.

The fossil record became much richer with the presence of hard shells and bony body parts about 570 million years ago during the beginning of the Paleozoic Era.

#### How are fossils made?

First an organism dies and gets buried immediately. The elements that cover the organism encase it and protect it from oxygen from the air, which would allow the organism to decay. Sometimes organisms were buried by silt and clay, and sometimes they get buried or caught in pine resin (sap) or tar from tar pits.

Over millions of years, the skeleton is buried deeper and deeper while the sediments turn to rock, completely encasing the bones. Erosion, the breaking away and shifting of earth and soil, brings the fossil back to the surface to be discovered by scientists. The word "fossil" comes from a Latin word meaning "to dig."

**Petrification**— minerals from the earth or from underground streams slowly replace the cells of the skeleton, turning the bones into solid rock.

**Simple preservation**— fossil bones that have not petrified

**Stone cores**— when plants and animals decay and leave hollow molds that get filled up with minerals and eventually become rock in the shape of the organism.

**Print**— fossils made by animal tracks, imprints of leaves, flowers, and other prehistoric life.

**Inclusion**— Small objects like insects or plants are covered by resin (sap) from trees or

by tar from tar pits. As the resin or tar hardens the organism gets preserved within it.

### Classification of Fossils

The classification system of fossils is based on how close the fossils are related to each other.

To define an organism that did live, an organism is given a basic unit of classification based on species. The unit of classification is a two-part name in Latin. They are also classified in groups according to shared characteristics. The larger the group, the fewer the shared characteristics.

Plant and animal fossils are put into a similar group to study the characteristics of that group. The main features of fossil groups are that they are separated by the shape of the bone and other hard parts of the animal. Hard parts are considered to be teeth, shells, and skeletons because they are preserved.

Most fossils are found in fragments and have to be put together like a puzzle. Fossils are found in sand and rock and the accessibility of the fossil determines what methods are used to retrieve the bone. Classification of the fossil is also based on the strata and the potassium-argon layer which determines the age of the fossil.

Fossil fuels supply major areas of our economy, including transportation, electric generation, utilities, industry, and home and commercial uses.

Even though we need and use fuel, the massive burning of them does create environmental problems. For example, cars burn gasoline, which is the major source of carbon dioxide and other pollutants.

Even a clean-burning car gives off 20 pounds of carbon dioxide for every gallon of gas burned. This gas pollutes our air, depletes the ozone layer, contributes to acid rain, and hurts our own personal health.

The conservation of energy is an issue that has become very important in this day and age.

- | Recycle whenever possible and buy recycled materials.
- | Walk or bicycle when traveling short distances, and use car pools and community transportation to cut down on driving.
- | Lower the thermostat at night.
- | Only turn on lights when needed.
- | Use double-pane glass on windows, and reduce the draft around windows and doors.

These are just a few hints we can adopt in order to make our world a cleaner, healthier place.

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