



Fossils

When living things die, they usually rot away and leave no trace. Sometimes, rotting tissue gets replaced with minerals, so preserved bone or a cast of that living thing is left behind. These are called fossils.

Fossils may be formed from tiny pollen through to massive dinosaurs. When living things die, they may be quickly buried under sediment—particularly if they're lying at the bottom of a lake or river and are being covered by layers of mud or sand.

With time, this muddy sediment hardens and becomes sedimentary rock. The living tissue rots away to leave an impression in the rock, particularly parts such as bone and shell. Living things that are mostly soft tissue (such as flowers or worms) are very rarely fossilised.

The chance of a dead organism becoming fossilised is extremely small. Plants and animals living in dry areas or riverlands have more chance of being fossilised than organisms living in wet, tropical environments, where they are decay more quickly.

Scientists research fossils to work out the age of a layer of rock and how living things have evolved. Over many millions of years, younger fossils are laid above layers of rock containing older fossils. This creates a kind of timeline, showing what plants and animals lived where during different periods of time.

Fossils of plants and animals that are known to have lived for short periods of time are called index fossils. When these index fossils are found in a layer of rock, they are used to judge how old the layer is. Index fossils are usually fairly common and widely distributed (geographically).

The index fossils used in the Earth Quest exhibit are nanofossils (they can usually only be seen using a microscope). Original photographs of the microfossils were provided by Geoscience Australia and include: Foraminiferida (6-23 million years ago); Dinoflagellata (149-155 mya); Brachiopod (458-460 mya); Brachiopod (477-479 mya); Trilobite (502-503 mya).

More Information

Scientific American

Ask the Experts

What are the odds of a dead dinosaur being fossilized?

http://www.sciam.com/print_version.cfm?articleID=000319F6-D131-1D77-90FB809EC5880000

United States Geological Survey (USGS)

Index Fossils <http://pubs.usgs.gov/gip/geotime/fossils.html>

Fossils, Rocks and Time <http://pubs.usgs.gov/gip/fossils/fossils-rocks.html>

A Basic Introduction to Fossils <http://www.adders.org/fossils/intro2.html>

Hawaii University Index Fossils <http://iilt.ics.hawaii.edu/belvedere/materials/Mass-Extinctions/Indfoss.htm>

New Scientist

Last Word

If human beings were wiped out by some sort of catastrophe, would any evidence of our existence be discovered 65 million years later? <http://www.newscientist.com/lastword/article.jsp?id=Iw170>