

# Fossil Guide

The word fossil comes from the Latin fossils meaning 'dug up'. Fossils are the remains, moulds, or traces of organisms that died a long time ago and were preserved in rocks such as sandstone, siltstone, shale or limestone.

## Coral



Corals are very important fossils. Many corals have a hard outer skeleton. It is this "exoskeleton" that is usually fossilised. When the coral dies, the skeleton can be broken down to form limestone.

Fossil corals also tell us about the past. Since many corals live in warm, shallow sea water, their fossils are good indicators of environmental conditions. Fossil corals found in England tell us that it must have had a much warmer, tropical environment at certain periods in its history.

## Ammonite

These extinct marine animals were related to the octopus, squid and pearly nautilus. Ammonoids possessed ink sacs, had jaws like an octopus and were active predators on the sea floor.

The ammonoid shell, which in most forms was tightly coiled in a single plane, was divided into chambers. The animal was able to grow by adding chambers to the shell.

They appeared **410 million years ago** and became extinct **65 million years ago**.



## Gastropods

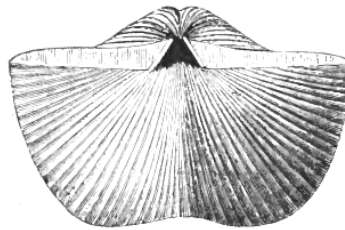
Gastropods are one of the most diverse groups of animals, in form, habit and habitat. They have a long and rich fossil record that shows extinctions and diversification of species.

Besides garden snails, other gastropods include slugs, sea slugs and marine snails like limpets and periwinkles. The oldest gastropod fossils are over **500 million years old**.



## Brachiopods

Brachiopods first appeared over **500 million years ago**, and some types (such as Lingula, which lives in a burrow) have changed very little over this period of time. However, brachiopods are quite rare today. In Britain they are only found in a few Scottish sea-lochs.



## Sharks teeth

Sharks teeth are among the hardest of all organic materials, highly resistant to destruction by weather or waves. Therefore you can find many washed up by waves on the shoreline. They vary in size, from barely visible to teeth 5 inches long.

Sharks have an unlimited supply of teeth which are formed in layered rows in the gums. If a tooth is lost, it is quickly replaced by another.

Are they fossils? They can be when they're very old and found embedded within rock.



## Trilobites

Trilobites are an important extinct group. Their bodies were divided into three segments: the head, body and tail. Although they looked like woodlice, and could roll into balls for protection, trilobites were more closely related to spiders and scorpions.

The majority of trilobite fossils are small segments, rather than whole animals, but they can still tell us a lot. Trilobites became extinct **250 million years ago**.



# Sketching scientifically



The image on the left is from a book called *Micrographia* by Robert Hooke, a scientist and pioneer of using the microscope for scientific illustration and exploration of small things such as insects and parts of plants. Robert was also noted for coining the biological term 'cell'.

He would make very detailed sketches of what he saw through the lense of a microscope and then he would add letters so that he could reference specific anatomical parts in the text.

Adding a scale was a useful tool to allow the reader to understand how big or small the object is in reality.

Ferdinand Bauer is another creative-scientific wizard who made his sketches out in the field using only very basic pencil sketches on paper but recorded the specific colours of the specimens using a special colour chart (image of the right). This specific way of creating botanical art allowed future scientists and artists to know exactly what colour Ferdinand had seen while out in the field.