



Exhibition
and
Fossil Guide

by
Peter and Tara

£1.50



Welcome to our exhibition

We really hope you enjoy visiting our fossil exhibition. All the fossils on display were found here on the Jurassic Coast. This little guide will show you what fossils were like when they were alive, give you tips on how to find them and tell you all sorts of interesting things.

We would like to thank everyone who has helped us make the exhibition and this fossil guide, especially Mary for allowing us to use her shop and lending us her Ichthyosaurus fossil, and of course Professor P. With him the exhibition would never have been possible!

Best wishes,

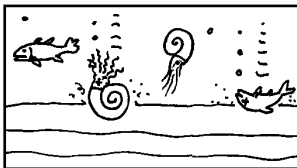
Peter & Tara

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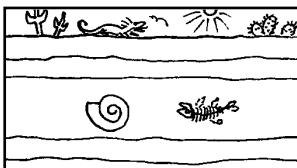
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What is a fossil?

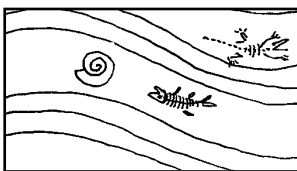
A fossil is the remains of a plant or animal that lived a long time ago. Usually only the hard parts of the animal such as the shell, teeth or bones become fossilised.



When creatures die they fall to the sea floor and the soft parts rot away. The bones become covered in mud.



Over millions of years the mud turns into rock and the bones are replaced by minerals.



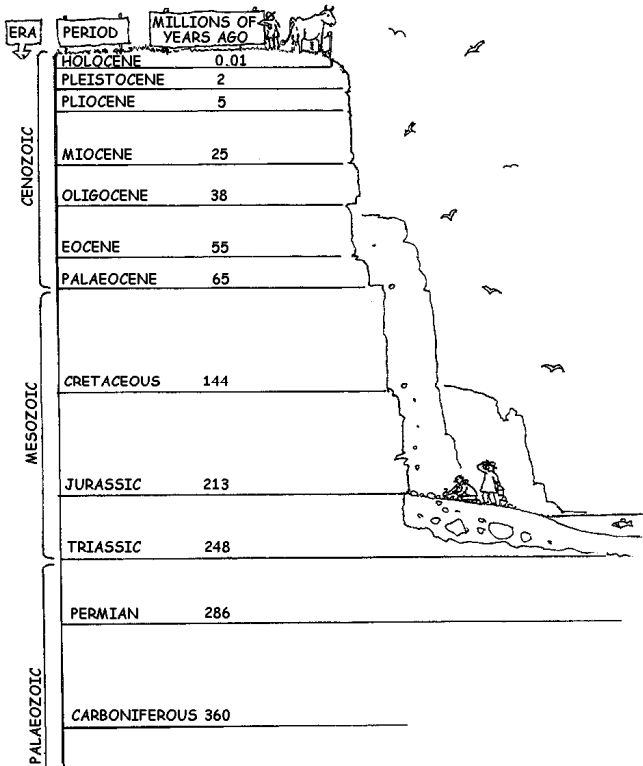
Many more millions of years later the rocks are folded by the earth's movements.



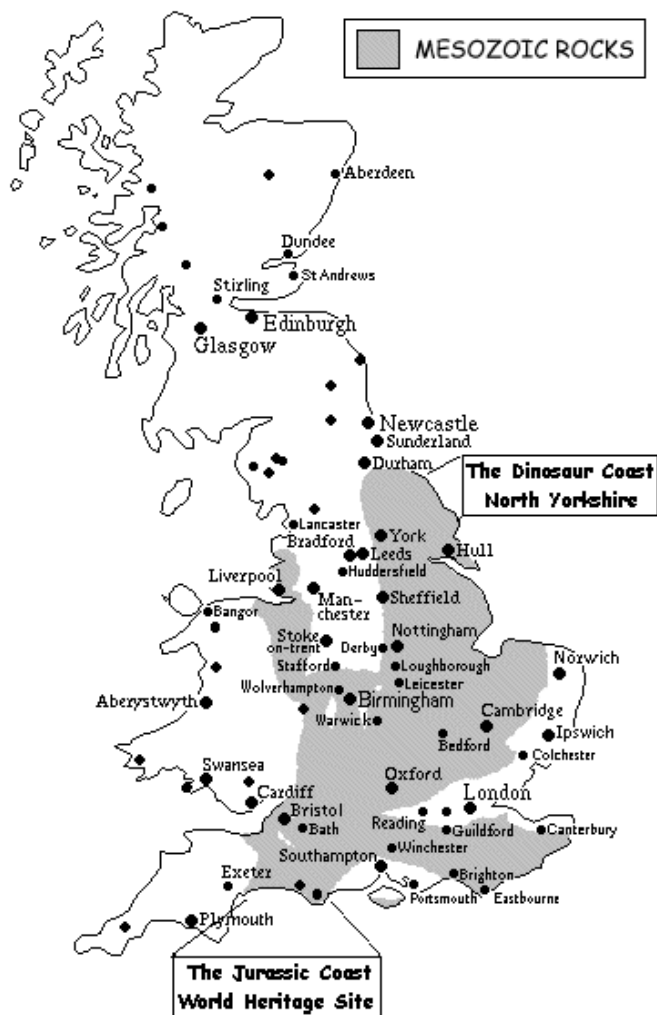
Eventually the rocks are eroded away to expose the fossils.

Geological time scales

According to scientists, the earth was formed about 4,500 million years ago and the earliest fossil life is believed to be 3,400 millions of years old. Dinosaurs appeared 250 million years ago at the beginning of the Triassic Period and died out 65 million years ago at the end of the Cretaceous Period. They were probably destroyed when a giant asteroid hit the earth.



Finding fossils



Finding fossils

There are many great places to find fossils in Britain. The fossil-bearing rocks are often covered with topsoil so quarries and on the coast are the best places to look. Here are two of the best places to find fossils on the coast -

The Jurassic Coast World Heritage Site

You can take a journey back in time, from Studland in Dorset where the rocks are 65 million years old to Exmouth in East Devon where the rocks are 250 million years old. There are some good fossils to be found on the beach, especially at Lyme Regis and Charmouth.

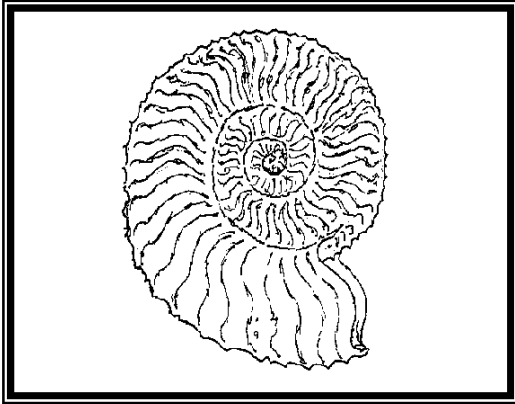
The Dinosaur Coast North Yorkshire

The North Yorkshire coast from Saltburn-by-the-Sea to Scarborough is a great place to find Jurassic fossils, especially ammonites.

SAFETY FIRST!

- Don't climb the cliffs!
- Don't collect fossils from the cliffs!
- Keep away from the cliff edges!
- Always use the proper equipment!
- Always check the tides!

Ammonites



Ammonite fossil

What, where & when?

Ammonites were sea creatures that lived during the Jurassic and Cretaceous Periods. They died out 65 million years ago at the time of the mass extinction.

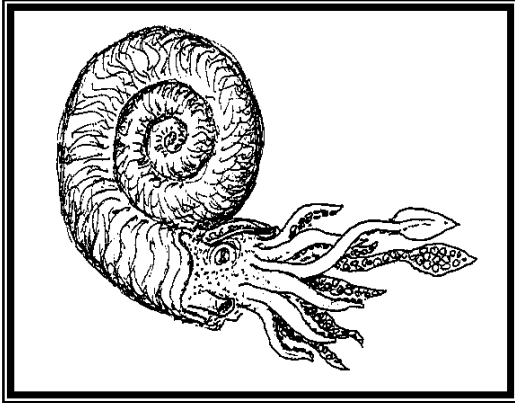
Ammonite dating

Geologists use ammonites to help them find out how old rocks are. They can do this because different species of ammonites lived at different times during the Jurassic Period.

Did you know?

Ammonites were once called snake-stones and were thought to possess magical powers.

Ammonites



Living ammonite - artist's impression

Jet propulsion

Ammonites propelled themselves by squirting water through a muscular tube called the siphon. They had suckered tentacles and kept themselves afloat with gas-filled chambers.

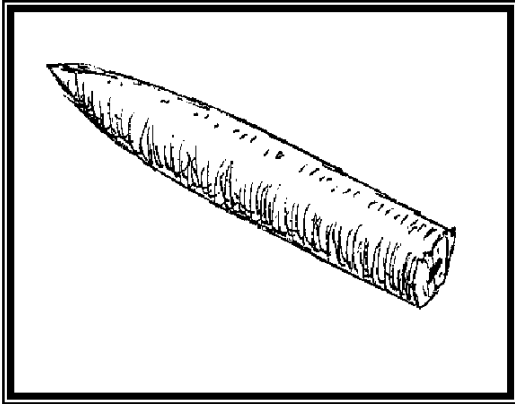
Cephalopods

Ammonites belong to the family of animals called cephalopods. They are similar to squid and octopi but have external shells.

Did you know?

The Nautilus is a very similar creature to the ammonite and can still be found living in the depths of the Pacific Ocean.

Belemnites



Belemnite fossil

What, where & when?

Belemnites were very common in the Jurassic and Cretaceous Periods and a few species survived until about 40 million years ago.

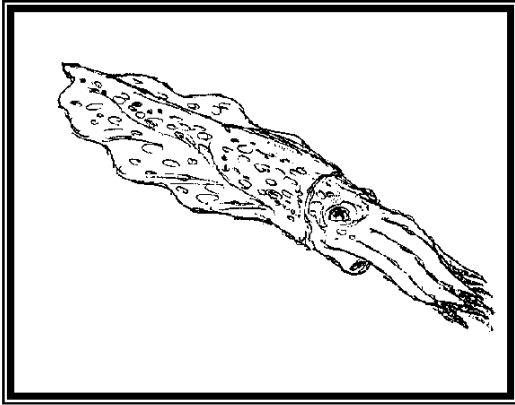
The guard

Belemnites were squid-like creatures with a hard internal shell known as the guard. In most fossils only the bullet-shaped guard remains but in well-preserved fossils the soft part of the body can still be seen.

Did you know?

Belemnites used to be called St Peter's Fingers and were believed to have healing powers. Powdered belemnite was used to cure infections in horses' eyes.

Belemnites



Living Belemnite - artist's impression

Fast food

They were active predators, moving quickly through the water using jet propulsion. They ate small fish and crustaceans.

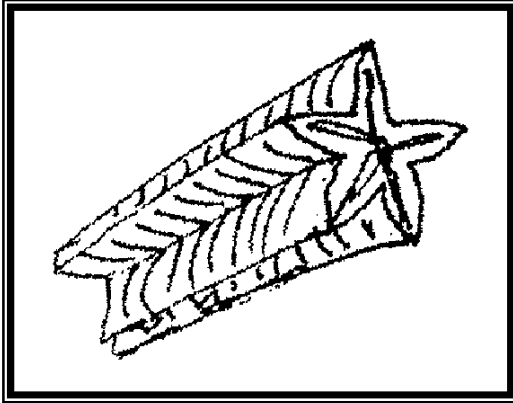
Ten tentacles

Like squids, Belemnites had ten tentacles, an ink sack and large well-developed eyes. The hard internal shell, made of calcite, was used to help balance the animal in water and improve stability while swimming.

Did you know?

The largest modern squid on record is 19 metres long.

Crinoids



Crinoid fossil

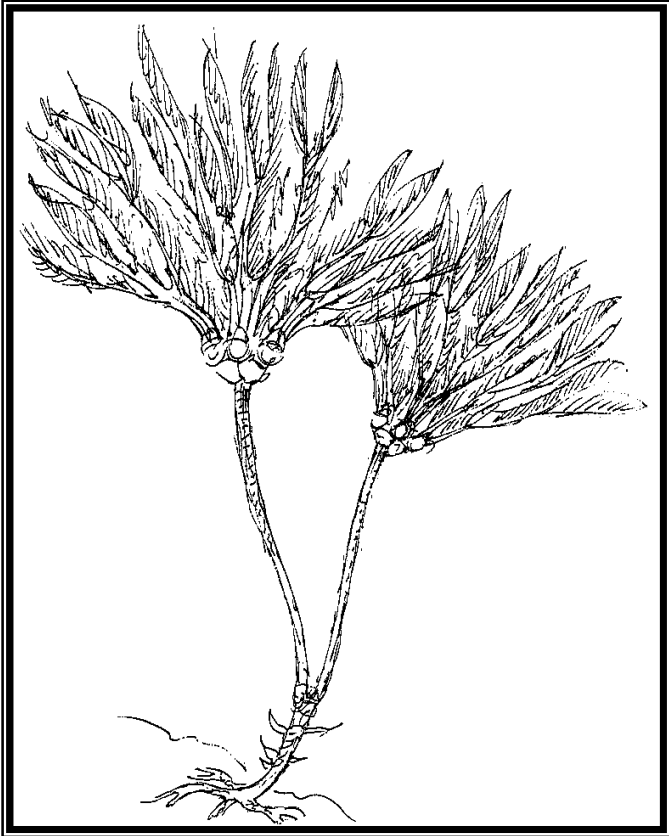
What, where & when?

Crinoids belong to the group of animals known as Echinoderms, which includes sea urchins and starfish. They were very common in the Jurassic Period and although rare now, can still be found in the Pacific Ocean.

Five fold symmetry

Crinoids attach themselves to the seabed with long jointed stems. Each segment of the stem looks like a tiny starfish. They feed on small particles of food, which they waft towards their mouths by swaying their arms.

Crinoids

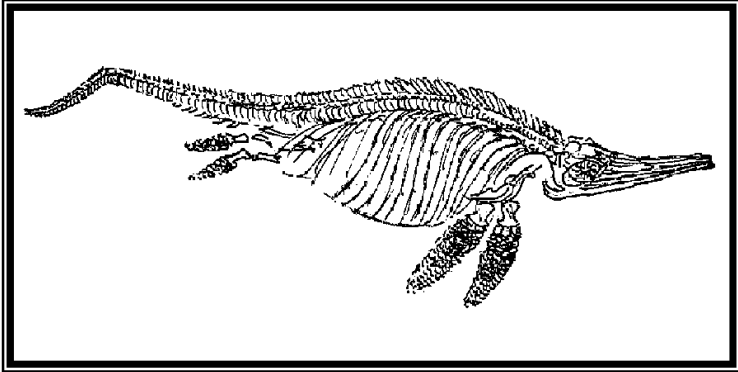


Living crinoid

Did you know?

Crinoids look so much like plants they are often called sea lilies.

Ichthyosaurs



Ichthyosaurus fossil

What, where & when?

Although they look very like dolphins they are not a related species. Ichthyosaurs were cold-blooded reptiles, more similar to crocodiles. They were alive in the Jurassic and died out at the end of the Cretaceous Period, 65 million years ago.

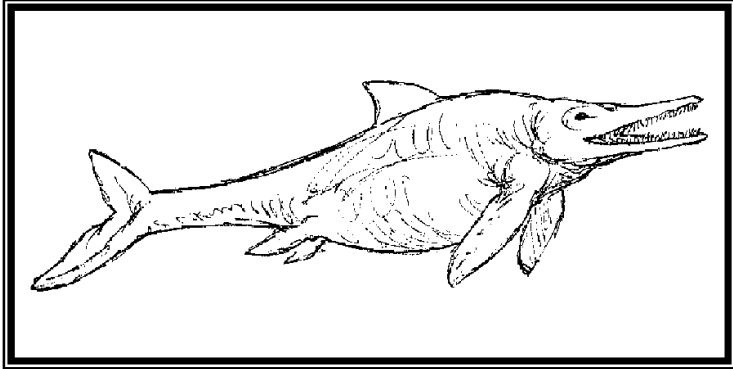
Fossil finds

It is rare to find a complete ichthyosaurus but teeth and bones, especially the vertebrae are often found. The bones are quite heavy, hard and glossy and can be black or brown in colour.

Did you know?

Ichthyosaurs are also known as Sea Dragons.

Ichthyosaurs



Living ichthyosaurus - artist's impression

Tough teeth

Ichthyosaurs had long jaws packed with short sharp teeth, ideal for crunching ammonites. They had large eyes and a streamlined body for fast swimming. They grew up to 10 metres in length.

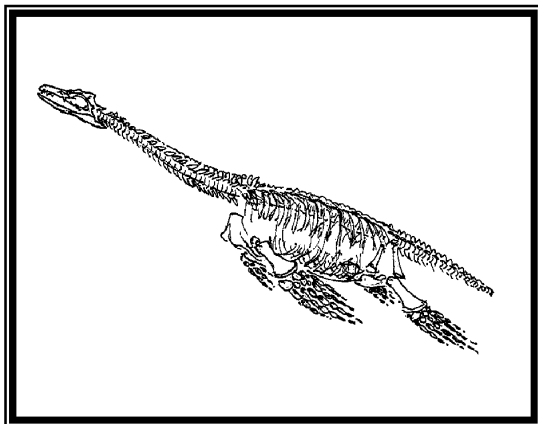
Live young

When scientists first discovered small ichthyosaurus fossils inside larger ones they thought they were cannibals. Scientists now believe that ichthyosaurs, unlike most other reptiles, gave birth to live young.

Did you know?

In 1812 a 13 year old girl called Mary Anning found the first complete ichthyosaurus fossil and sold it for £23.

Plesiosaurs



Plesiosaurus fossil

What, where & when?

Plesiosaurs were sea reptiles 3 to 8 metres in length with small heads and long necks. They were very common in the Jurassic and Cretaceous Periods and died out 65 million years ago.

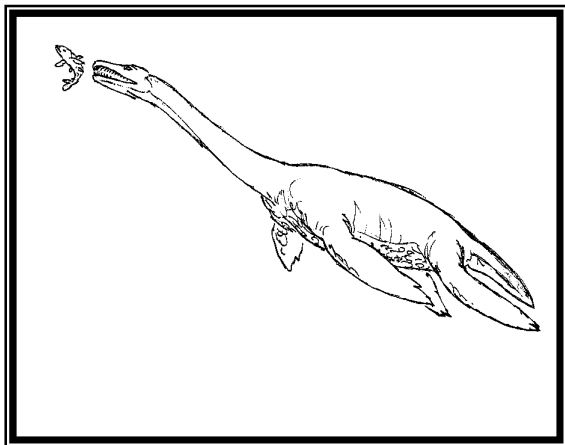
Fossil bones

Plesiosaurus fossils are quite rare but loose vertebrae and flipper bones can sometimes be found.

Did you know?

In 1823 Mary Anning uncovered a complete fossil plesiosaurus three metres long. Scientists did not believe that any animal could have had such a long neck and accused her of faking it.

Plesiosaurs



Living plesiosaurus - artist's impression

Long neck

Plesiosaurs swam slowly through the sea, catching fish and ammonites by quickly moving their long necks. They breathed air and frequently came up to the surface to fill their lungs.

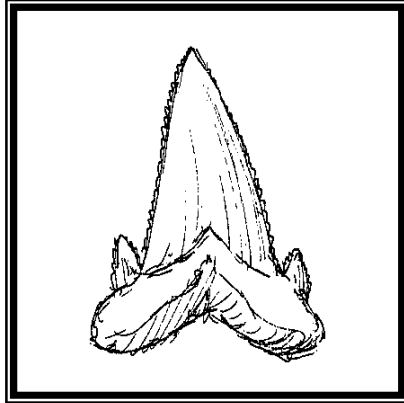
Sinking stones

Evidence suggests that plesiosaurs used to scrape up stones from the seabed and swallow them to help themselves dive.

Did you know?

Some people think that the Loch Ness Monster is a relative of the plesiosaur.

Sharks



Shark tooth fossil

Survivors

Sharks belong to a very old group of fish. Teeth have been found dating back 350 - 400 million years ago. Unlike other animals, sharks have changed very little since then.

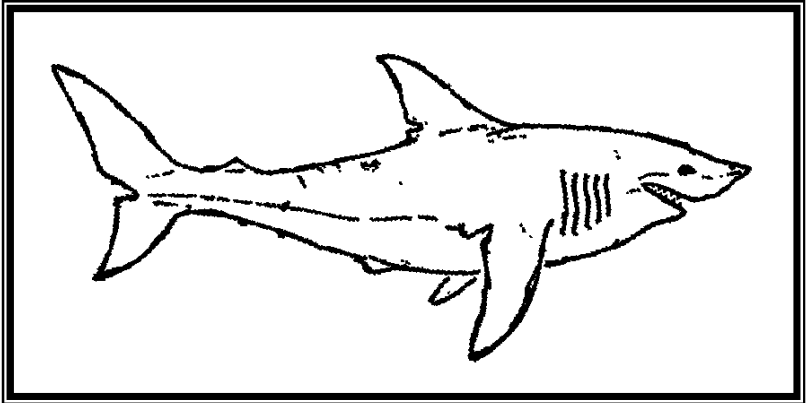
Cold blooded

Sharks are cold blooded and breathe underwater through gills. Their nostrils are used for smell only; they have an amazing sense of smell and are able to detect one drop of blood in a million drops of water.

Did you know?

Teeth 15cm long have been found from a giant 15m relative of the modern Great White Shark.

Sharks



Modern great white shark

Shark teeth

Shark skeletons are soft and rarely become fossilised but you can find well-preserved fin spines and still sharp teeth.

Electricity

Sharks can detect electricity. They use the tiny electric currents that all living creatures produce to find their prey.

Did you know?

New shark teeth grow all the time, replacing the old ones as they fall out. Some species of shark may shed 30,000 teeth in their lifetime.