

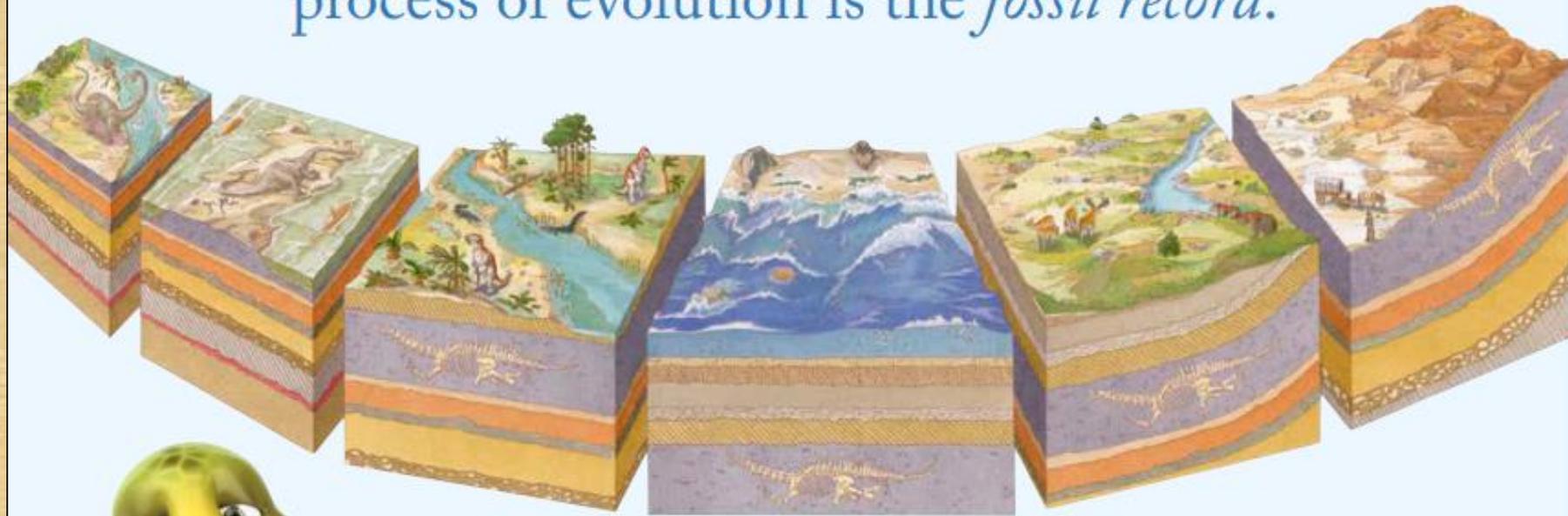
What evidence is there to show that living things have changed and evolved over time?



Discuss your ideas.



One of the main pieces evidence that helps explain the process of evolution is the *fossil record*.



Fossils are formed over millions of years. The remains of animals have been fossilised, and layer after layer of rock built up above them as the landscape changed.



Palaeontologists are scientists who study fossils in rocks to learn more about how animals and plants have evolved over millions of years.



Palaeontologists use the fossil record (as well as contributing more information to it) to work out the age of fossils:

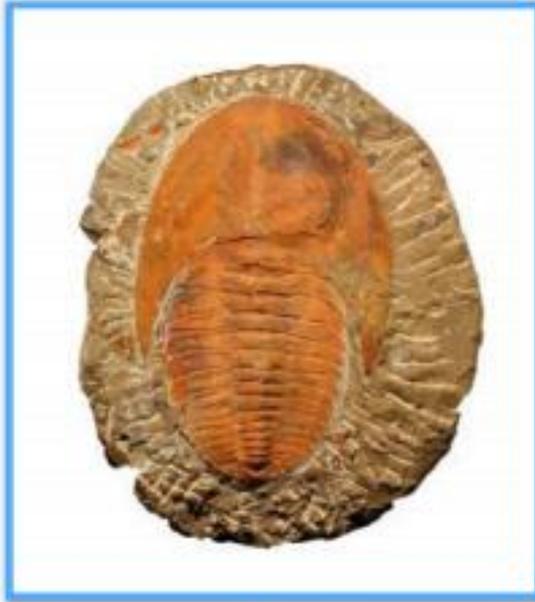


The type of rock where fossils are found is built up in layers. Scientists have worked out how old each layer of rock is.



They are then able to tell how old the fossils in these layers are too.





Palaeontologists are able to compare fossils from different rocks in different parts of the world. This is another way that fossils can be dated.

Scientists have noticed similarities between fossilised remains of animals and plants that became extinct millions of years ago and those that are alive today! Let's find out more...





Charles Darwin had an interest in fossils. While he was in South America he found *subfossilised* remains of what he thought was a species similar to armadillos. He later found out that they were of *Glyptodon*, a species that went extinct over ten thousand years ago.

Can you see some similarities between the glyptodon and the armadillo? Evidence from fossils such as this help explain how species have evolved over millions of years.



## What Are Fossils?

Fossils are the petrified remains of plants and animals from more than ten thousand years ago. 'Petrified' means that the plants and animals have turned into a stony substance. Fossils can show the skeletons of animals or the imprints of plants, animals or footprints. They are found in layers of sedimentary rock, which is formed of sand and mud that has been compressed over time.



## How Are Fossils Identified And Dated?

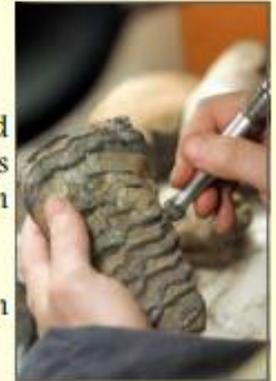
Scientists have measured different layers of sedimentary work out the age of each layer. Using this information same age as the layer of rock in As fossils are discovered, them is recorded and shared. This fossil record helps palaeontologists identify fossils by comparing them to similar ones .



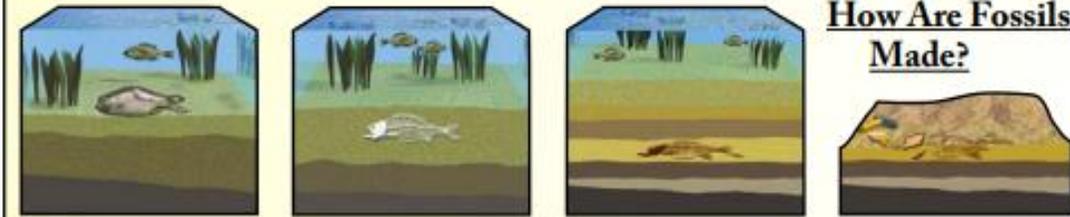
radiation levels in the rock found around the they have been able to Fossils are roughly the which they are found. information about

## What Can We Learn From Studying Fossils?

From fossils, palaeontologists can explore how animals and plants have evolved over time, as well as how organisms interacted with each other. Fossils have been found with similar characteristics to living plants and animals.



This horseshoe crab is believed to have evolved from trilobites. Can you see some similarities?



## How Are Fossils Made?

The fish dies and sinks to the sea bed. The flesh rots and is eaten by other small organisms, leaving just a skeleton.

A layer of mud and sand covers the skeleton. This helps preserve it. Not much oxygen can get to the skeleton - the decaying process is slowed down.

The mud and sand become sedimentary rock. The skeleton dissolves. The space it leaves behind fills with minerals. The fossil is formed.

The movement of the Earth's crust brings the fossil closer to the surface. It is ready to be discovered!

## What Does A Palaeontologist Do?

Palaeontologists are scientists who study fossils. Studying the remains of plants and animals can help them to find out what life was like a long time ago.

## Fascinating Facts

Did you know that lots of fossils are found in amber? Amber is formed from tree sap; when it seeps out of a tree, insects get trapped and

preserved inside it.

Scientists estimate that less than one per cent of all living things in the history of Earth may have been, or ever will be fossilised. We will never know about most of the plants and animals that existed on Earth millions of years ago.



Would you like to be a palaeontologist?



**How are fossils made:** <https://www.bbc.co.uk/bitesize/topics/z9bbkqt/articles/z2ym2p3>

**What can we learn from fossils:** <https://www.bbc.co.uk/bitesize/topics/z9bbkqt/articles/z22g7p3>

## Independent Challenges

It's now time to show me what you '*really*' know about fossils by completing the two independent challenges below:

1. Create your own timeline of the fossilisation process using pictures and text to clearly explain how fossils are made.
2. Create an information booklet titled 'Fascinating Fossils...'. Use your understanding of everything that you've read to make the most informative guide that you can. Remember to make it appealing to the reader as well as easy to follow.

**– Please email this task to Mrs Murdy by 11.05.20.**

Optional Extra: Can you make your own fossil?

