

21.1.21

T: Can I explain how fossils are formed?



# Are Dinosaurs Real?



It is believed that dinosaur fossils have been found for centuries and these gave rise to some of the mythical creatures in ancient cultures. However, without documented evidence we can not know this for sure.

What we do know is that our current knowledge of dinosaurs and **palaeontology** (the study of fossils) started in the 1800s. So we really have only known about them for the last 200 years! We know about dinosaurs due to the discovery of fossils and fossilised skeletons. Remember the story you have been reading on Purple Mash?





# Bones or Fossils?

There are some key concepts we need to know before moving on.

**What is the difference between bones and fossils?**

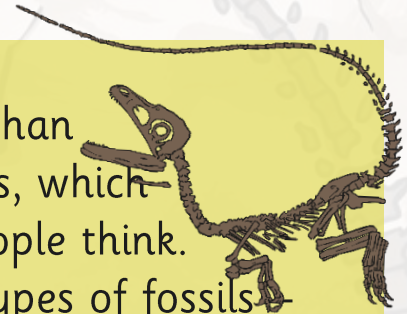
## Bones

Bones are any piece of the hard whitish tissue that makes up the skeleton in animals including humans.



## Fossils

Fossils are more than just ancient bones, which is what many people think. There are three types of fossils: body fossils, trace fossils and chemical fossils.



## Chemical fossils

Chemical fossils contain carbon, which is proof that they must be formed from once living things. Examples of chemical fossils include coal, petroleum oil and natural gas.



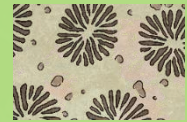
# Body Fossils

Body fossils are the remains of an animal or plant such as bones, shells or leaves. There are three types of body fossils:

## Mould and Cast Fossils

Mould fossils form when all the parts (including the bones) have decayed and all that is left is the mould of the animal.

Cast fossils form from mould fossils as the mould fossil is filled up with sediment – so it is not made up of the original matter of the animal or plant.



## Replacement Fossils

Replacement fossils form when water dissolves the original hard matter of the bones and replaces them with mineral matter – this is what we think of when we discuss dinosaur fossils. They still look like the original bones but are not made up of the same matter.



## Whole Body Fossils

Whole body fossils form when the original body has been preserved – for example a woolly mammoth in ice or a mosquito in amber.





# Trace Fossils

These are fossils that record the activity of an animal including:

**Footprints**



**Trackways**



**Coprolites**

(fossil faeces- this means  
poo)



# Fossilisation Process

There are many different ways that fossilisation occurs. However, you will focus on how fossils form in rocks (both body and trace fossils).

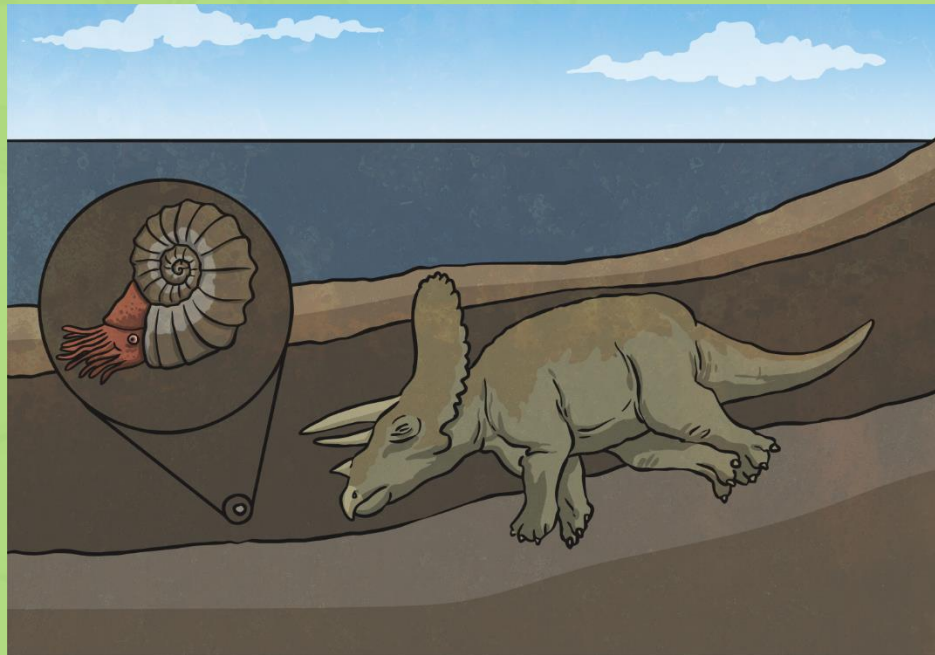
**Fossilisation only takes place in sedimentary rocks** as the heat from the lava that creates igneous rocks and changes the structure of metamorphic rocks would be too high for fossils to survive.





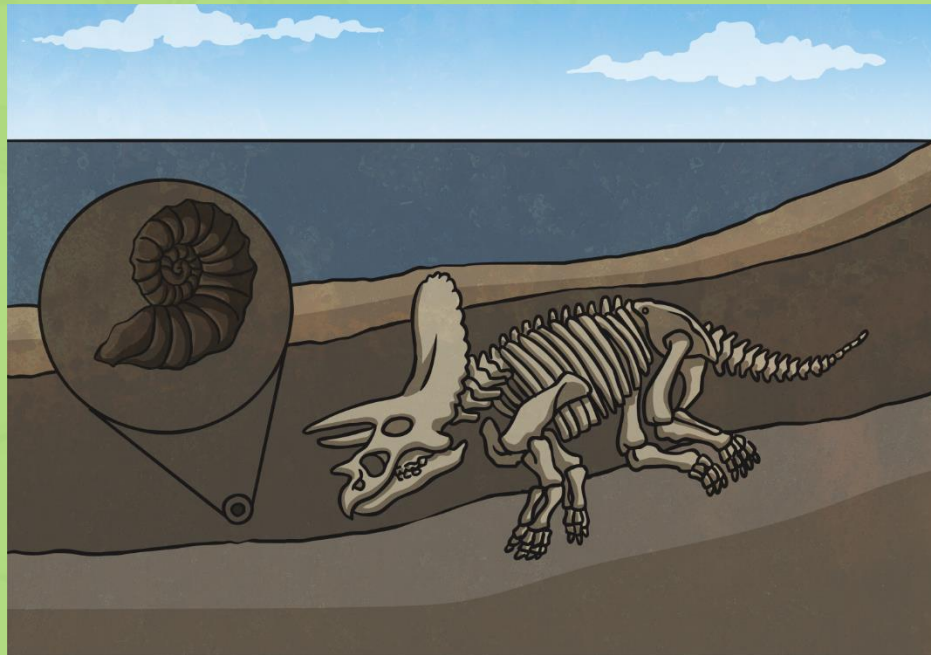
# Fossilisation Process: Step 1

An animal or creature dies and ends up in the sea (if not already in it!). It gets covered by a layer of rock.



# Fossilisation Process: Step 2

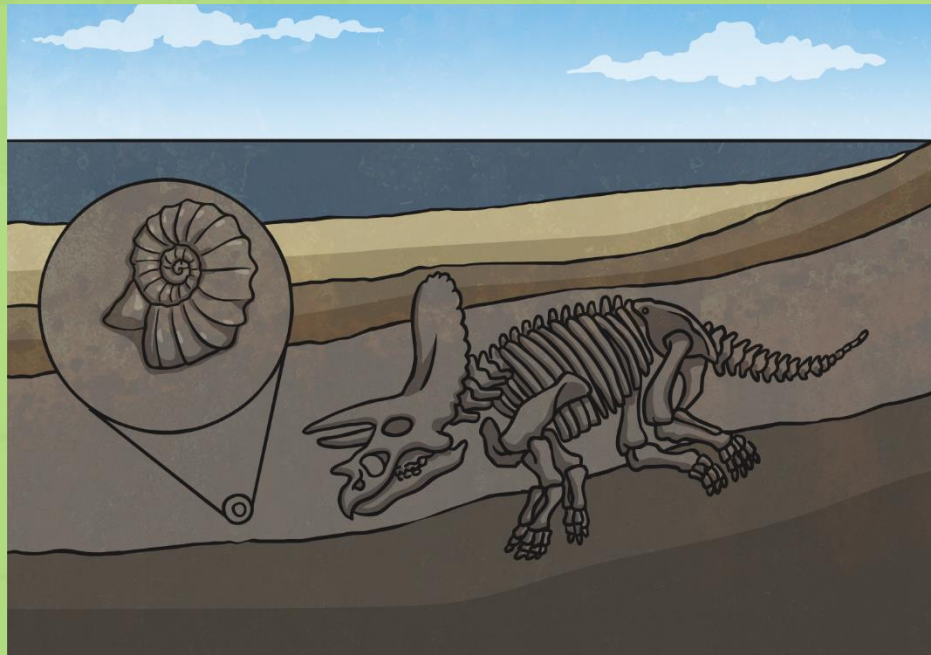
Over time more layers of rock cover it and by this time the only thing to remain of the animal would be its bones (except in the case of mould fossils where the bones would also be decayed).





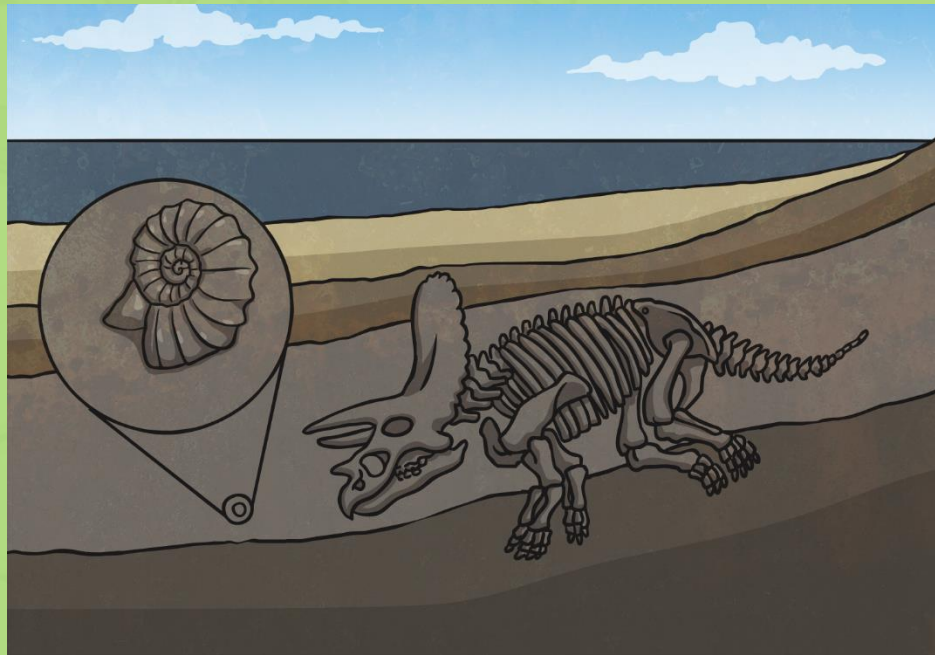
# Fossilisation Process: Step 3

Over thousands of years the mould fossil might become a cast fossil with sediment entering the mould. In the case of replacement fossils, the original bone matter changes to mineral matter but this does not affect the shape of the bones.



# Fossilisation Process: Step 4

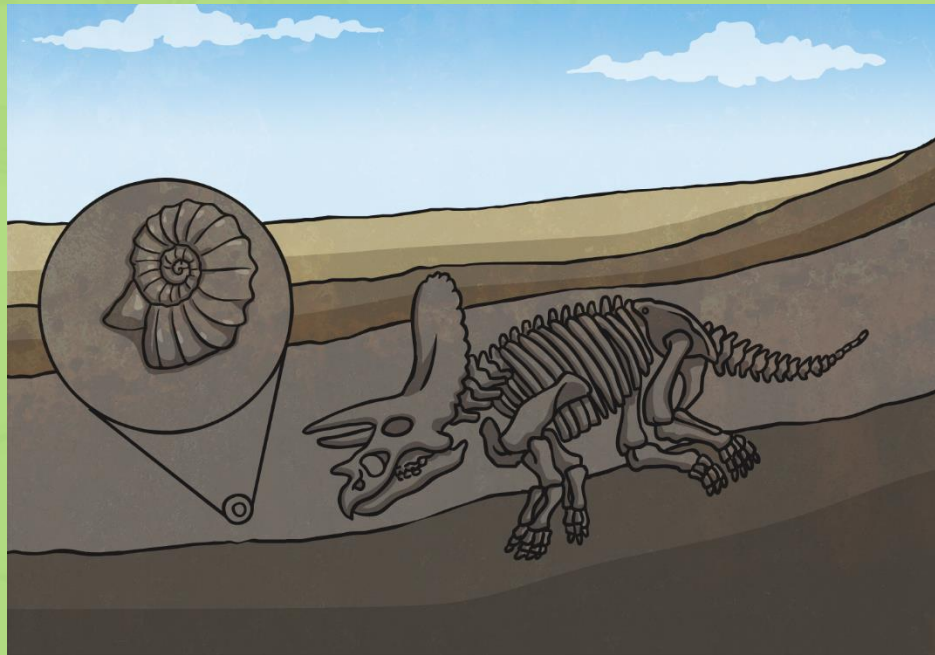
Over a long period of time the sea will recede in certain places.





# Fossilisation Process: Step 5

As erosion and weathering takes place, eventually the fossils become exposed.



## **TASK: Order the Fossilisation Process**

**There are two different sheets on the website / Teams. The sheet 'with support' has fossilisation pictures and statements to help.**

**You need to match them up put them into order to explain the fossilisation process.**


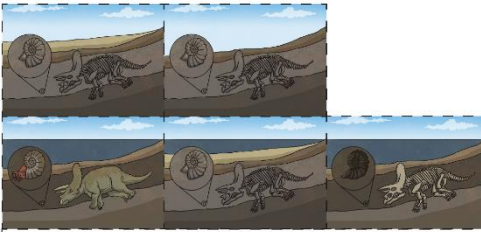
**The sheet with 'tricky challenge' on doesn't have the statements and you have to describe what is happening yourself.**

**You can choose which one you want to complete. Don't forget you can look back at previous slides here to help you if you get stuck.**



# Decide which sheet you want to use.



★★★ Fossilisation	★★★ Fossilisation Process
	 <p data-bbox="1236 835 1642 856">As erosion and weathering takes place, eventually the fossils become exposed.</p> <p data-bbox="1275 878 1603 899">Over a long period of time the sea will recede in certain places.</p> <p data-bbox="1217 921 1661 956">Over time more layers of rock cover it and by this time the only thing to remain of the animal would be its bones (except in the case of mould fossils where the bones would also be</p> <p data-bbox="1236 978 1642 999">An animal or creature dies and ends up in the sea. It gets covered by a layer of rock.</p> <p data-bbox="1217 1021 1661 1071">Over thousands of years the mould fossil might become a cast fossil with sediment entering the mould. In the case of replacement fossils, the original bone matter changes to mineral matter but this does not affect the shape of the bones.</p> <p data-bbox="946 1163 1062 1206">twinkl planit www.twinkl.co.uk</p> <p data-bbox="1188 1163 1304 1206">twinkl planit www.twinkl.co.uk</p> <p data-bbox="1506 1178 1690 1192">Science   Year 3   Rocks   Fantastic Fossils   Lesson 3</p>

