Fantastic Fossils

Types of Rocks

What are the three types of rocks? What causes them to be different?

Igneous

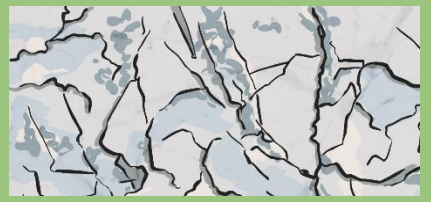
Formed when magma underground cools, or when lava erupts out of the ground and cools.

Sedimentary

Formed under the sea when sediment pies up,

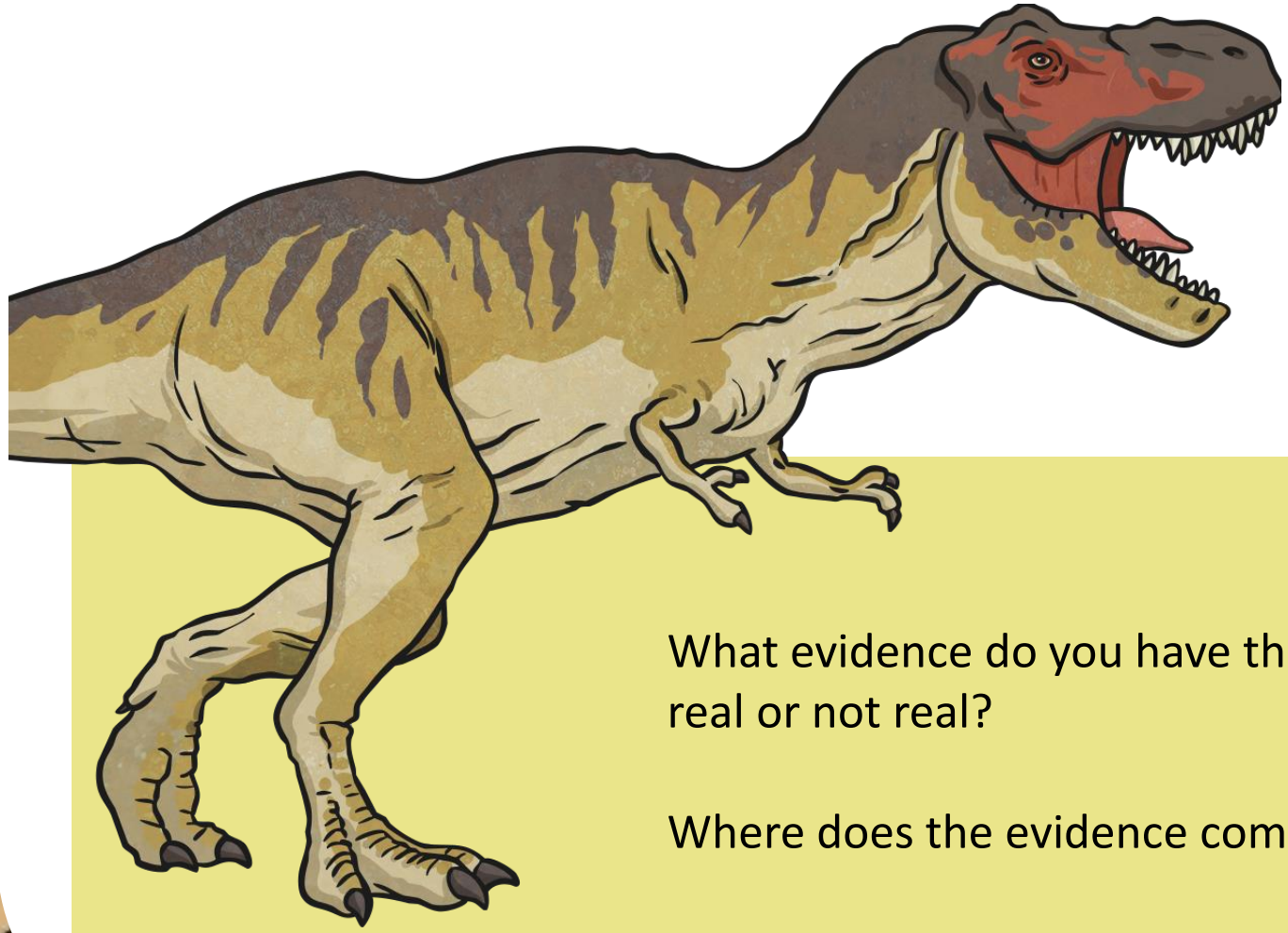
and is pressed down and squashed together.

Metamorphic



Metamorphic rocks are igneous or sedimentary rocks that have been **changed** due to being near magma, buried under huge pressure or squeezed by the earth's movements.

Are Dinosaurs Real?



What evidence do you have that they are real or not real?

Where does the evidence come from?

Are Dinosaurs Real?

It is thought that dinosaur fossils have been found for centuries and were thought to be mythical creatures in ancient cultures.

What we do know is that our current knowledge of dinosaurs and 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.

Bones or Fossils?

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

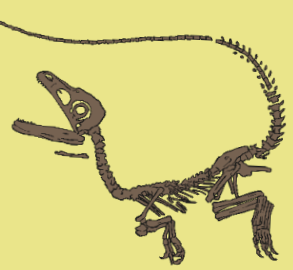
What is the difference between bones and fossils?

Bones

Bones are the hard whitish tissues that makes up the skeleton in animals and humans.

Fossils

Fossils are more than just ancient bones, which is what many people think. There can be body fossils or trace fossils.



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 fossils form when all the parts (including the bones) have decayed and all that is left is the mould of the animal. The mould fossil then sometimes fills up with sediment which turns to rock and shows the shape of the animal.

Replacement fossils form when water dissolves the bones and replaces them with mineral matter which turns into rock. They still look like the original bones but are not made up of the same matter.

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

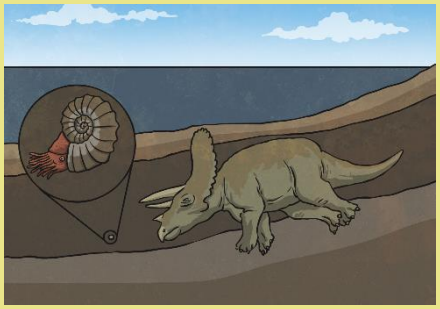
Trackways

Coprolites
(fossil faeces)

Fossilisation Process

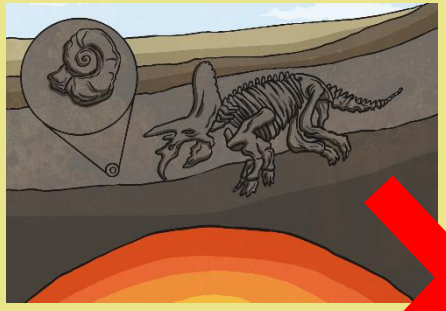
Fossilisation only takes place in sedimentary rocks as the heat from the lava that creates igneous rocks and changes the structure of metamorphic rocks would be too high for fossils to survive.

Sedimentary



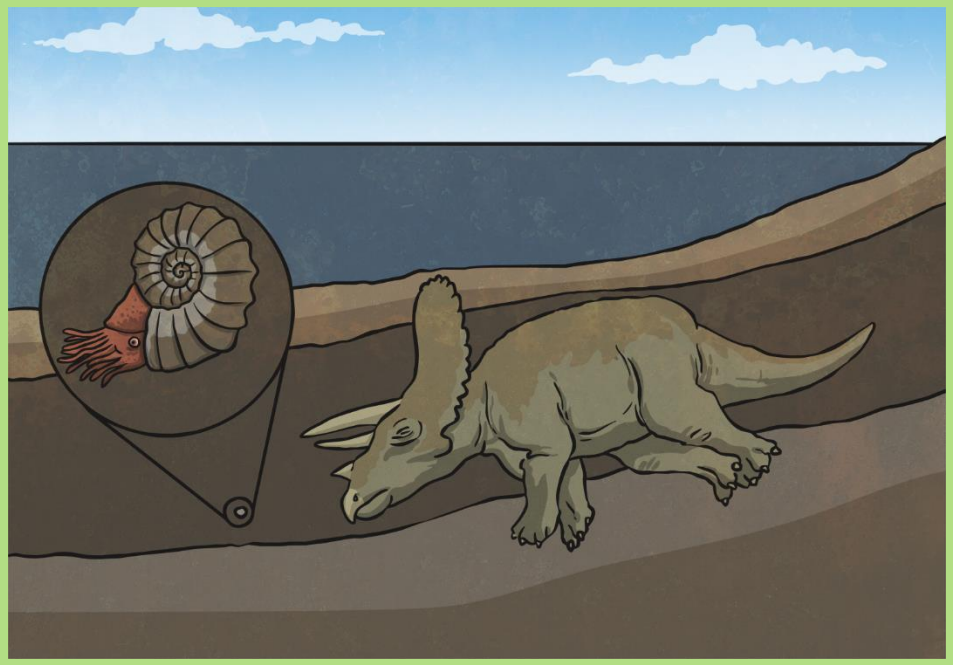
Igneous

Metamorphic



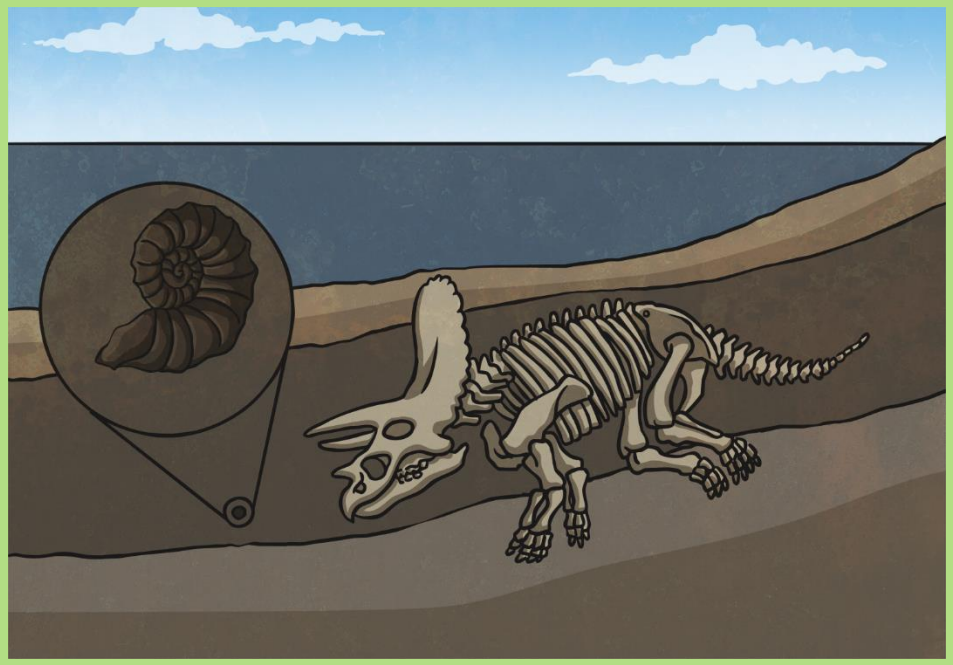
Fossilisation Process; Step 1

An animal or creature dies on land or in the sea and it gets covered by a layer of sediments (e.g. plant material and tiny parts of rock or soil). Over time, these layers push down and eventually form a layer of rock.



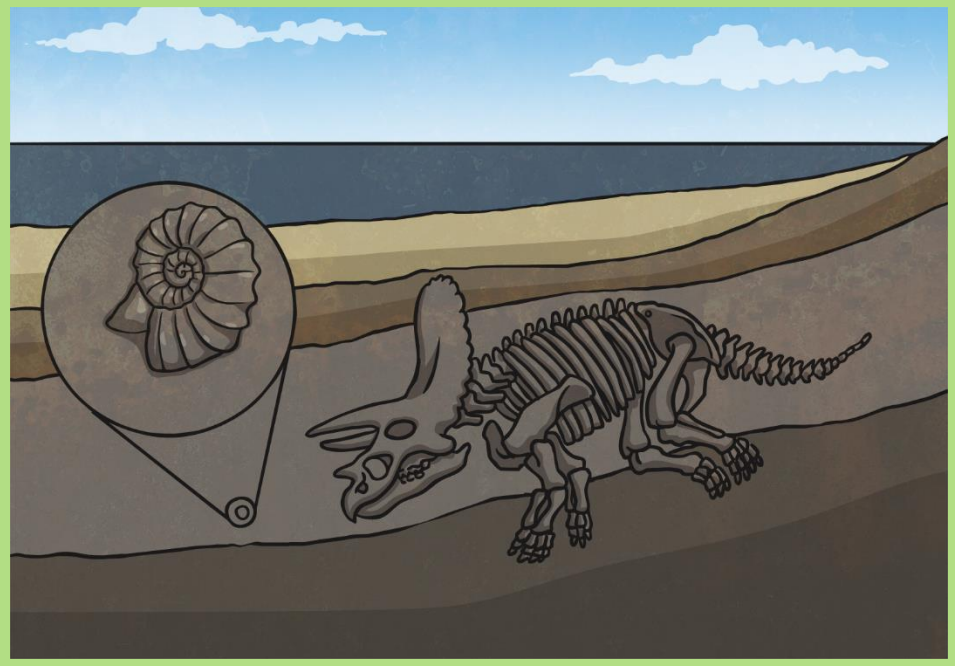
Fossilisation Process; Step 2

Over time more layers of rock are formed which cover it and by this time the only thing to remain of the animal would be the hard parts such as bones, shells and teeth.



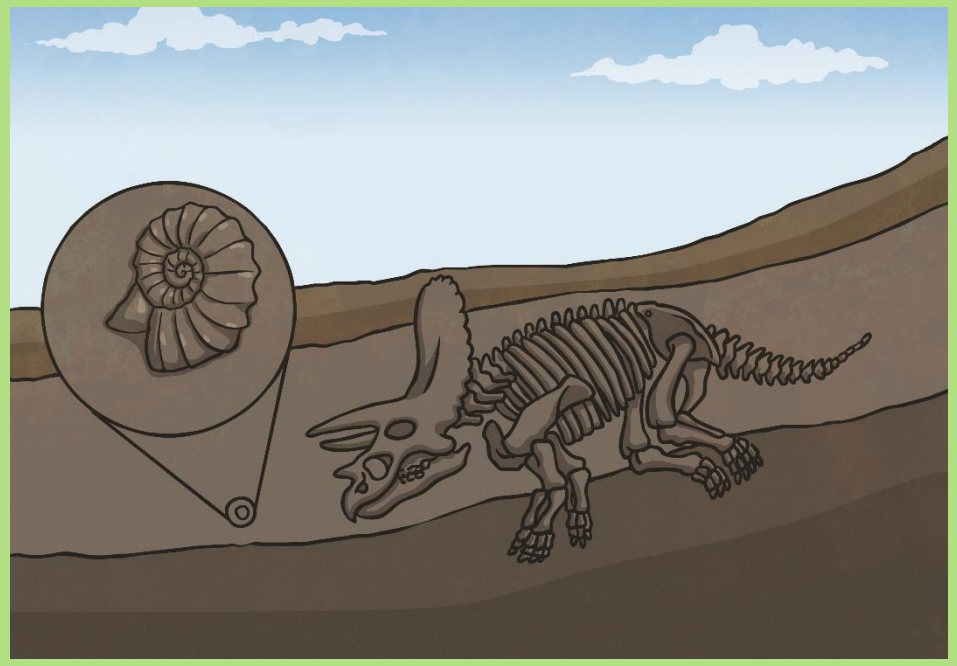
Fossilisation Process; Step 3

Over thousands of years the mould fossil might fill with sediment and turn into rock. In the case of replacement fossils, the original bone matter changes into mineral rocks in the same shape as the bones.



Fossilisation Process; Step 4

Over a long period of time the sea will recede (draw back) in certain places. The sea level could also be changed quickly through earthquakes and volcanic eruptions.



Fossilisation Process; Step 5

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