
Fossils – Fossilisation



National Curriculum Links

Key Stage 2 (Primary)

- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

Learning objectives

Children will do activities that help them to know that:

- Fossils are evidence of life that existed thousands or millions of years ago.
- Fossils occur due to an organism being buried in sediment and exposed to mineral rich water. Over time, the minerals replace the organic parts of the organism and form a hard rock in place of the organism.
- Palaeontologists find these fossils and can date them based on the age of rock they are found in.
- Fossils provide evidence that supports the theory of evolution; the fossils we find are of life that was on Earth thousands or millions of years ago. All life we see today has evolved from living things that existed millions of years ago.

Learning outcomes – what students will know at the end of the lesson:

- Fossils can tell us about living things that were on Earth millions of years ago.
- Fossils can help us work out the evolutionary history of life on Earth and how life on Earth has changed over time
- Fossils are made of rock, they are the per-mineralisation of living things that have been buried and exposed to mineral rich water.

Lesson in context/prior learning:

This session looks at how an ammonite fossil is formed. It explains how fossils are formed using an example of an animal that lived millions of years ago. Throughout the session the pupils are taught that fossils are evidence of evolution as we can see how life today is different to life in the past. Fossils provide a snapshot of the kinds of things that lived at different times in the past.

The key idea for pupils is how fossils are formed and that they are used as evidence of evolution. They provide us with information on what life there was thousands or even millions of years ago.

Resources:

- Work sheets (1 sheet per pupil)

Session Plan:

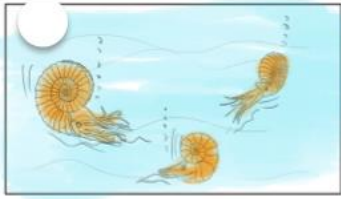
(What the children (and teacher!) need to know before they start this lesson)

| Element | Purpose | Timing | Summary |
|----------------------|---|------------|---|
| Learning orientation | Introduce the lesson and key purpose | 5 minutes | Explain we will be learning about fossils and evolution, ask children to think-pair-share what a fossil is and how these are formed. Fossils can be dated based on the rock they are found in, which allows us to understand how life has changed over thousands and millions of years through evolution. |
| Activity | Fossilisation process | 10 minutes | Children will each have a sheet of the fossilisation process out of sequence. Children will number each stage in the order they think the process occurs. |
| Plenary | Understanding of how fossils are made and that life today has evolved from things that lived in the past. | 5 minutes | Go through the sheet giving the correct answers and talking through the process of how fossils are formed. Talk about the ammonite and how it is an example of something that lived in the past but is no longer around today. Fossils from different times are used as evidence of evolution. |

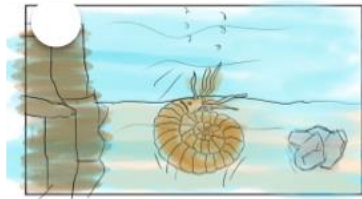
Plenary: Bring the class together and talk about how fossils are made. Fossils are evidence of what life there was thousands and millions of years in the past. We can use fossils to see how life has changed over millions of years.

Fossilisation of an ammonite

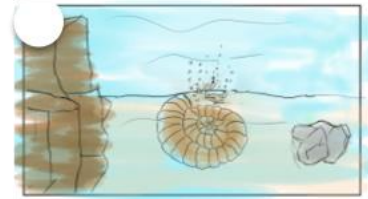
Teachers sheet – Correct order



These shelled squid-like creatures - were plentiful in the oceans.



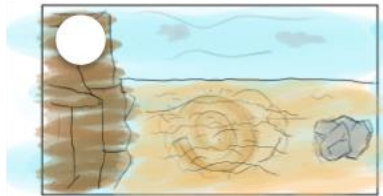
For some reason, this particular ammonite died.



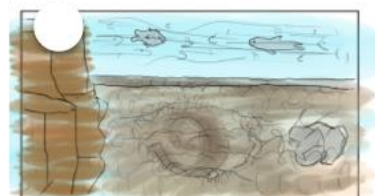
Its shell ended up on the seabed and the soft squishy parts of the ammonite were either eaten or they broke down over time.



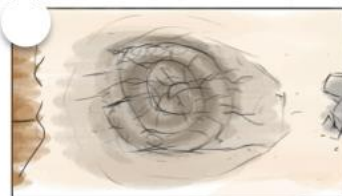
The shell was then covered in silt or sand, which protected it from damage



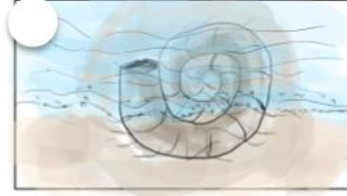
and over time gradually, the ammonite shell was buried.



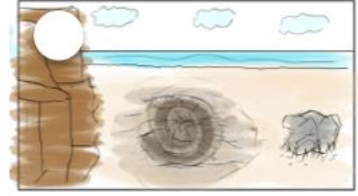
After thousands of years, many, many layers of sand covered the shell. And gradually that sand became sandy rock.



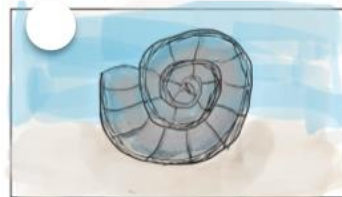
Now the ammonite is buried under soft sedimentary rock. The shell survives,



but the wide spaces inside the shell are filled with water that seeps through the rock.



As the years pass – indeed as millions of years passed, the depth of the ocean gradually reduces until eventually the area in which the shell was originally buried is now on dry land.



The water carries dissolved minerals. The minerals form crystals, a kind of rock inside the shell.



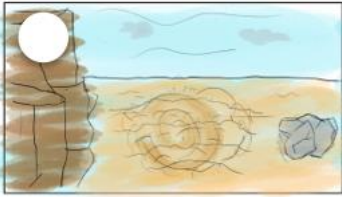
Over time the rock around the fossil made of the sand or silt, eroded as a result of wind and rain until the harder rock of the fossil is left uncovered and exposed



ready to be found by a palaeontologist, like this one!

Fossilisation of an ammonite

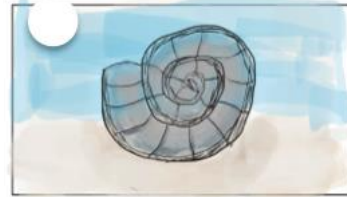
Cut and stick the images into the correct order! Or number the circles in the images.



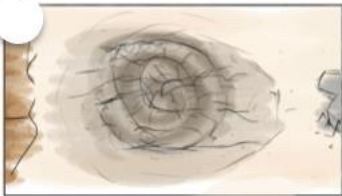
and over time gradually, the ammonite shell was buried.



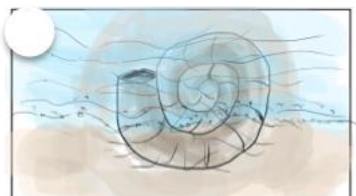
ready to be found by a palaeontologist, like this one!



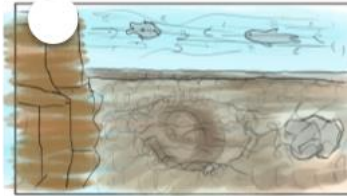
The water carries dissolved minerals. The minerals form crystals, a kind of rock inside the shell.



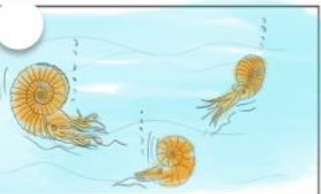
Now the ammonite is buried under soft sedimentary rock. The shell survives,



but the wide spaces inside the shell are filled with water that seeps through the rock.



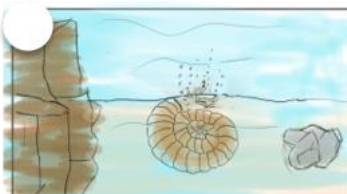
After thousands of years, many, many layers of sand covered the shell. And gradually that sand became sandy rock.



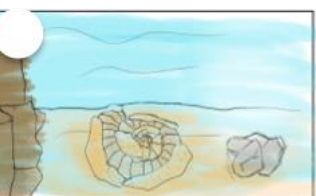
These shelled squid-like creatures - were plentiful in the oceans.



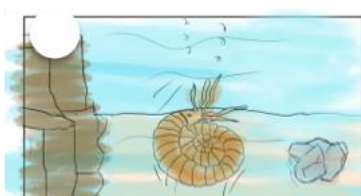
Over time the rock around the fossil made of the sand or silt, eroded as a result of wind and rain until the harder rock of the fossil is left uncovered and exposed



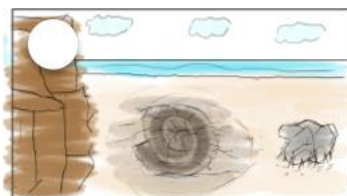
Its shell ended up on the seabed and the soft squishy parts of the ammonite were either eaten or they broke down over time.



The shell was then covered in silt or sand, which protected it from damage



For some reason, this particular ammonite died.



As the years pass – indeed as millions of years passed, the depth of the ocean gradually reduces until eventually the area in which the shell was originally buried is now on dry land.