

Worksheet: What are fossils?

Intermediate Phase

Grade: 4 - 6

Learning are: Natural sciences

Strand: Planet Earth and beyond

Theme: The Changing Earth

Specific Aim 1: Acquiring knowledge of natural sciences

Specific Aim 3: Appreciating and understanding the importance and applications of natural sciences in society



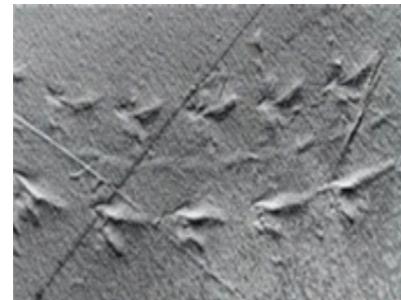
Activity sheet

The word 'fossil' is from the Latin word "fossilis" meaning 'to dig'. Fossils are the remains or evidence of prehistoric plants and animals that have been preserved in rock. Most often, the hard, durable body parts such as bones, teeth, or shells are preserved. However, sometimes wood, animal faeces (called coprolites), animal tracks, or the casts of soft body parts may fossilize.

The process of fossilization involves the dissolving and replacement of the original minerals in the object under-going fossilization with other minerals. Dinosaur bones, nests, petrified wood, microbes (a microbe is a minute living such as bacteria or virus), faeces and grains of pollen are all examples of things that can become fossilized.



Different types of fossils include trace fossils, body fossils, petrified fossils, moulds and casts, an mummies. Past life forms may also be preserved as frozen remains. The term 'fossil' can also include the bodies of prehistoric life, preserved and frozen in glaciers or polar permafrost, or mummified in caves or salt or peat (bog) beds. Fossils can also be the remains preserved inside drops of amber, like in the insect in the film *Jurassic Park*.



Trace fossils are a record of an organism's behaviour.

Fossil track ways, footprints, casts (the imprint) of animal and plant remains and burrows, are examples of trace fossils. Fossils found in well-preserved sedimentary rocks that consist of simple organic compounds or proteins, are known as chemical fossils. Petroleum is an example of a chemical fossil and coal is a macrofossil of plant matter. Dinosaur bones and other examples of fossil bones and teeth, such as the ones from the Fossil Park, petrified wood, microbes, fossilized faeces, nests and grains of pollen are examples of body fossils.



The West Coast Fossil Park is one of many areas in South Africa that had conditions that promoted fossilization.



How are fossils found?

Anyone can find a fossil - even you! By far the most common way to find fossils is to look closely at rock outcrops and search for fossils that are being exposed by erosion. Fossils are sometimes found when miners excavate or dig into layers of sedimentary rock. A scientist who studies fossils is called a palaeontologist. The palaeontologist uses scientific methods to find out more about the prehistoric plant or animal that the fossil represents. This includes how old the fossil is, whether it once lived on land or in the ocean, what extinct or existing species it resembles, and so on. Palaeontologists use this and other information to learn more about how the environment and climate on Earth has changed over millions of years, a longer time than any of our historical records - before books, before humans - back when life began 4.6 billion years ago. A palaeontologist uses many tools when looking for fossils. These tools include picks, chisels, drills, shovels, brushes and magnifying glasses. Different tools and methods are used to prepare different types of fossils for study. Computers and other instruments, such as scanning electron microscopes, may be used to study and analyse new findings for comparison with information that is already known.



Activity 1: Tools used to find and collect fossils

Things you need to pack in your backpack to be a good fossil finder. include:

- Geological maps
- Aerial and satellite photos
- Geological pick
- Brush
- Dental pick
- Dustpan
- Toilet paper or tin foil
- G.P.S
- Field book and pencil
- Camera
- Hand lens
- Acid bottle
- Water bottle
- Spare pencils and eraser
- Boxes
- labels
- Lunch!

Below are a few examples of tools that palaeontologists use to excavate fossils.

- String for grid
- Pick
- Magnifying glass
- Chisel
- Sand scoop
- Shovel/spade
- Brushes
- Trowel
- Rock hammer
- Graph paper and board
- Plaster of Paris



Explain what you think each one is used for.

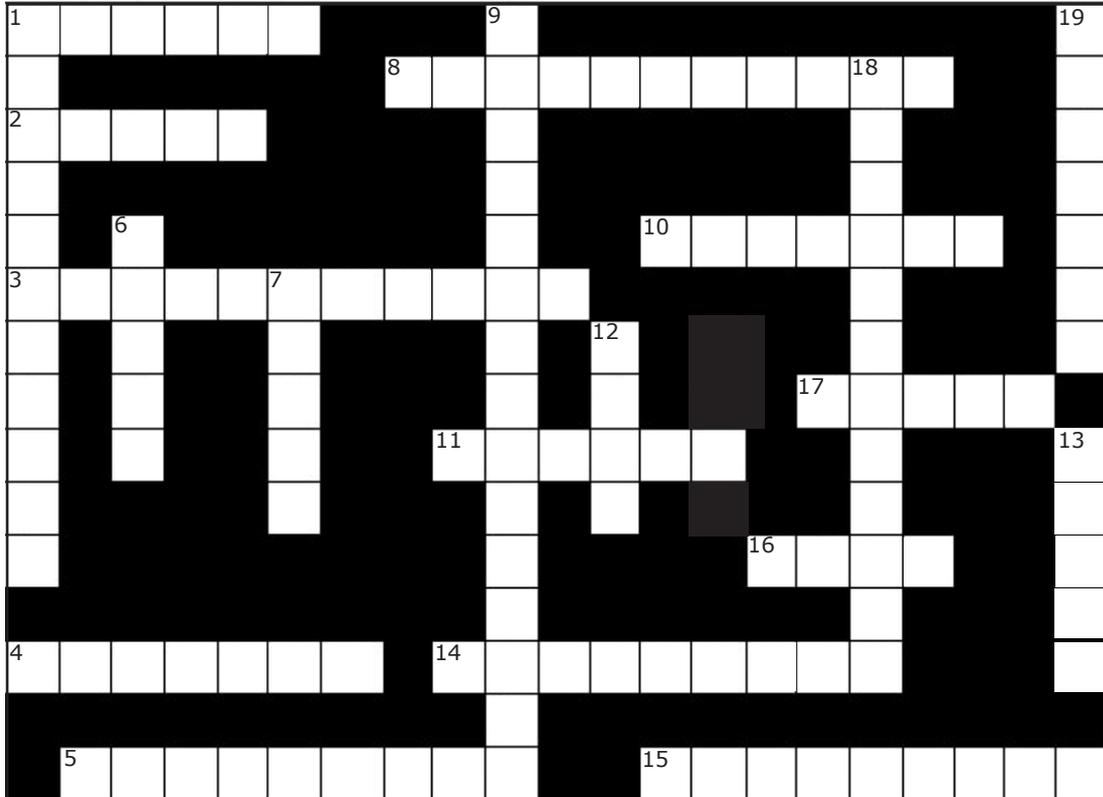




Activity 2: Crossword

Read all the clues below and complete the crossword puzzle.

What is a fossil?



ACROSS

- 1 A tool used to dig holes.
- 2 The Latin meaning of "fossilis".
- 3 The hard covering of an arthropod.
- 4 Frozen river (snow) wherein actual bodies of prehistoric life can be frozen.
- 5 Imprint of an animal's foot.
- 8 The fossil of a footprint or burrow etc.
- 10 A sharp, flat screwdriver.
- 11 The mineralized remains or evidence of any organism preserved in rock.
- 14 An extinct animal which was common on the West Coast 5 million years ago.
- 15 An example of a chemical fossil made from ocean microbes.
- 16 A fossil made from prehistoric trees.
- 17 An example of a body fossil.

DOWN

- 1 A rock type in which you might find fossils.
- 6 The internal skeleton of a vertebrate is made up of
- 7 A planet 4.6 billion years old.
- 9 A person whose job it is to study fossils.
- 12 The original organism decays, leaving an imprint of its body.
- 13 The original organism decays, leaving an imprint and an empty space
- 18 An animal without a backbone.
- 19 A very small, living organism.



