

YEAR 3/4 - BENEATH OUR FEET

ROCKS

What I have already learnt

- Soil contains nutrients and these help plants to grow.
- That magma is molten rock that is formed in very hot conditions inside the earth.
- Why some materials are used for certain purposes because of their properties.

What I will have learnt by the end of the unit

I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.

I can describe in simple terms how fossils are formed when things that have lived are trapped within rock.

I can recognise that soils are made from rocks and organic matter.

There are three types of rocks that are formed naturally.

Igneous: When molten magma cools, igneous rocks are formed. This either cools and forms rocks under the earth's surface, or flows out of erupting volcanoes as lava.

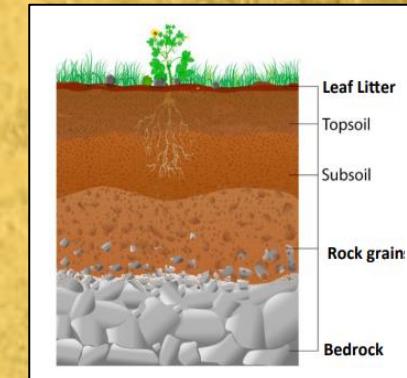
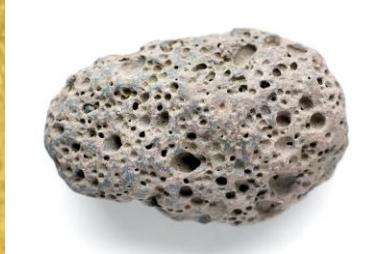


Examples include granite and basalt. This type of rock is strong, hardwearing and non-porous.

Sedimentary: Sometimes, little pieces of rocks that have been weathered can be found at the bottom of lakes, seas and rivers. This is called sediment. Over millions of years, layers of this sediment builds up forming sedimentary rocks. Examples include limestone and chalk. Sedimentary rocks are porous and can easily be worn down.



Metamorphic: When some igneous and sedimentary rocks are heated and squeezed (pressured), they form metamorphic rocks. Examples include slate and marble. Metamorphic rocks are strong. Bricks and concrete are not rocks because they are man-made.



What is soil?

Soil is made from pieces of rock, minerals, decaying plants and water. When rock is broken down into small grains, soil is formed. There are layers of soil: above the soil is leaf litter and recently decaying plants. As the soil becomes deeper, the rock grains become larger until bedrock is reached.

KEY VOCABULARY

Soil	The substance on the surface of the earth.
Igneous	Rocks that are formed by volcanic action or intense heat
Metamorphic	Rocks that have had their original structure changed by pressure
Sedimentary	Layers of this sediment builds up forming sedimentary rocks
Magma	Molten rock that is formed in very hot conditions inside the earth
Permeable	If a substance is permeable, something such as water or gas can pass
Porous	Something that is porous has many small holes in it, which water and air can pass through
Palaeontology	The study of fossils

What I will have learnt by the end of my key stage

Name different types of rocks.

Observe and describe the properties of igneous and sedimentary rock.

Describe the properties of igneous and sedimentary rocks.

Describe rocks as igneous and sedimentary.

Key skills I will learn/use

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straight forward scientific evidence to answer questions or to support their findings.

Key Knowledge

- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock
- Recognise that soils are made from rocks and organic matter.
- Rocks and soils can feel and look different.
- Rocks and soils can be different in different places/environments.



Key Concepts

- Biology
- Chemistry
- Physics
- Scientific Enquiry
- Science for the future
- Vocabulary

Key questions

- ★ What is a rock?
- ★ How do rocks change over time?
- ★ Why do rocks change over time?
- ★ How are fossils formed?
- ★ What is soil made of?



What is a fossil? A fossil is the preserved remains or impressions of a living organism such as a plant, animal, or insect. Some fossils are very old. Studying fossils helps scientists to learn about the past history of life on Earth. **Where are fossils found?** Fossils are found all over the world. Most fossils are found in sedimentary rock such as shale, limestone, and sandstone.

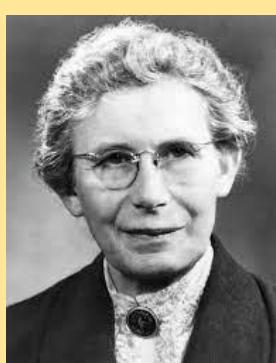
Examples of rocks:

Granite, chalk, limestone, sandstone, basalt, marble, pumice and slate.

Key people

Mary Anning (1799 -1847) was an English fossil collector, dealer, and palaeontologist who became known around the world for important finds she made in Jurassic marine fossil beds in the cliffs along the English Channel at Lyme Regis in the county of Dorset in Southwest England.

Inge Lehmann (1888 -1993) was a Danish seismologist and geophysicist. In 1936, she discovered that the Earth has a solid inner core inside a molten outer core.



Fossilisation

An animal dies. It gets covered with **sediments** which eventually become rock.

More layers of rock cover it. Only hard parts of the creature remain, e.g. bones, shells and teeth.

Over thousands of years, **sediment** might enter the mould to make a **cast fossil**. Bones may change to mineral but will stay the same shape.

Changes in sea level take place over a long period.

As **erosion** and weathering take place, eventually the fossil becomes exposed.

