

Rocks, fossils and soils

The Big Questions

Why don't all rocks look the same?

Do rocks stay the same forever?

How is soil formed?

What is a fossil?

Core Knowledge

- Soil is the uppermost layer of the Earth.
- Soil is a mixture of different things:
 - **air**
 - **water**
 - **minerals** which come from finely broken-down rock
 - **organic matter** which includes living and dead plants and animals
- Fossils are made when an animal dies and its body gets covered in a layer of **sediment** which becomes rock over hundreds of years .
- The bones and teeth, which are the hardest part of an animal, will remain buried under the rock for a long time before they turn into minerals. Their shape will still remain in the rock.



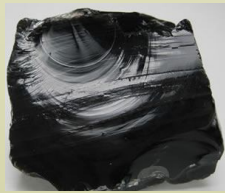
- Over time, weather such as wind and rain will wear away the top layers of rock exposing the fossil.

Materials and their Properties

Rocks, fossils and soils

Core Knowledge

- Some rocks are man-made, whilst others occur naturally.
- There are three different kinds of rock: **igneous**, **sedimentary** and **metamorphic**.
- **Igneous** rock is rock that has been formed from magma or lava cooling after it has erupted in liquid form from a volcano. It often has crystals or air bubbles in.



Obsidian

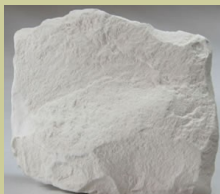


Pumice



Granite

- **Sedimentary** rock is rock that has been formed by layers of sediment being pressed down hard and sticking together. You can sometimes see the layers of sediment in the rock. This is not as hard as the other types.



Chalk



Coal



Flint



Sandstone

- **Metamorphic** rock is rock that started out as igneous rock but was changed by being exposed to extreme heat or pressure. This can be shiny and have ribbon-like layers.



Anthracite



Lapis Lazuli



Marble

(All pictures from: <https://geology.com/rocks/>)

Materials and their Properties

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Key vocabulary

sediment—natural material that has been broken down by natural processes and taken to a new place by wind or water

erosion—the process of being worn away by naturally occurring things such as wind and rain

magma— molten rock that remains underground

lava—molten rock that comes out of the ground (erupts from a volcano) is called lava

permeable—if a rock is permeable liquids will be able to pass through it

impermeable—impermeable rock does not allow liquids to pass through it

properties—the shape, texture, hardness of a substance and how it reacts to things

organic matter— the remains of organisms such as plants and animals and their waste products

<https://www.worldatlas.com/articles/what-are-the-differences-between-stalactites-and-stalagmites.html>

As scientists we will

- Make careful observations to be able to compare and group together (classify) different kinds of rocks on the basis of their appearance and simple physical properties
- Say what we have found out, in simple terms, about how fossils are formed when things that have lived are trapped within rock
- Compare and group together rocks and soils based on their properties, including their hardness, permeability, appearance, size and colour
- Consider how to carry out a fair test to discover which soil would be best for a specific purpose, make a prediction based on what we have learnt so far and evaluate how successful our test was.

