

National Curriculum Science - Knowledge

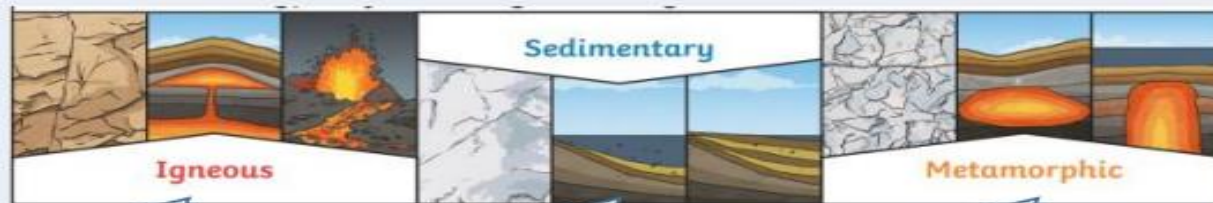
- compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- describe in simple terms how fossils are formed when things that have lived are trapped within rock
- recognise that soils are made from rocks and organic matter

Key Learning

Compare different kinds of rocks based on their appearance and properties including natural and human-made

Natural Rocks			Human-Made Rocks
Igneous	Sedimentary	Metamorphic	
Obsidian	Chalk	Marble	Brick
			
Granite	Sandstone	Quartzite	Concrete
			
Basalt	Limestone	Slate	Coade Stone
			

To know the three types of naturally occurring rocks: sedimentary, metamorphic and igneous and how they are formed.



Begins as molten magma inside the Earth, cools as it moves towards the surface.

Rock is formed when sediment is deposited from ice, air, wind or water and build up layers

Rocks that have been changed by heat or pressure and usually do not contain fossils

Vocabulary

- Sedimentary Rocks**- Rocks that are formed when layers of sediment settle and are pushed together.
- Metamorphic Rocks** – Rocks that are changed by heat or pressure, these could start as sedimentary or igneous rocks
- Igneous** – Rocks that start as molten magma inside the Earth and cool as they reach the surface
- Fossil** – prehistoric remains of a plant or animal found in rocks and soils.
- Fossilisation** – The process by which fossils are made
- Permeable**- Allows water to pass through
- Impermeable**-Doesn't allow water to pass through
- Magma**-Hot liquid rock that remains underground
- Lava** – Hot liquid rock that comes above ground
- Sediment** – small bits of natural material
- Erosion** – Where wind or water wears away material.
- Geology** – The study of rocks

# Learning Sequence

## **1. What are the three different types of rock?**

The three types of rock are igneous, sedimentary, and metamorphic:

Igneous: Formed from magma or molten rock, examples include granite and basalt.

Sedimentary: Examples include shale, limestone, sandstone, siltstone, and conglomerate.

Metamorphic: Formed when sedimentary or igneous rocks are pushed down into the Earth's crust and subjected to heat and pressure, examples include quartzite, slate, gneiss, and marble.

## **2. How can we group rocks based on their properties?**

Conducting an experiment in small groups, pupils will test the hardness, buoyancy and permeability of a range of igneous, sedimentary and metamorphic rocks.

## **3. What is 'weathering' and 'erosion'? What is the difference?**

Weathering is the process of breaking down rocks, minerals, and soil, while erosion is the process of moving broken down materials to a new location

## **4. How are fossils formed?**

After an animal dies, the soft parts of its body **decompose** leaving the hard parts, like the skeleton, behind. This becomes buried by small particles of rock called **sediment**.

As more layers of sediment build up on top, the sediment around the skeleton begins to compact and turn to rock.

The bones then start to be dissolved by water seeping through the rock. Minerals in the water replace the bone, leaving a **rock replica** of the original bone called a fossil.

## **5. What is soil composed of?**

Soil is made up of smaller pieces of rock and minerals as well as organic matter. Microscopic organisms, fungi and larger organisms (such as earthworms) play a part in breaking down organic matter which then appears in soil.

## **6. How permeable is soil?**

Soil permeability is the ability of soil to allow liquids or gases to pass through it. Soil permeability is affected by the size of the particles in the soil. Pupils will set up a fair test to investigate.