

## Key Facts

### Rocks

A rock is a solid made up of a bunch of different *minerals*. Rocks are generally not uniform or made up of exact structures that can be described by scientific formulas. Scientists generally classify rocks by how they were made or formed. There are three major types of rocks: *Metamorphic*, *Igneous*, and *Sedimentary*.

### Soils

Soil is one of the three major natural resources, alongside air and water. ... Soil is made up of three main components - minerals that come from rocks below or nearby, organic matter which is the remains of plants and animals that use the soil, and the living organisms that reside in the soil. There are six main soil types: clay, sandy, silty, peaty, chalky, loamy.

### Fossils

Most of the creatures that fossils were formed from would have lived in the sea, died or been killed and dropped to the ocean floor, where layers of sediment built up on top of them over many centuries. The pressure of the rock building up in layers over time caused the body of the creature to change and the remains became fossilised and mineralised by the surrounding material.



# Science Year 3 Autumn 1 Rock Detectives

## Vocabulary

Word	Definition
Chalk	A softer, white rock and is a type of limestone.
Clay Soil	Clay soil feels lumpy and sticky when very wet. It is rock-hard when dry. It does not let through water easily and has few air spaces. It is very hard to dig.
Fossils	Fossils are formed in a number of different ways, but most are formed when a plant or animal dies in a watery environment and is buried in mud and silt.
Granite	Is harder and tough, usually grey to pink in colour and often used for buildings. Granites are made up of crystals, which can often be seen clearly on the surface.
Limestone	A grey/white rock that was formed from the bones of tiny sea creatures that dropped down to the bottom of the sea when they died. It is used as a building stone, and to make concrete.
Marble	Is made of limestone that has experienced extreme heat and changed to form a hard rock that is used in buildings and to create sculptures.
Sandstone	Is a clastic sedimentary rock composed mainly of sand-sized mineral particles or rock fragments
Sandy Soil	Sandy soil feels gritty to the touch and lets water through easily. It is easy to dig and dries out rapidly.
Slate	Is fine-grained and when expertly cut it will form smooth flat sheets of stone, which have long been used for roofing, floor tiles and other purposes.

### Common misconceptions:

Children are not required to learn the terms sedimentary, igneous and metamorphic in the context of how rocks are formed.

Children may not recognise:

- That 'stones' and 'pebbles' are small pieces of rock.
- That the word 'stone' is sometimes used instead of 'rock'.
- That rock sits below everything on the Earth and is always there below the observable surface even though it cannot be seen.
- Encourage children to use the term 'absorb' rather than 'soak up' or 'take in' in the context of permeability activity.

### Knowledge and Understanding:

#### Children will learn:

- To identify and name rocks, describing and comparing their observable properties and sorting them using a key.
- To identify ways in which rocks are used in the local environment and suggest why the properties of certain rocks make them suitable for particular purposes.
- To consider how rocks are affected by weathering over time and work scientifically to carry out tests to establish the hardness and permeability of different kinds of rocks.
- To explore a variety of soils first hand, making the link between soils of different types and the rocks from which they are partly made.
- To learn about happens to cause rocks to break down and become soil particles.
- To test a variety of soils, including local soils, to make comparisons and draw conclusions based on their observations.

### Key skills and concepts:

#### Children will be able to:

- Use **secondary sources** of information with increasing independence in order to find answers to questions about how rocks are used in the local environment and suggest why the properties of certain rocks make them suitable for particular purposes. This should involve them using quality non-fiction books and web-based material.
- Children will **report and present findings** from their enquiries in a variety of ways, both orally and in written forms including labelling diagrams, drawing conclusions, identifying causal relationships and explaining their thinking.
- They can carry out a range of **investigations** such as fair tests to investigate how rocks are affected by weathering over time and work scientifically to carry out tests to establish the hardness and permeability of different kinds of rocks.
- They will also test a variety of soils, including local soils, to discover whether soils of different types let water through at the same rate. They will work scientifically to **make comparisons and draw conclusions** based on their observations.

### Key Questions

What different types of rocks are there?

Are all rock as hard as one another?

How are rocks used around our school?

Are all rocks waterproof?

How do rocks used change over time?

How is soil made?

What is a fossil?

Where and how are fossils found?