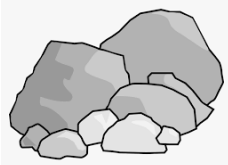


Year 3



Unit: Rocks

Prior learning

Year 1 – distinguish between an object and the material from which it is made.
 Year 1 – Identify, name, group, compare, and describe the properties of everyday materials.
 Year 2 – Identify the suitability of everyday materials for a particular use.

Later learning (not in Year 3)

Year 6 – Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
 KS3 – The composition of the Earth
 KS3 – The structure of the Earth
 KS3 – The rock cycle and the formation of igneous, sedimentary and metamorphic rocks.

Key Questions:

How are the different types of rock formed?

Give an example of an igneous rock.

Why are bricks and concrete not rocks?

How would you describe a rock that absorbs water?

Fossils are usually formed in which rock?

Describe how a fossil is formed.

Intent:

To understand how fossils are formed when things that have lived are trapped within rocks.
 To understand that there are different kinds of rocks.
 To recognise that soils are made from rocks and organic matter.

Soil

Soil is the uppermost layer of the Earth. It is a mixture of different things:






- minerals (the minerals in soil come from finely broken-down rock);
- air;
- water;
- organic matter (including living and dead plants and animals).

The diagram shows a cross-section of the ground. At the top is a tree with roots extending into the soil. Below the surface, there are three distinct layers: a dark top layer labeled 'topsoil', a lighter middle layer labeled 'subsoil', and a bottom layer of large grey rocks labeled 'baserock'. To the right of each layer is a small pile of material representing that layer: dark soil for topsoil, lighter soil for subsoil, and grey rocks for baserock.

Caves are formed when water **permeates** through the base rock and **erodes** some of the rock away. Over thousands of years these caves can become very large.

The illustration shows a group of people in a large, dimly lit cave. They are standing on a rocky floor, and the walls are high and textured. One person is pointing towards a large opening in the rock.

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.
				

There are three types of naturally occurring rock.

The diagram illustrates the formation of three types of rocks. On the left, 'Igneous' rocks are formed from molten magma cooling. In the middle, 'Sedimentary' rocks are formed from layers of sediment being compressed. On the right, 'Metamorphic' rocks are formed from existing rocks being changed by heat and pressure.

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

Some words you might use to discuss the properties of a rock:

hard, soft, **permeable**, **impermeable**, durable (meaning resistant to weathering), high density, low density. Density measures how 'bulky' the rock is (how tightly packed the molecules are).

Vocabulary

Absorb	Soak up or take in.
Bedrock	The solid rock in the ground which supports all the soil above it.
Decaying	Gradually being destroyed by a natural process.
Grain	A grain of something such as sand or sold is a tiny hard piece of it.
Igneous	Rocks offered by volcanic action or intense heat.
Imprint	A mark or outline made by the pressure of one object on another.
Leaf litter	Decaying leaves.
Magma	Molten rock that is formed in very hot conditions inside the earth.
Man-made	Things are created by people.
Metamorphic	Rocks changed by heat or pressure.
Mineral	Something formed naturally in rocks and in the earth.
Molten	Molten rock, metal, or glass has been heated to a very high temperature and has become a hot, thick liquid.
Natural	Things that exist in nature and are not made by people.
Nutrients	Substances that help plants and animals to grow.
Palaeontology	The study of fossils.
Permeable	If a substance is permeable, something such as water or gas can pass through it or soak into it.
Porous	Something that is porous has many holes in it, which water an air can pass through.
Prehistoric	The time in history before any information was written down.
Preserve	To protect from decay.
Pressure	Force produced when you press hard on something.
Properties	The qualities or features that belonged to something and make it recognisable.
Rock	A solid mass made-up of minerals. Rock forms much of the earth's outer layer, including cliffs and mountains.
Sediment	Solid material that settles at the bottom of a liquid, especially earth and piece of rock that have been carried along and then left somewhere by water, ice, or wind.
Soil	The substance on the surface of the earth in which plants grow.
Surface	The flat top part of something or the outside of it.
Surrounding	To be present all around.
Volcano	A mountain from which hot melted rock, gas, steam, and ash from inside the Earth sometimes burst.
Weathered	Affected by the weather.