

Rocks and Soils

Year 3 - Science - Autumn Term 2

SEDIMENTARY

These rocks form under the sea. Rocks are broken into small pieces by wind/water (**erosion**). They settle as mud, sand, minerals and even remains of living things. Over time, layers pile up and the pressure turns this **sediment** into rock.



limestone
chalk
sandstone

IGNEOUS

Far underground, the temperature is so hot, rock melts into a liquid (molten rock). When the liquid is underground it is called '**magma**'. When it spills out (volcano), the liquid is called '**lava**'. It cools to form igneous rock.



obsidian
granite
basalt

METAMORPHIC

When sedimentary or igneous rock is near magma, it **heats** up and chemicals change in the rock. However, it does not heat up enough to melt it. As it cools it becomes metamorphic rock.



marble
quartzite
slate

MAN-MADE ROCKS

These rocks are made by humans.

CONCRETE - a mixture of water, sand/rock/gravel and cement (chalk & clay)

BRICKS - Clay soil, sand or lime which have been air-dried or fire-hardened.

MOCK ROCK - Victorians made rock gardens and surfaces that looked like rock.



FOSSILS

A fossil is the remains or the impression left by a prehistoric plant or animal embedded in rock. They are only found in sedimentary rock.



magma

- 1.) An animal, creature or plant dies and ends up at the bottom of the sea. It gets covered in a layer of rock.
- 2.) Over time, more layers of rock form on top and the only thing which would remain are the bones or the space where the bones used to be (mould fossils).
- 3.) Sometimes sediment enters the space where the bones used to be and takes the shape of the creature (cast fossil).
- 4.) Over a long period, the sea may recede / go back leaving the rock.



5.) Erosion and weathering of the rock means the fossil can now be seen!

What is soil made of

AIR - Oxygen, carbon dioxide, nitrogen etc.

ORGANIC MATTER - Living and dead plants and animals.

WATER - Air and water fill the gaps between particles of soil.

MINERALS - Minerals come from broken down rocks.

PROPERTIES OF ROCKS

- 1.) **HARD / SOFT** - Some rocks need to be cut or split with tools because they are so hard (e.g. granite) but others are soft and can be moulded (e.g. clay).
- 2.) **PERMEABLE / IMPERMEABLE** - Permeable rocks allow water to pass through (e.g. pumice) but impermeable rocks do not let water pass through (e.g. marble)
- 3.) **DURABLE** - Rocks which are resistant to erosion last longer and are more durable. Buildings are often made with these (e.g. limestone)
- 4.) **DENSITY** - If the particles in the rock are tightly packed then it has a high density. These rocks would sink in water (e.g. basalt).