

Rocks and Soils

Significant Scientist

Mary Anning



Mary Anning (1799 -1847), born in Lyme Regis in Dorset, was a famous British fossil hunter who found the fossils of many prehistoric animals. Although not trained as a scientist, her discoveries changed science. Today she is recognised as a pioneer in the field of palaeontology (the study of fossils).

Enquiry Skills

Observing over time

Identifying and classifying

Fair testing

Pattern seeking



Working Scientifically Skills

Oral and written explanations, conclusion, predictions, classify, collect data and evidence, improve, use secondary sources.

Ask relevant questions.

Data – gather, record, classify, present.

Record – drawings, labelled diagrams, tables.

Key Knowledge

Sedimentary rocks are formed by sediment that is deposited over time, usually as layers at the bottom of lakes and oceans. This sediment can include minerals, small pieces of plants and other organic matter. The sediment is compressed over a long period of time before consolidating into solid layers of rock.

Far underground, the temperature is so hot, rock melts into a liquid (molten rock). When the liquid is underground it is called 'magma' and it can cool to form an intrusive rock. When it spills out (volcano), the liquid is called 'lava' and it cools to form extrusive igneous rock.

Metamorphic rocks have been changed over time by extreme pressure and heat. Metamorphic rocks can be formed by pressure deep under the Earth's surface, from the extreme heat caused by magma or by the intense collisions and friction of tectonic plates.

Key properties of rocks: Hard /Soft; Permeable/Impermeable; Durability; Density. If the particles in the rock are tightly packed then it has a high density. These rocks sink in water. Rocks with low density float.

A fossil is the remains or the impression left by a prehistoric plant or animal embedded in rock:

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 remains 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.

Soil is made from:

Air - Oxygen, Carbon dioxide, nitrogen.

Organic Matter - Living and dead plants and animals.

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

Minerals - Formed from broken down rock.

Key Vocabulary

soil	The loose upper layer of the Earth's surface where plants grow.
organic matter	Living and dead plants and animals.
fossil	The remains or the impression left by a prehistoric plant or animal embedded in rock.
sediment	Matter that settles to the bottom of a liquid.
decay	The process of rotting or decomposing.
permeable	Allows water to pass through.
erosion	Water, wind, and other natural forces cause rocks and earth to wear away.
durable	Rocks which are resistant to erosion so they last longer.
magma	Hot fluid within the earth's crust.
lava	Magma after it has erupted from a volcano onto the Earth's surface.
density	How tightly particles are packed.

TYPES OF ROCKS

IGNEOUS		SEDIMENTARY		METAMORPHIC	
Granite	Scoria	Sandstone	Limestone	Marble	Slate
Pumice	Obsidian	Conglomerate	Gypsum	Quartzite	Gneiss