

Jeavons Wood Primary School – Science Knowledge Organiser

Topic: Rocks and Soils

Year: 3

Strand: Biology

Big Question: Are all rocks the same?

What should I already know?

- *May have some understanding of a variety of different rocks in the natural world.
- *Some understanding of what soil is. (how to identify soil etc)
- *May have some knowledge of what a fossil is.

What will I know by the end of the unit?

Types of Rock (3 main types)

Sedimentary	Formed from particles of sand, shells, pebbles and other fragments of materials. Together, all these particles are called sediment. Gradually the sediment accumulates into layers and over a long period of time, hardens into rock.
Metamorphic	Formed under the surface of the Earth from the metamorphosis (change) that occurs due to intense heat and pressure (squeezing).
Igneous	Formed when magma cools and solidifies, which it can do above or below the Earth's surface.

Properties of each type of rock

Sedimentary	<ul style="list-style-type: none"> *Usually crumbly and allows water through them. *Made of layers and stuck together with mineral crystals. *Contain fossils within their layers
Metamorphic	<ul style="list-style-type: none"> *Usually hard *May contain tiny crystals or fossils
Igneous	<ul style="list-style-type: none"> *Very hard *Contains crystals

How Fossils are formed

- *An animal dies and it's skeleton settles on the sea or river bed and is buried by sediment.
- *The sediment surrounding the skeleton thickens and turns to stone.
- *The skeleton dissolves and forms a 'mould'.
- *Minerals crystallise inside the mould and a cast is formed.
- *The fossil is eventually exposed on the Earth's surface.

How soil is made

What is soil made from?	<ul style="list-style-type: none"> *Minerals – small stone fragments:clay, silt or sand. *Organic matter – decaying plants and animals. *Water – which the nutrients in the minerals and organic matter dissolve into. *Air – which fills the gaps between the minerals and organic matter parts.
Types of soil	<ul style="list-style-type: none"> *Sandy Soil – pale in colour with lots of small air gaps. Water drains through easily so it feels quite dry. *Clay Soil – an orange or blueish sticky soil with few air gaps. Water does not drain through easily and puddles tends to stay on top of the soil for a long time when it rains. *Chalky Soil – light brown in colour, allowing water to drain through it quickly. *Peat – unlike other soils as it doesn't contain any rock particle. It is made from very old decayed plants. It is dark, crumbly and rich in nutrients (chemicals plants need to grow).

Diagrams and Symbols

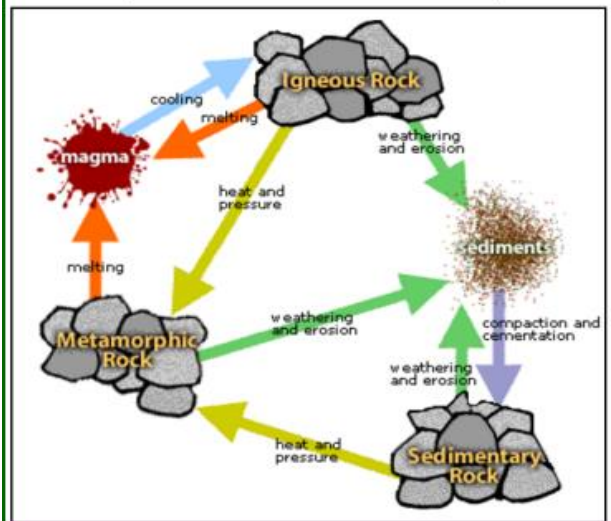


Sedimentary

Metamorphic

Igneous

The Rock Cycle



Vocabulary

Sedimentary	Rocks made of layers of sediment
Metamorphic	Rocks made in the Earth due to intense heat and pressure.
Igneous	Rocks made from cooled magma.
Organic matter	Made up of animals and plants.
Permeable	Allows liquids (or gases) to pass through.
Impermeable	Doesn't allow liquids to pass through.
Erosion	Gradual wearing away.
Magma	Hot fluid below or within the Earth's crust from which lava and other igneous rock is formed on cooling.
Solidify	To become solid or hard.
Dissolve	To become part of a liquid.

Where will my learning go next?

In 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.

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Q1: Tick the 3 types of rocks?	Start of unit	End of unit
Gold		
Sedimentary		
Hard		
Crystal		
Igneous		
Metamorphic		
Fossil		

Q2: Tick the item which appears in a fossil	Start of unit	End of unit
Live animal		
Dead animal		
Human skeleton		
Plants		

Q3: Which rock is formed from cooled magma?	Start of unit	End of unit
Gold		
Sedimentary		
Crystal		
Metamorphic		
Igneous		

Q4: Tick the parts that make up soil	Start of unit	End of unit
Air		
Crystals		
Small rock fragments		
Water		
Sand		
Organic matter		
Peat		

Q5: Tick the soils that are permeable?	Start of unit	End of unit
Sandy		
Clay		
Peat		
Chalky		