Year 3 - Science- Earth Rocks
Spring 1 and 2 Knowledge Organiser

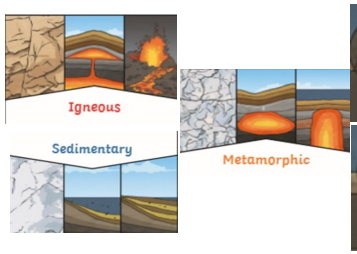
HeathfieldSchools'Partnership

In this unit children will compare and group together different kinds of rocks on the basis of their simple physical properties and learn about the process of fossilisation. Children will learn that soils are made from rocks and organic matter.

Key knowledge

- There are only 3 different types of natural rocks found on Earth:

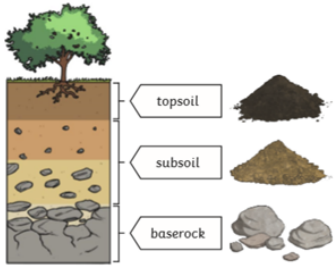
1. **Igneous rocks** are rocks that have been formed from **lava** or **magma.**
2. **Sedimentary rocks** are rocks that have been formed by layers of **sediment** being pressed down hard, usually by the weight of the sea, and joining together.
3. **Metamorphic rocks** are rocks that started out as igneous or sedimentary rock but changed due to being exposed to extreme heat or pressure



Process of Fossilisation

- **Man made** rocks also exist and examples include bricks, concrete
- **Fossilisation** is a process by which a fossil is formed and results in the impression of an organism being left in a rock.
- ***Soil*** is the uppermost part of the Earth. Soil consists of a mix of **organic material** and broken bits of rocks and minerals. Soil also provides a home for many animals and plants. Soil forms slowly (a layer can take between 500 and 1000 years to form).
- There are 4 main processes involve in soil formation: **Additions, Losses, Translocations and Transformation**
- These processes differ from area to area which is why soil is different in different areas. There 5 main types of soil: **clay soil, sandy soil, loamy soil, chalky soil and peaty soil**

<u>Layers of soil</u>– The layers rest on solid rock, called bedrock. A layer of broken rock rests on the bedrock. Some of this rock may have gone into forming the soil above. The soil above the broken rock is called subsoil. Subsoil contains mostly minerals and a small amount of humus. Only the deepest plant roots reach the subsoil. The top layer is called topsoil. Topsoil contains a lot of humus. It is the layer where plants grow.



Key Vocabulary

- **Erosion—** is when rocks are broken down over time and then are carried away by natural forces such as wind, water or ice.
- **Fossil** – the remains or impressions of a prehistoric plant or animal embedded in rock.
- **Igneous**—lava or magma that has turned from liquid to solid forming a rock
- **Impermeable** (does not allow liquids to pass through),
- **Lava** – liquid rock which flows out of a volcano (ranges from 700 to 1200 degrees centigrade)
- **Rock** – made up of grains that are packed together.
- **Magma -**molten rock that remains underground
- **Metamorphic** – a rock that has been changed by extreme heat or pressure
- **Mineral** – solid chemical substances that occur naturally. Minerals come from finely broken down rock.
- **Organic matter**—decayed plants and animals.
- **Permeable**—allows liquids to pass through.
- **Properties**—
- **Sediment** – dead animals, plants or pieces of rock that settles to the bottom of a liquid. Magma – liquid rock inside a volcano
- **Sedimentary** – a rock formed from the build-up of sediment at the bottom of rivers or oceans
- **Soil—**provides a place for plants to grow. It holds water in place for their roots. It contains nutrients, or food substances, needed for their growth.
- **Weathering—** breaking down of rocks by natural causes (wind, rain etc.)

Key Questions

- How is water transported in a plant?
- What are the 3 types of naturally occurring rocks?
- How is igneous rock formed? Name some examples.
- How is sedimentary rock formed? Name some examples.
- How is metamorphic rock formed? Name some examples.
- What man-made rocks can you name?
- What is soil? What is it composed of?
- What are the 4 main processes involved in soil formation?
- What are additions in soil formation? What are losses in soil formation?
- What are translocations in soil formations? What are transformations in soil formations?
- Why are there different types of soil? What are the 5 main types of soil?

Science—Enquiry Approaches

Knowledge Organiser

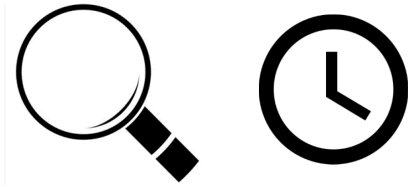
HeathfieldSchools'Partnership

ambitious for the future

Scientific enquiry approaches are part of our science curriculum and are the different ways that we can carry out scientific investigations.

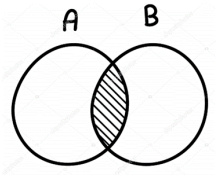
Observing over time

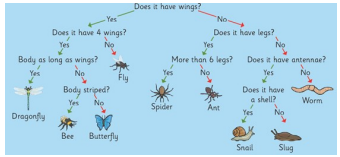
- Use different senses.
- Observe changes over different periods of time.



Identifying and classifying

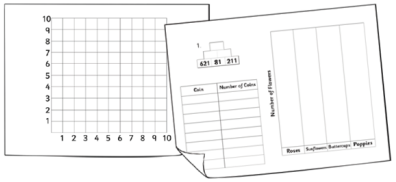
- Naming and grouping.
- Making connections, looking at similarities and differences.





Pattern seeking

- All variables cannot be controlled.
- Look for relationships between variables



Fair testing

- All variables are controlled.
- What you change is in **numbers**.

Researching

- When we cannot investigate in school.
- Books, an expert, the internet.

Comparative testing

- All variables are controlled.
- What you change is in **words**.