

St James the Great School

Science Knowledge Organiser

Y3

Rocks and Fossils- Spring 2

Key Vocab

Rock – made up of grains that are packed together

Mineral – solid chemical substances that occur naturally

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)

Metamorphic – an igneous or sedimentary rock that has been changed by extreme heat or pressure

Sedimentary – a rock formed from the build-up of sediment at the bottom of rivers or oceans

Sediment – dead animals, plants or pieces of rock that settles to the bottom of a liquid.

Magma – liquid rock inside a volcano

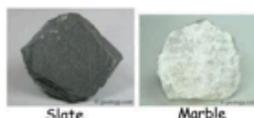
Lava – liquid rock which flows out of a volcano (ranges from 700 to 1200 degrees centigrade)

KNOWLEDGE 1- DESCRIBING AND COMPARING DIFFERENT TYPES OF ROCKS

IGNEOUS ROCKS - are very hard, dark and heavy. They are formed when molten magma from a volcano cools down. They tend to have interlocking grains giving the rock a crystalline appearance. **EXAMPLES: granite, basalt, obsidian.**



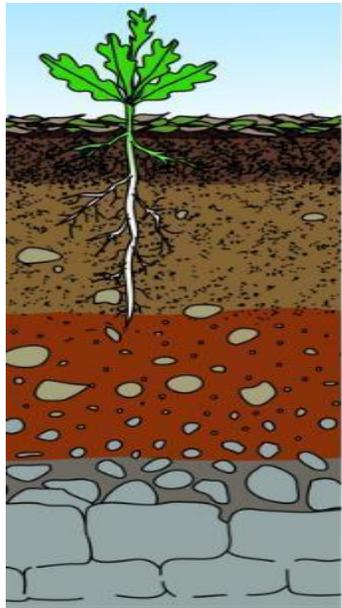
METAMORPHIC ROCKS - are rocks which have been changed over time by pressure or heat. Fossils can be found in metamorphic rocks if plants and animals have been trapped in the rocks. They are hard but can be damaged by acids. **EXAMPLES: slate, marble**



SEDIMENTARY ROCKS – are formed by sediment (which includes minerals, small pieces of plants and other organic matter) that is deposited over time. The sediment is compressed over a long period of time before it becomes solid layers of rock.

EXAMPLES: sandstone, limestone, flint, chalk





Humus

Topsoil

Subsoil

Weathered
rock fragments

Bedrock

KNOWLEDGE 2- SOILS ARE MADE OF ORGANIC MATTER.

LAYERS OF SOIL

Half of soil is air and water. In soil you can find sand, small stones, bits of leaves and roots. There are also millions of micro-organisms in the soil which help break down the matter and make the soil healthy and full of life.

KNOWLEDGE 3- FOSSILS ARE FORMED WHEN THINGS THAT LIVED ARE TRAPPED WITHIN A ROCK.

FOSSILS

When an animal or plant dies, it usually decays quickly or can be eaten. However, sometimes an animal's body sinks into thick mud where there is oxygen, so the remains don't decay or aren't disturbed. The remains rest here for thousands/millions of years with more mud and pressure on them. Minerals in the mud turn the remains to stone.

Key Knowledge

- compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- describe in simple terms how fossils are formed when things that have lived are trapped within rock
- recognise that soils are made from rocks and organic matter

Working Scientifically - an overview of how we embed these skills over the course of this term

“Pupils might work scientifically by: observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Pupils might research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. Pupils could explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water. They can raise and answer questions about the way soils are formed.” ([National curriculum, Science programs of study: key stages 1 and 2](#))

Asking and answering questions (what do we want to investigate? Why? What is likely to happen?)	Using equipment (NB what counts as equipment varies depending on age)	How to test (knowing why the investigation is being done this way)	Gathering/ showing data (what is the best way to look at our data?)	Interpreting data (what does the data mean? Has anything been proved? Are there any patterns we can see?)	Analysis (how did the investigation go? How could we investigate further/better?)	Communicate (learning the best way to show our findings, starting to understand how an experiment is written up)
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Future Learning

- describe the movement of the Earth and other planets relative to the sun in the solar system **(Year 5)**
- describe the movement of the moon relative to the Earth **(Year 5)**
- describe the sun, Earth and moon as approximately spherical bodies **(Year 5)**
- use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky **(Year 5)**