



Year 3 - Rocks Reading Booklet

Lesson Series:

1. Sorting rocks
2. How rocks are formed
3. Permeability
4. Fossils
5. Soil

Name: _____

Class: _____

Lesson 1 - Sorting Rocks

Different types of rocks have different properties. Some rocks are harder than others. For example, granite is a very hard rock. This makes it a good material for building as it doesn't wear away easily. Marble is another hard rock. It has an attractive texture and colour and it can be cut and polished.



Because of this, it is used to make floor tiles and wall tiles. Some statues are made from marble too. Chalk is a soft rock and wears away easily. This makes it ideal for making chalk sticks to write on blackboards. Some rocks, such as sandstone or chalk, let water soak through them. They are called permeable rocks.

Other rocks, such as slate, do not let water soak through them. They are called impermeable rocks. Slate also splits easily into thin sheets. This makes it ideal for making roof tiles.

Useful link:

Lesson 2 - How rocks are formed

Geologists have grouped the rocks on our planet into three main groups; igneous, sedimentary and metamorphic. They have done this because all rocks on earth are formed in one of those three ways. Rocks within each group can have very different 'recipes' of minerals, but what they have in common is how they were formed.



Sedimentary rocks are formed by layers of sediment under the sea, over thousands of years the sediment forms layers of rock. Many types of rock are made this way including chalk, limestone and sandstone.

Igneous rock comes from volcanoes, magma spews from an erupting volcano and then cools rapidly, forming rock. Granite is an example of an igneous rock.

Metamorphic rocks are rocks of another type that have changed by being put under pressure, which is sort of like being squeezed by a really strong force, or heated. The rock changes into a new rock, which is why they are called 'metamorphic' as that means changed.

Useful link: <https://www.bbc.co.uk/bitesize/topics/z9bbkqt/articles/zsgkdmn>



Lesson 3 - Permeability

Some rocks are permeable because the water can get into the gap between the grains. Rocks that absorb water are described as being porous. Rocks with rounded grains are usually softer and crumblier than rocks with interlocking grains. So porous rocks tend to be softer than non-porous rocks.

Lesson 4 - Fossils

Millions of years ago when a living thing died, there was a chance that it would die in a place where it would become fossilised. For example in the sea, or in mud. So not everything that died became a fossil, but the things that did help us to understand life long ago. Fossils are found in sedimentary rock because the rock has many layers that formed over time.



The most common fossilised remains are those of shelled creatures that lived under the sea such as snails and clams. Fossils of land creatures are rarer because an animal has to die in the right conditions for their remains to be fossilised. Remains are usually considered fossils if they are over 10,000 years old. The oldest fossils are between 3.48 billion and 4.1 billion years old.

Mary Anning was a palaeontologist who discovered many fossils in the rocks along the cliff edge in Lyme Regis in Dorset. Mary taught herself about geology so she knew where to look for fossils. Some of her finds are displayed in the Natural History Museum in London.

Useful link: <https://www.nhm.ac.uk/discover/mary-anning-unsung-hero.html>



Lesson 5 - Soil

Soil is a mixture of tiny particles of rock, organic matter (dead plants and animals), air and water. Different soils have different properties.

Sandy soil is pale coloured and has large particles. These create lots of small air gaps. Water drains through soil easily (it is permeable) so it usually feels dry.

Clay soil is usually sticky and has small particles. It contains very few air gaps and water does not drain through it easily (it is less permeable than sandy soil).

Chalky soil is a light brown soil. Water drains through it quickly.

Peat does not contain any rock particles. It's made from very old, decayed plants and is dark, crumbly and rich in nutrients.

Soil is vital for life on earth, it contains nutrients that plants need to grow successfully. Soil can also hold water, which helps to prevent flooding. Soil plays an important role in keeping trees anchored into the ground.

Useful link: <https://www.bbc.co.uk/bitesize/topics/zjty4wx/articles/ztvbk2p>





Geology

The **study of rocks**

Permeable

Rock that **water can seep** through

Impermeable

Rock that **does not allow water to seep** through

Fossils

The **preserved remains** or traces of a dead organism. The process by which a fossil is formed is called fossilisation

Soil

Soil is made from **small pieces of rock mixed with organic matter** (decaying plants and animals)

Sediment

Tiny bits of rock, minerals, animal and plant matter that get washed into bodies of water

An Ammonite (prehistoric sea creature)



A fossilised plant



An insect trapped in amber



Sedimentary

Rock that is formed by years and years of sediment (tiny bits of rock, sand, minerals, animals or plant matter) compacting together and becoming hard. E.g., shale, limestone, and sandstone



Igneous

Igneous rocks are formed by volcanoes. When a volcano erupts, it spews out hot molten rock called magma or lava. Eventually the magma will cool down and harden, e.g. Basalt and Granite



Metamorphic

Metamorphic rocks are formed by great heat and pressure inside the Earth's crust. Metamorphic rocks are often made from other types of rock e.g. Marble, soapstone.

Mary Anning

Mary Anning was a palaeontologist who discovered many fossils in the rocks along the cliff edge in Dorset on the south coast of England. Mary taught herself about geology so she knew where to look for fossils.



HOW ROCKS ARE FORMED