

Green Lane Primary School - Science

Topic: Rocks

Year: 3 and 4

Strand: Chemistry

What should I already know?

- The role of Mary Anning in **paleontology** and the discovery of **fossils**.
- **Soil** contains **nutrients** and these help plants to grow.
- The meaning of the word **absorb**.
- That **magma** is **molten** rock that is formed in very hot conditions inside the earth.
- Why some materials are used for certain purposes because of their **properties**

Vocabulary

absorb	soak up or take in
bedrock	the solid rock in the ground which supports all the soil above it
decaying	gradually being destroyed by a natural process
grain	A grain of something such as sand or salt is a tiny hard piece of it
igneous	rocks that are formed by volcanic action or intense heat
imprint	a mark or outline made by the pressure of one object on another
leaf litter	decaying leaves
magma	molten rock that is formed in very hot conditions inside the earth
man-made	things are created by people
metamorphic	rocks changed by heat or pressure
mineral	something formed naturally in rocks and in the earth.
molten	Molten rock, metal, or glass has been heated to a very high temperature and has become a hot, thick liquid
natural	things that exist in nature and are not made by people
nutrients	substances that help plants and animals to grow
paleontology	the study of fossils
permeable	if a substance is permeable, something such as water or gas can pass through it or soak into it.
porous	Something that is porous has many small holes in it, which water and air can pass through
prehistoric	the time in history before any information was written down
preserve	to protect from decay
pressure	force produced when you press hard on something
properties	the qualities or features that belong to something and make it recognisable
rock	a solid mass made up of minerals. Rock forms much of the earth's outer layer, including cliffs and mountains
sediment	solid material that settles at the bottom of a liquid, especially earth and pieces of rock that have been carried along and then left somewhere by water, ice, or wind
soil	the substance on the surface of the earth in which plants grow
surface	the flat top part of something or the outside of it
surrounding	to be present all around
volcano	a mountain from which hot melted rock, gas, steam, and ash from inside the Earth sometimes burst.
weathered	affected by the weather

What will I know by the end of the unit?

What are the different types of rocks?

- There are three types of **rocks** that are formed **naturally**.
- **Igneous:**
 - When **molten magma** cools, **igneous rocks** are formed.
 - This either cools and forms **rocks** under the earth's **surface**, or flows out of erupting **volcanoes** as lava and may mix with other **minerals**.
 - Examples include granite and bas- alt.
 - This type of rock is strong, hard- wearing and **non-porous**.
- **Sedimentary:**
 - Sometimes, little pieces of rocks that have been **weathered** can be found at the bottom of lakes, seas and rivers This is called **sediment**.
 - Over millions of years, layers of this **sediment** builds up forming **sedimentary rocks**.
 - Examples include limestone and chalk.
 - **Sedimentary rocks** are **porous** and can easily be worn down.
- **Metamorphic:**
 - When some **igneous** and **sedimentary** rocks are heated and squeezed (**pressured**), they form **metamorphic rocks**.
 - Examples include slate and marble.
 - **Metamorphic rocks** are strong

Bricks and concrete are not **rocks** because they are **man-made**.

What are fossils?

- **Fossils** are the remains of **prehistoric** life.
- They are usually formed when a living thing (plant or animal) dies and the body is covered up or buried by **sediment** over tens of thousands of years.
- Some **fossils** are formed when the tough bones and teeth in animals, and the woody part of plants are **preserved**.
- Other **fossils** are made from **imprints** in **surrounding sedimentary rock** such as footprints or **imprints** from shells.
- **Fossils** tell us about the Earth and about life that existed hundreds of thousands and millions of years ago.

What is soil?

- **Soil** is made from pieces of rock, **minerals**, **decaying** plants and water.
- When **rock** is broken down into small **grains**, **soil** is formed.
- There are layers of **soil**:
 - above the soil is **leaf litter** and recently **decaying** plants.
 - as the **soil** becomes deeper, the **rock grains** become larger until **bedrock** is reached.

Investigate!

- Explore the types of **rocks** you can find in the local environment.
- Explain why **rocks** are used for different purposes based on their **properties**.
- Research the different living things whose **fossils** are found.
- Explore the different kinds of **soils**, including those you can find in the local environment.
- Compare different types of **soils** by saying what is similar and what is different using scientific vocabulary.
- Investigate what happens when **rocks** are rubbed together.
- Investigate what happens to **rocks** when they are in water.
- Sort different types of rocks based on how rough or smooth they are, whether they have **grains** or crystals, how **permeable** they are, how easily they can break down, how strong they are and what they look like.

Question 1 – Match the rocks to how they are formed.

Start of unit

End of unit

igneous

rocks that are changed through heat or pressure

sedimentary

magma or lava cools

metamorphic

weathered rocks settle at the bottom of the sea

Question 2 – Match the rocks to an example of them.

Start of unit

End of unit

igneous

granite

sedimentary

chalk

metamorphic

marble

Question 3 – Which of these is NOT an example of a natural forming rock?

	Start of unit	End of unit
igneous		
concrete		
metamorphic		
sedimentary		

Question 4 – Tick two words which best describe a rock that absorbs water.

	Start of unit	End of unit
permeable		
impermeable		
porous		
waterproof		

Question 5 – Fossils are usually formed in which rock?

	Start of unit	End of unit
igneous		
concrete		
metamorphic		
sedimentary		

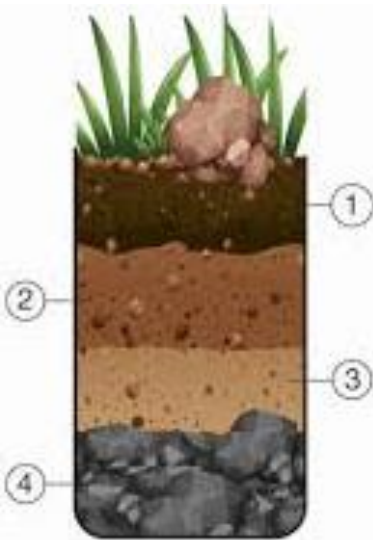
Question 6 – Number these steps (1-4) in the order in which they happen to form fossils.

	Start of unit	End of unit
hard parts are turned into fossils over tens of thousands of years		
an animal dies		
hard parts were buried by sediment		
the soft parts decayed		

Question 7 – Explain why bricks and concrete are not classed as natural forming rocks.

Start of unit	End of unit

Question 8 – Name and explain each layer of the soil.



1. _____

2. _____

3. _____

4. _____
