



Rocks – Class 3

KNOWLEDGE ORGANISER

Our focus will be to compare and group rocks, test their properties, find out how fossils are formed and what soil is made from.

Key vocabulary and definitions

- **rock** – A natural, solid material that comes from the ground.
- **property** – What a material is like, e.g. hard, rough, shiny or has layers.
- **igneous** – Rock made when hot, melted rock cools and hardens. Often has crystals.
- **sedimentary** – Rock made from layers of tiny bits (sediment) squashed together. May have fossils.
- **metamorphic** – Rock that has been changed by heat and squashing.
- **permeable** – Lets water soak in or pass through it.
- **durable** – Lasts a long time and does not wear away easily.
- **weathering** – When wind, rain, ice and rivers slowly break rocks into smaller pieces.
- **fossil** – The remains or shape of a living thing from long ago, preserved in rock.
- **palaeontologist** – A scientist who finds and studies fossils.
- **soil** – The top layer of the ground. Made from tiny bits of rock, organic matter, water and air.
- **organic matter** – Bits of dead plants and animals rotting down.

ROCKS

KNOWLEDGE ORGANISER

Year 3

1. WHAT IS A ROCK AND HOW DO WE DESCRIBE IT?

Rocks are **natural**. They are made in the Earth over a very long time. Boulders, stones, pebbles and sand are all rock.

Scientists look at:

colour grains crystals layers holes
shiny or dull rough or smooth

Brick and concrete are NOT rocks. People make them in factories.

2. HOW CAN WE TEST ROCKS FAIRLY?

Test	What we do	What it tells us
Hardness	Scratch with a fingernail, coin, then nail.	A hard rock is not scratched.
Permeability	5 drops of water. Wait 1 minute.	Soaks in = permeable. Sits on top = impermeable.
Durability	Rub on sandpaper 20 times.	Hardly any powder = durable.

Our results	Hard?	Permeable?	Durable?
chalk	× soft	✓ soaks in fast	× lots of powder
granite	✓ hard	× sits on top	✓ hardly any

★ Fair test: change only the rock. Keep the drops, time and number of rubs the same.

3. HOW ARE ROCKS MADE?

IGNEOUS hot melted rock cools and hardens
SEDIMENTARY layers of bits squashed together
METAMORPHIC rock changed by heat and squashing

Clue	Type	Examples
crystals or holes	igneous	granite, pumice
grains or layers	sedimentary	sandstone, chalk
sheets or sparkles	metamorphic	slate, marble

Before: Sugar cubes = soft rock. After 3 mins of shaking: Sugar cubes = soft rock. Chalk = soft rock. Granite = hard rock. Sandstone = medium rock. Rocks squashed together = METAMORPHIC.

Weathering: wind, rain, ice and rivers slowly wear rocks away. Soft chalk and sandstone wear away faster than granite.

4. HOW ARE FOSSILS FORMED?

Layers turn to rock. It takes **millions of years**. Fossils are found in **sedimentary** rock.

Mary Anning (1799–1847) from Lyme Regis found the first full ichthyosaur skeleton when she was 12.

5. WHAT IS SOIL MADE FROM?

Soil is a mixture of **tiny bits of rock, organic matter** (rotting leaves, roots and animals), **water** and **air**. Worms mix it all together.

Sandy big grains, gritty, drains fast	Clay tiny particles, sticky, holds water
Chalky pale with white stones, drains well	Peaty / loam dark, lots of organic matter, good for growing

In a soil jar the heavy stones and sand sink to the bottom. Bits of plants float on top.

6. WHICH ROCK IS RIGHT FOR THE JOB?

We choose rocks because of their **properties**. We use our test results as **evidence**.

Slate roof tiles: thin, flat, keeps rain out
Granite worktops and steps: hard and durable
Marble statues: can be carved, looks beautiful
Chalk writing: soft, leaves a mark

A **suitable** rock is right for the job. Our **conclusion** is what we found out, using our evidence.

Claim, evidence, reasoning: "Granite is best for an outside step because the nail did not scratch it and water sat on top."