

Rocks & Soils

Rock types, fossils & soil formation



1. How can we group rocks by their properties?

Rocks can be sorted by **hardness, texture, colour and whether they let water through.**

- A hardness test scratches one rock against another to compare toughness.
- Permeable rocks (like chalk) let water soak through; others don't.



3. How is a sedimentary rock formed?

Sedimentary rock forms when layers of sediment are squashed together over millions of years.

- Sandstone and limestone are examples of sedimentary rock.
- You can often see distinct layers (strata) in sedimentary rock.

Layers of Sedimentary Rock

Sedimentary rocks are formed when particles of sediment settle in layers over time. Pressure and cementation harden the layers into rock.

- How Sedimentary Rocks Form**
1. Weathering: Rocks break down into small particles.
 2. Erosion: Particles are carried by water, wind, or ice.
 3. Deposition: Sediments settle in layers.
 4. Compaction & Cementation: Layers are pressed and stuck together to form rock.



2. How is an igneous rock formed?

Igneous rock forms when hot melted rock (magma or lava) cools and hardens.

- Granite and basalt are examples of igneous rock.
- Fast cooling makes small crystals; slow cooling makes larger crystals.

4. How are fossils formed in sedimentary rock?

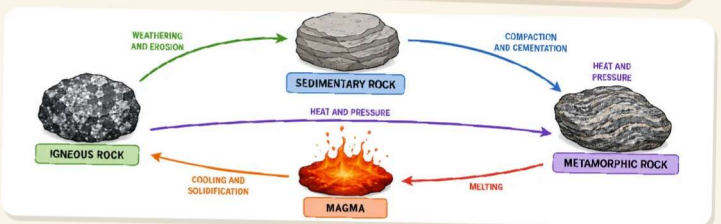
A **fossil** forms when a dead plant or animal is buried in sediment and slowly turns to rock.

- Fossils are almost always found in sedimentary rock, not igneous rock.
- Fossils tell scientists what living things looked like millions of years ago.

5. What is metamorphic rock?

Metamorphic rock forms when heat and pressure change an existing rock without melting it completely.

- Marble forms from limestone; slate forms from mudstone.
- This gives us the three rock types: igneous, sedimentary and metamorphic.



6. What is soil made of, and how is it formed?

Soil is made from tiny broken pieces of rock mixed with rotted (decayed) plant and animal matter, called **humus**.

- Weather and water slowly break rock down into smaller pieces over time.
- Different soils (sandy, clay, chalky) drain water at different speeds.



7. TAPS: How do we write up our rock report?

IDENTIFY & CLASSIFY

Our TAPS task: **is our tested rock igneous or sedimentary?** This is **identify & classify** — we use evidence (hardness, permeability, layers) to classify it, rather than changing one variable.

- Question → decide our evidence → test & observe our rock.
- Materials → **method** → classify the rock → **results** → **conclusion**.



Rock Name: **Granite**
 Rock Type: **Igneous – Intrusive**
 Color: **Pink, White, Black**
 Texture: **Coarse-grained**

Hardness (Mohs): **6 – 7**
 Density: **2.63 g/cm³**
 Streak: **White**
 Luster: **Glass-like**

KEY VOCABULARY

rock igneous sedimentary metamorphic fossil sediment permeable soil humus
 drainage hardness fair test predict conclusion

SKILLS I'LL USE

- Group & classify rocks by properties
- Set up a simple fair test
- Record results in a table
- Compare soil types
- ⚡ GD: explain rock formation using the rock cycle