Knowledge organiser: Y8– How do rivers change the landscape?

Formation and structure of the lithosphere.

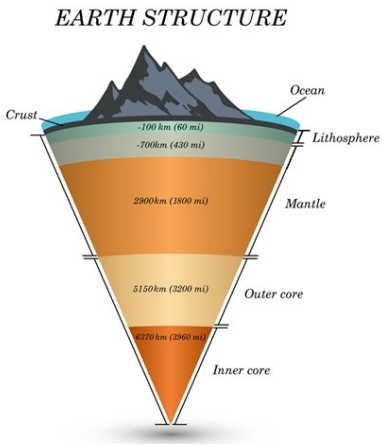
Geology is the study of the formation & the structure of the earth's lithosphere.

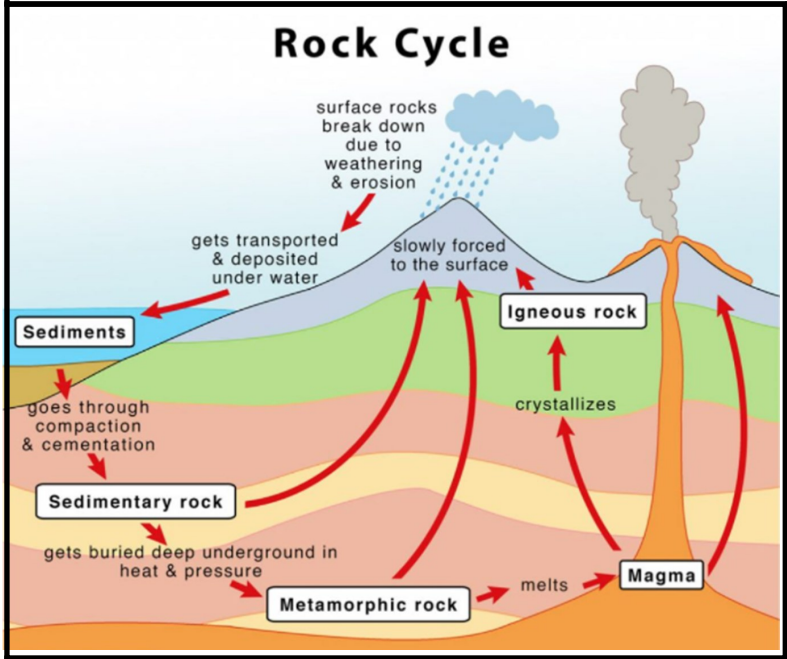
The earth formed over 4.6bn years and slowly changes have created the planet that we recognise today.

The lithosphere is the solid outer layers of the earth, including the crust.

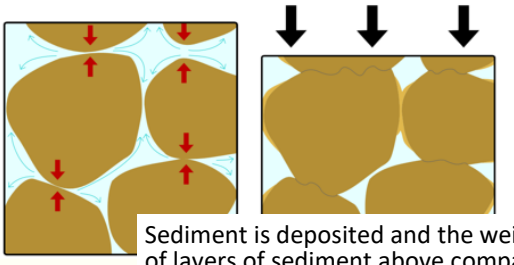
The layer underneath the lithosphere is semi-solid so the lithosphere can move, this causes volcanoes, earthquakes and mountain ranges.

The lithosphere is constantly shaped by the wind (atmosphere), water (hydrosphere), people, plants and animals (biosphere). This is what creates, valleys, coastlines and other landforms that we see on our planet.



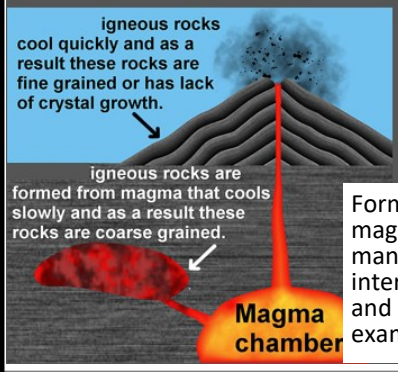


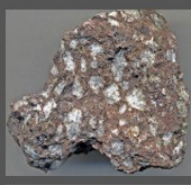
Sedimentary rocks



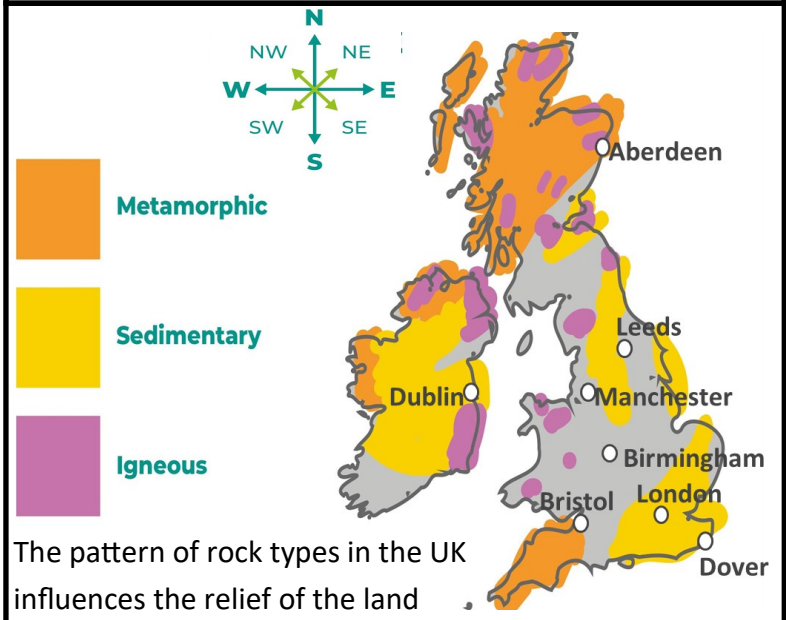
Sediment is deposited and the weight of layers of sediment above compacts the sediment into rock. These rocks contains fossils and most are weak (eg shale) but limestone is stronger.

Igneous rocks



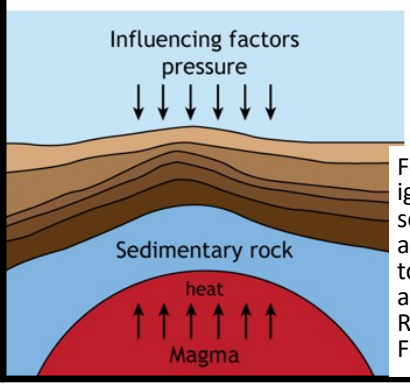


Formed from cooling magma from the mantle. Made of interlocking crystals and are tough. For example basalt.



The pattern of rock types in the UK influences the relief of the land (how high and steep the land is).

Metamorphic rocks

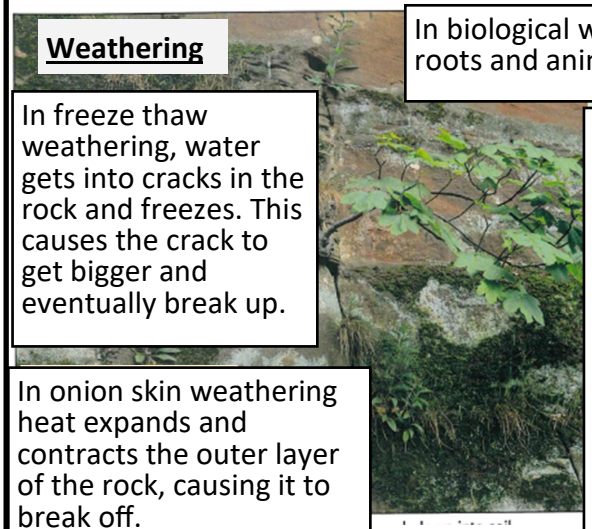


Formed when igneous and sedimentary rocks are changed due to extreme heat and pressure. Rocks are tough. For example slate.

Where there are hard rocks such as igneous and metamorphic rocks the land is high, here there is hill farming and fewer people.

Where there is soft sedimentary rocks there is flatter land so more crop farming and more people. EG the SE of the UK.

Weathering



In biological weather plant roots and animals break up

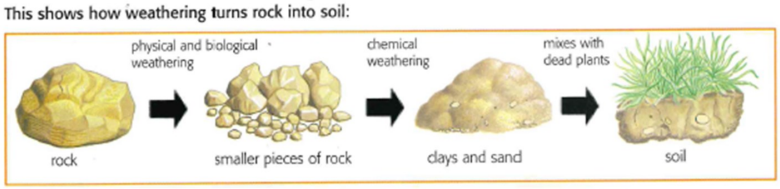
In freeze thaw weathering, water gets into cracks in the rock and freezes. This causes the crack to get bigger and eventually break up.

In chemical weathering carbon dioxide in rainwater and oxygen from the air can react with rocks such as limestone, breaking them down.

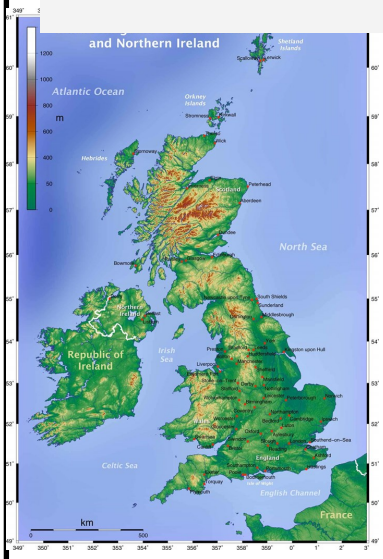
In onion skin weathering heat expands and contracts the outer layer of the rock, causing it to break off.

From rock to soil

This shows how weathering turns rock into soil:



Relief of the UK



The highland areas are located in the west of the UK and the north of Scotland. Lowland areas are located in the south east

Erosion Transport and Deposition in a river

There are 4 types of **Erosion**:

Hydraulic action-The force of the water

Attrition-Rocks banging against the each other

Abrasion– Rocks rubbing against each other

Solution– Dissolving minerals in the rock

There are 4 types of **Transportation**:

Traction– Rocks rolling across the bed

Saltation– Rocks bouncing across the river bed

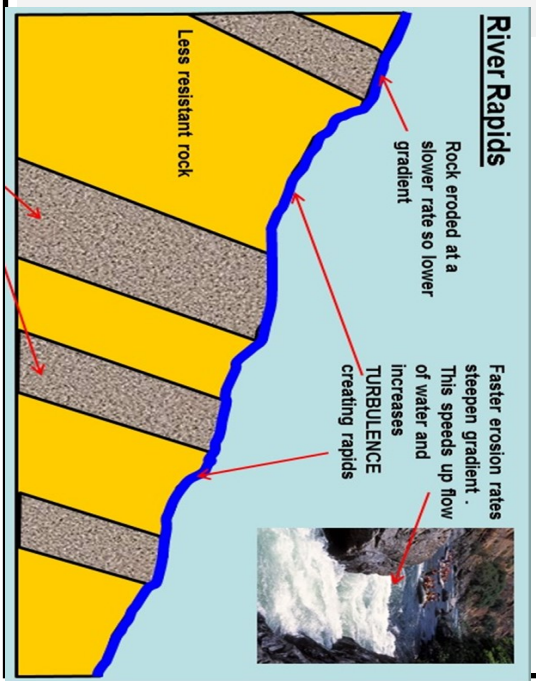
Suspension– Rock particles are carried by the river

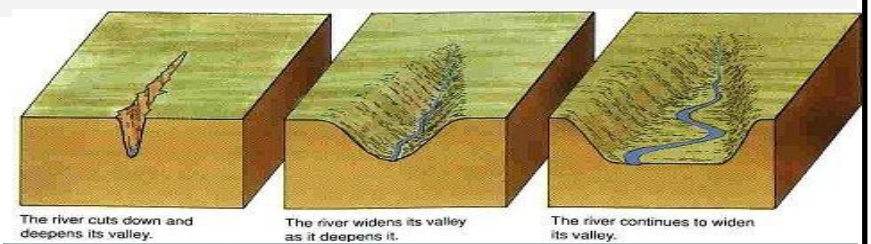
Solution– Minerals are dissolved in a the water

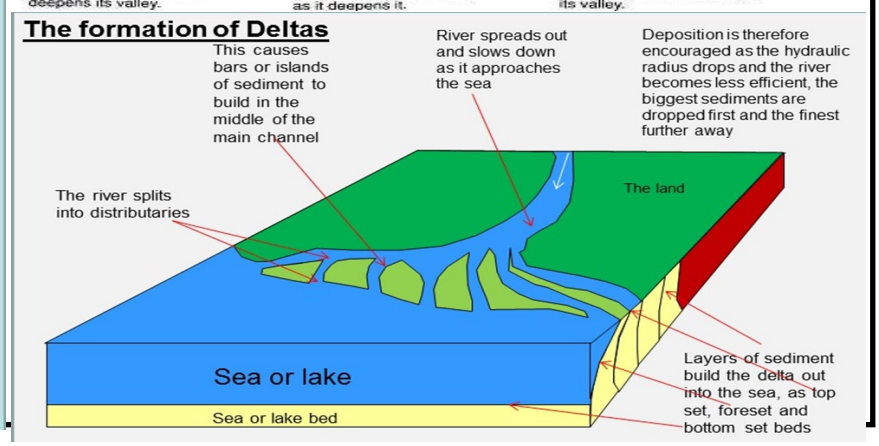
Deposition:

When a river looses energy it can no longer carry sediment so the river drops it in a process called deposition

Fluvial landforms







KEY VOCABULARY	
Crust—the outer layer of the earth which makes up part of the lithosphere.	Sedimentary rock — rock type formed from layers of sediment deposited and compacted together. For example limestone.
Weathering—the process by which rocks and materials are broken down by biological and weather processes such as rainfall, ice, wind, plant roots and animals.	Deposition– Deposition is the laying down of sediment carried by wind, flowing water, the sea or ice.
Erosion—the removal of rock material.	Lithification- complex process whereby freshly deposited loose grains of sediment are converted into rock.
Geology—the study of the formation and structure of the earth.	Basin- A basin is a depression, or dip, in the Earth's surface. Basins are shaped like bowls, with sides higher than the bottom.
Landscape—The visible features of an area of land including trees, hills, rivers, plants, buildings, cliffs.	Transportation-refers to the processes by which the sediment is moved along by water, wind or ice.

Extra resources & wider reading

British Geological Survey

Discover Geology

The Geological Society

The Rock Cycle & types of rocks

Seneca Learning

Links to videos on the rock cycle, geology of Britain and soil.

Oak Academy

Geology unit—links to Peak District and uses of rocks cycle.