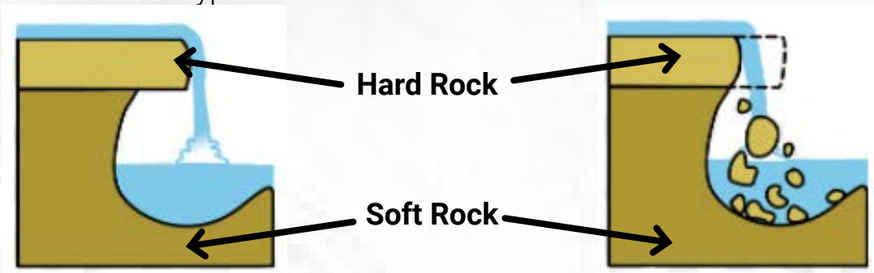
1.2.1a How do processes work together to create landform features at different scales in river landscapes in Wales?

Waterfalls and gorges

These form in the upper and middle course of a river where there are different rock types.



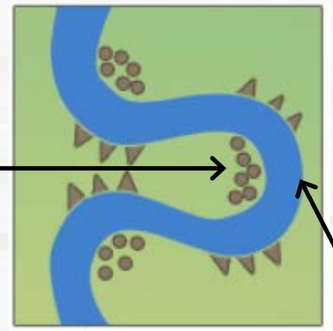
The river flows over the hard rock edge and down into the soft rock where it erodes it to form a **plunge pool.**

Over time the soft rock erodes backwards creating a hard rock overhang that eventually collapses into the plunge pool, causing the waterfall to retreat backwards. It leaves behind a steep sided narrow bottomed valley called a gorge.

Meanders

These are found in the lower course of a river. They are bends in the river caused by lateral (sideward) erosion.

Deposition on the inside bend of the river as the river is flowing slower forms a slip-off slope.



Continued erosion and deposition cause the meander to move across the river's floodplain.

Erosion on the outside bend as the flow is much faster.

How and why do river landforms change over time?

Fluvial erosion

Abrasion is when rocks carried in the flow of the river smash into the banks/bed of the river.
Attrition is when rocks crash together as they move along in the river.
Hydraulic Action is when air is forced into cracks in the banks/bed of the river, forcing them to expand.
Solution is where chemicals in the river dissolve minerals in the bank/bed of the river.

Fluvial transportation

Solution is when dissolved minerals are carried in the flow of the water.
Suspension is when fine particles are float in the river flow.
Saltation is when rocks bounce along the riverbed.
Traction is when boulders roll over smaller rocks on the riverbed.

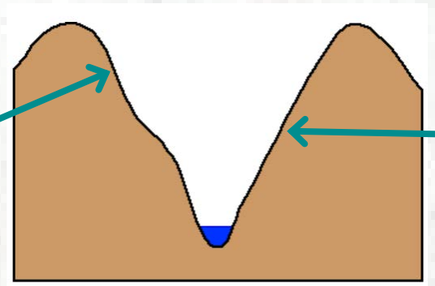
Fluvial deposition

When the flow of the water slows it has less energy to carry sediment, so it is deposited. This can be on the inside bend of a meander or the banks and floodplain of a river when it floods.

V-shaped valleys

These are found in the upper course of a river where most of the erosion is vertical. They have steep sides and a narrow valley floor

Biological weathering also occurs on the valley sides. Plant's roots break up the valley sides as they grow.



Freeze-thaw weathering occurs along the valley sides. This is when water gets into cracks in the day and freezes overnight. As this continues, rocks break off and fall into the river.

Floodplains

In the lower course, a river, during a flood for example, breaks its banks and creates a floodplain where deposition occurs on levees on either side of the river.