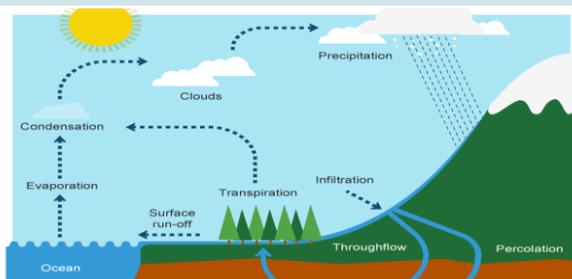


1. The Hydrological Cycle

Understanding how the water cycle operates is key to understanding how rivers work. The water cycle is also known as the hydrological cycle. It is called a cycle because water continuously moves around the system. Rivers are part of this cycle. The illustration below shows how water changes state through the cycle. It can be a liquid, a vapour or a solid.



2. Fluvial Processes

Erosion

Hydraulic action	Flowing water erodes the bed and banks. Found at waterfalls and meanders
Abrasion	Scraping of rivers bed by particles of rock – like sandpaper
Attrition	Rounding and smoothing of rock as they rub against each other
Solution	Dissolving of soluble chemicals esp. limestone

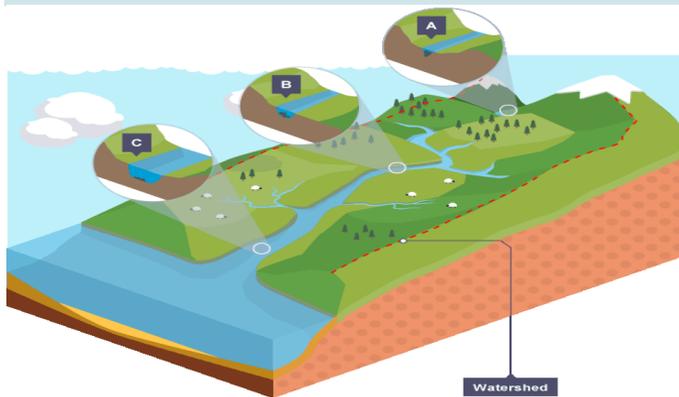
Transportation

Traction	Rolling of large rocks
Saltation	Bouncing of small rocks
Suspension	Particles suspended in water
Solution	Chemicals dissolved in river

3. River Profiles

A long profile is a line representing the river from its source (where it starts) to its mouth (where it meets the sea). It shows how the river changes over its course.

A cross profile shows a cross-section of a river's channel and valley at a certain point along the river's course.



Semester 2

Raging Rivers

Y7

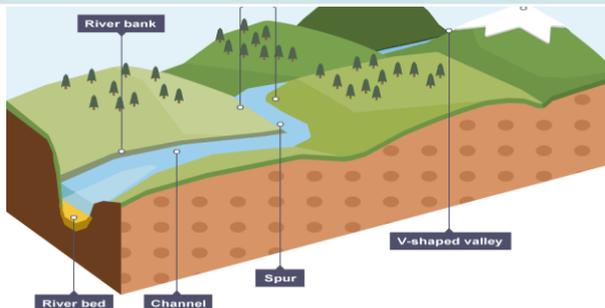


4. River Landforms: upper course

Interlocking spurs water flows around fingers of harder rock. Vertical erosion deepens the valley

Waterfalls –a step in the long profile, usually over a fault. Water flows over hard rock. A plunge pool forms at the bottom due to hydraulic erosion.

Gorges – as a waterfall retreats the cap rock collapses and the process starts again forming a steep sided gorge



5. River Landforms: middle course

Meanders – bends in the river. Where water flows fastest erosion happens on the outside curve. On the inside curve, water is slower so deposition occurs forming a slip off slope

Oxbow Lakes Where the neck of the meander is breached during flood leaving the old meander curve as a lake

6. River Landforms: lower course

Levees – Raised banks formed after a river floods

Floodplains – wide areas of flat land – often good form farming

Estuaries – Where the river meets the salt water of the sea. Salt marshes are common.

7. Flooding

A river floods when the water normally flowing in the channel overflows its banks and spreads out onto the surrounding land. This causes major problems for people living close to the river.

Why do rivers flood?

A variety of factors can increase the likelihood of flooding.

Physical causes of flooding:

- heavy rainfall
- long periods of rain
- snowmelt
- steep slopes
- impermeable rock (doesn't allow water through)
- very wet, saturated soils
- compacted or dry soil

Human factors increasing flood risk:

- urbanisation, because towns and cities have more impermeable surfaces
- deforestation, because removing trees reduces the amount of water intercepted and increases run-off

