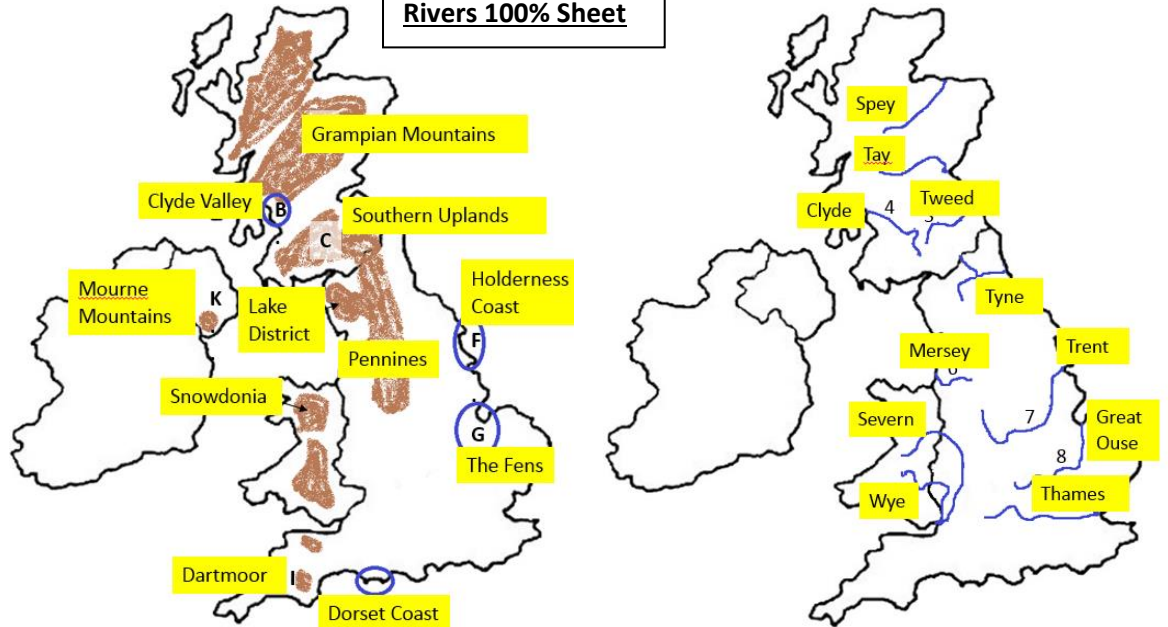


1. Landscapes of the UK

Rivers 100% Sheet



2. The shape of river valleys change as rivers flow downstream

Section A

Fluvial processes = erosion, transportation and deposition

Processes of erosion in a river – HAAS

Hydraulic Action - the force of the water traps air in cracks in the river beds, causing pieces to break away.

Abrasion - Rocks carried by the river hit the bed and banks causing it to wear away

Attrition - Rocks carried by the river smash together and break into smaller and rounder sediment.

Solution - Soluble particles are dissolved into the river.

Vertical erosion – ↓ downward erosion that deepens the channel, this is the main direction of erosion in the upper course.

Lateral erosion – ↔ *horizontal erosion that widens the channel*, this is the main direction of erosion in the lower course.

Section B

Bedload – the material carried by a river

Processes of transportation in a river - TSSS

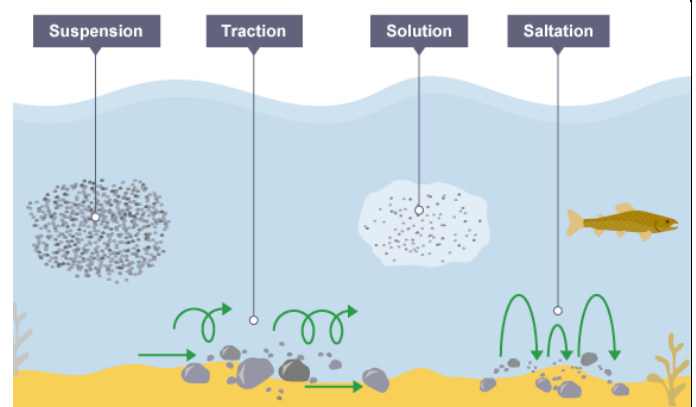
Transportation- carrying material

Traction - The rolling of boulders and pebbles along the river bed.

Saltation - Particles bouncing along the river bed.

Suspension - Fine material held in the water while the water is moving.

Solution - Soluble particles are dissolved into the river and carried downstream.

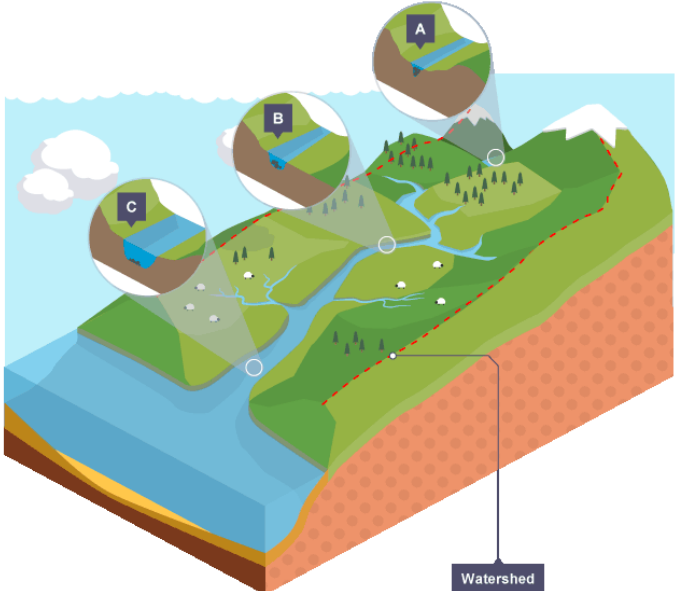
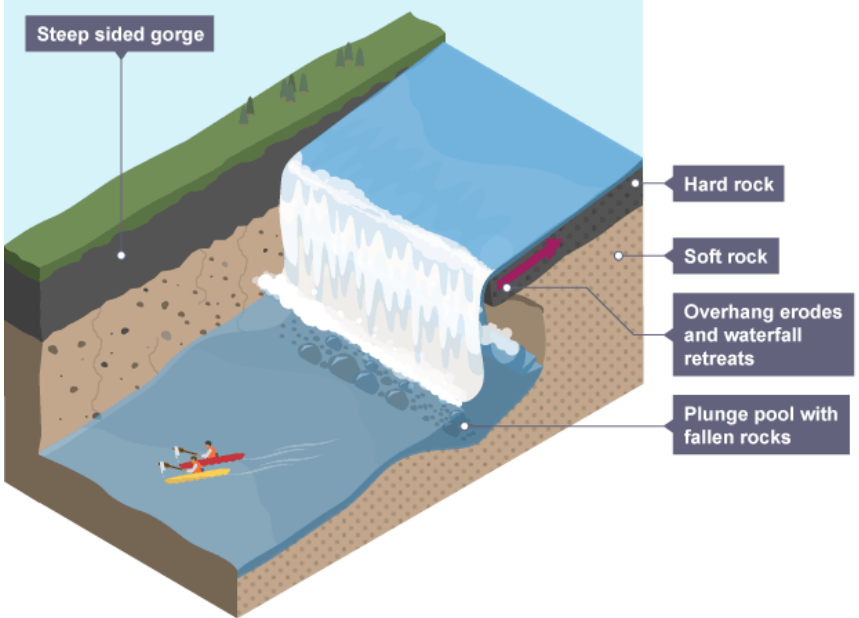


Process of deposition

Deposition – when a river drops the material it has been transporting.

Why?- at meanders, the mouth and in shallow water the river's velocity slows → the river doesn't have the energy needed to transport material → large materials are deposited first as they are heaviest so need the most energy to transport → if the river becomes even slower small materials are deposited too.

Section C

	The long profile – the line of the river from the source to the mouth The cross profile – a cross section of the river's channel and/or valley. Long profile in the upper course – steep Long profile in the lower course – gentle Cross profile in the upper course – narrow and shallow channel with a V shaped valley Cross profile in the lower course – wide and deep channel with an almost flat valley floor. 
3. Distinctive fluvial landforms result from different physical processes.	Section A <u>Characteristics and formation of landforms resulting from erosion</u> Waterfall. When water flows over a step in the landscape, usually when a river meets an area of soft rock after flowing over harder rock. Formation 1. A river flows over hard and then soft rock. 2. Soft rock erodes away more rapidly → a step in the landscape forms. 3. The falling water erodes the base of the waterfall through hydraulic action → a plunge pool forms. 4. The falling water splashes backwards onto the soft rock → an undercut with an overhang above forms. 5. The undercut grows overtime → the overhang becomes too large to remain unsupported → the overhang collapses → the waterfall retreats upstream creating a gorge.  Section B Interlocking spurs A series of hills on alternate sides of a valley around which a river weaves. Formation 1. Vertical erosion occurs in the upper course but very little lateral erosion takes place → the river cannot erode the hillsides 2. The river weaves around hillsides as it flows downstream → hillsides = interlocking spurs  Section C starts on the next page. Section C <u>Characteristics and formation of landforms resulting from erosion and deposition</u> Meanders - A pronounced bend in a river.

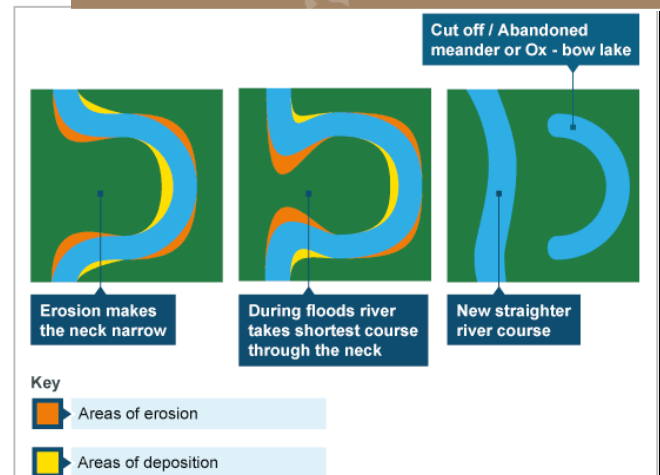
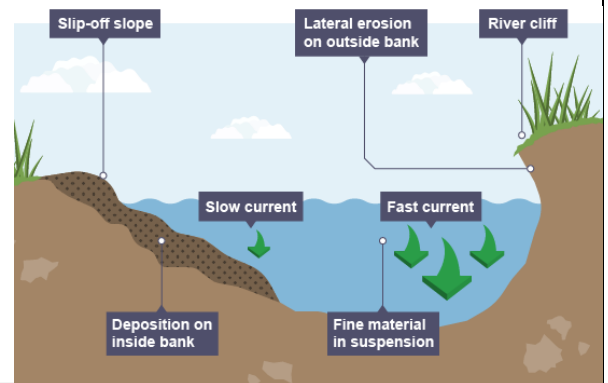
result from different physical processes.

Continued

Ox-bow lakes - An arc-shaped lake which has been cut off from a meandering river.

Formation

1. At a curve in a river, the water on the outside of the bend has a higher velocity.
2. More erosion occurs on the outside bends → creates a river cliff and narrows the meander neck
3. The velocity is slower on the inside bend → deposition occurs → slip off slope is created → a meander with an asymmetrical cross section is formed.
4. Erosion continues at the outside bends of a meander → overtime the neck of the meander becomes narrower
5. In a flood the water cuts through the neck → less water flows around the loop → the velocity is lower
6. Deposition occurs in the meander loop → it is cut-off to form an ox-bow lake while the river flows in a straight path.



Floodplain - The wide and flat area either side of a river channel in the lower course, which is sometimes flooded.

Formation

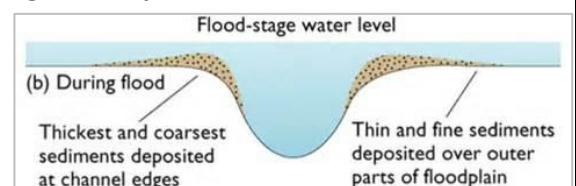
1. In the lower course the river erode laterally → interlocking spurs are removed to create a flat valley.
2. In a flood material is transported out of the river channel → the flood water has a low velocity → material is deposited
3. Over many floods layers of sediment build up → flat floodplains form either side of the river channel

Characteristics and formation of landforms resulting from deposition

Levees - Bank of sediment along the bank of a river (natural or artificial).

Formation

1. In a flood, material is transported out of the river channel.
2. The floodwater has a low velocity → A low velocity also means less energy to move objects → large material is deposited close to the channel and smaller material further away.
3. Over time, layers of sediment build up to create banks either side of the channel



Estuary - the tidal mouth of a river where it meets the sea; wide banks of deposited mud are exposed at low tide.

Formation

1. The river flows downstream carrying sediment
2. At high tide the sea enters the river → the river velocity slows → bedload is deposited towards the edges of the river channel
3. Large mud flats build up on the edges of the river channel and are visible at low tide.