

Rivers – the essentials!

Below you will find the essential elements for this topic. Make sure you revise the information on this double sided sheet in preparation for your examination!

Weathering - the breakdown of rock in situ – this means the rock that is broken down stays within the same area. This is different from **Erosion** – rocks that are eroded are broken down and removed by rivers or the sea.

Three main types:-

- **Physical weathering** – (i) Freeze Thaw where water gets in cracks, freezes and expands and rock cracks; (ii) Onion Skin – differences in temperature between night and day leads to rock surface expanding and contracting, cracking).
- **Chemical** – chemicals in water react with rocks and wear rocks away.
- **Biological** – animals, plants and humans help wear down river banks.

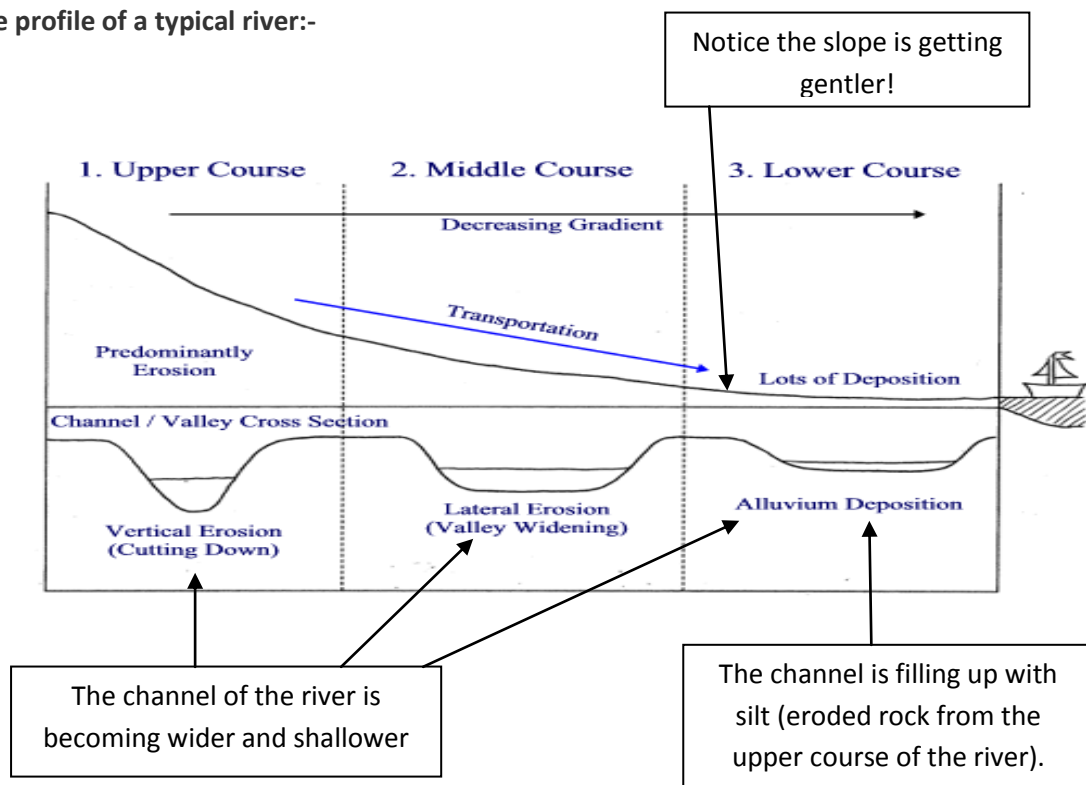
Erosion – the breakdown of rocks which are then transported away by rivers. Four main types apply to rivers:-

- **Hydraulic action** - the force of the river against the banks and bed of the river can cause air to be trapped in cracks and crevices. The pressure weakens the banks and bed of the river and gradually wears it away.
- **Abrasion** - rocks carried along by the river wear down the river bed (scrapping!).
- **Attrition** - rocks being carried by the river smash together and break into smaller, smoother and rounder particles.
- **Solution** - soluble particles are dissolved into the river.

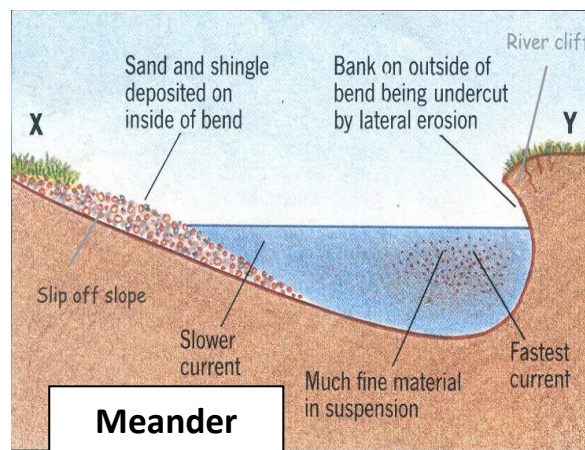
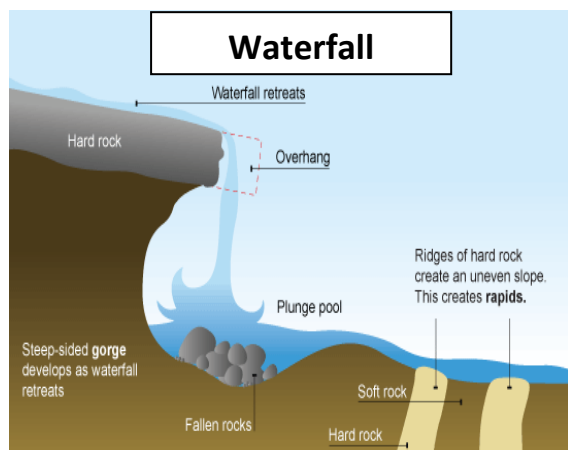
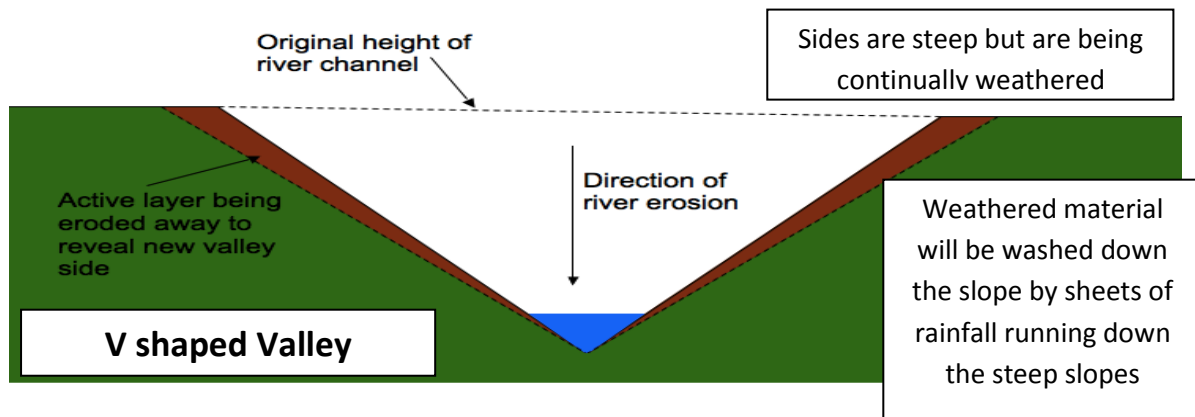
Transportation of material (load) in the river:-

- **Solution** - minerals are dissolved in the water and carried along in solution.
- **Suspension** - fine light material is carried along in the water.
- **Saltation** - small pebbles and stones are bounced along the river bed.
- **Traction** - large boulders and rocks are rolled along the river bed.

The profile of a typical river:-



River Landforms – you will need to know how to draw and annotate diagrams showing how Waterfalls and meanders are formed



The causes and effects of and responses to a flood – Bangladesh Flooding forms a major case study here:-

Physical causes – Heavy Cyclones bring lots of rain from the Bay of Bengal, Flat land (80% of the country lies on a huge floodplain and delta, much of it under 1m above seal level), steep valley sides for rivers such as the Ganges increases surface run-off, spring snow-melt in Himalayas leads to soil erosion and rapid increase in river discharge.

Human causes – Deforestation in the Himalayas reduces interception and increases surface run-off, urbanisation in cities and towns such as Dhaka reduces infiltration and increases surface run-off, rivers such as the Ganges have been Dammed and the water diverted for irrigation by farmers – river more prone to flash floods, Global warming has led to increased snow melt in Himalayas and increased sea levels.

Effects of 1998 Flood on the environment – two thirds of country under flood water, Char lands destroyed, soil made infertile by salt from the sea, shape of coastline changed.

Effects of 1998 Flood on the people – 2,379 people killed, Food shortages (700 hectares of crops destroyed), 7 million homes destroyed (25 million people homeless), people evacuated to higher ground (overcrowding caused spread of diseases e.g. cholera), 130 million cattle died, Infrastructure destroyed (6,500 bridges and 11,000 roads closed).

Responses to the 1998 Flood – medical care and water purification tablets provided, vitamin A tablets provided, 1 million tonnes of food grain was imported, concrete flood shelters were built on low lying land, early warning systems installed, People took out high-interest loans from Mohajons (moneylenders) – THEY LOST EVERYTHING!

Remember to also revise the Somerset Flood case study (Google slide show).