

How do rivers shape the land?

Year 7

Term 2



(1) Keywords

Erosion	The wearing away of material e.g. rocks.
Transportation	The movement of material e.g. rocks
Deposition	The dropping of material due to a lack of energy .
Long profile	A diagram showing a line representing the river’s gradient from its source (start) to its mouth (end).
Cross profile	A diagram showing how wide and deep the river channel at certain points along its journey.
River valley	The land either side of the river channel.
River channel	The outline path of land which the river flows in.
Flood	When the river can no longer hold any more water and it spills over its banks.
Bed load	The rocks and sand carried by the river.

(2) Why does it rain?

Water continually moves around in a cycle as it changes from a liquid to a gas. This is called the water cycle.

The diagram illustrates the water cycle. The sun causes 1. evaporation from the sea. 2. condensation occurs in the clouds. 3. precipitation falls as rain. 4. Surface run-off in rivers and streams flows into the sea. Ground run-off flows into the ground, becoming underground water, which also eventually reaches the sea.

(3) How do rivers change from source to mouth?

Upper course—The source (start) of the river is in the upper course in the mountains, where there is plenty of rain.

Characteristics—The river valley is a steep V shape, the gradient of the river is steep and the cross-profile is narrow and shallow.

Processes—The river has lots of energy and erosion is the most dominant process.

Landforms —You can find waterfalls and gorges in the upper course.

Middle course—There is less rainfall and height above sea level reduces

Characteristics—The river valley becomes wider and the gradient is more gentle. The cross-profile of the river becomes wider and deeper too.

Processes— Both erosion and deposition occur here. The bed load is also transported from the upper course to lower course.

Landforms—You can find meanders in the middle course.

(4) What landforms do rivers create?

Waterfalls: Form in the upper course, they are created by erosion from hydraulic action and abrasion. They leave behind a gorge.

The diagram shows a waterfall on a river. The top layer is 'Hard rock' and the bottom is 'Softer rock'. As the waterfall retreats, it leaves behind a 'Plunge pool' and 'Fallen rocks'. An 'Overhang' is shown on the hard rock. A 'Steep-sided gorge develops as waterfall retreats'.

(5) How can we prevent flooding?

Why do rivers flood?

Natural causes— a steep sided valley and heavy rainfall (this means water runs down the hill too quickly into a river).

Human causes— deforestation and the increase in urban areas (towns and cities) with impermeable surfaces (this means water can’t soak through and runs off straight into the river), examples of this are tarmac and pavements.

How can we stop flooding?

- Building river walls. River walls have been built in Todmorden to reduce the risk of flooding on the River Calder.
- We can plant trees in the river valley. This is called afforestation. Trees will intercept the rain with their leaves and soak it up with their roots, therefore slow the flow of the water into the river.

The River Calder is in a flood risk area and is managing its risk by using both these methods in Hebden Bridge.

(6) How do rivers change from source to mouth?

Lower course—The final course of the river is the lower course, here the river reaches the sea. The end of the river is called the mouth.

Characteristics— The river valley is very wide and flat. The gradient is very gentle. The river’s cross profile is at its deepest and widest.

Processes—Deposition is the most dominant process here as the river loses energy.

Landforms—You can find meanders and oxbow lakes here. This is where the river frequently floods onto the floodplain.

Meanders: Form in the middle and lower course. Created by erosion on the outside bend and deposition on the inside bend. They leave behind oxbow lakes.

The diagram shows three stages of a river meander. 1. 'Erosion makes the neck narrow'. 2. 'During floods river takes shortest course through the neck'. 3. 'Cut off / abandoned meander or Oxbow lake'. A legend indicates 'Areas of deposition' (yellow) and 'Areas of erosion' (red).

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Trinity TV > Year 7 > Geography—Term 2—Rivers