

Revision Checklist – Rivers

| | Revised for homework? (1) | Revised for homework? (2) | Revised in lesson? |
|--|---------------------------|---------------------------|--------------------|
| Long profile of a river: upper course, middle course, lower course | | | |
| Transportation | | | |
| Erosion: hydraulic action, abrasion, solution, attrition | | | |
| Reasons for different speeds of erosion | | | |
| Formation of a waterfall and gorge | | | |
| Deposition | | | |
| Features of a meander | | | |
| Formation of an ox-bow lake | | | |
| Geographical skills | | | |



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Knowledge Organiser – Rivers

Journey Along a River (1 / 3)

Core Knowledge

- The sides of a river are called the river **banks**. The bottom of a river is called the river **bed**.
- The **long profile** is the journey along a river from start to end. The long profile of a river has three parts: upper course, middle course, and lower course.

Upper Course

- Rivers often start where there are mountains or hills. Rainwater flows down the slopes, combining to form a river. The start of a river is its **source**.
- Rivers are steep in the upper course because they are flowing down mountains or hills. They are narrow and shallow because not much water has been added to them yet. The river bed is rough with large, jagged boulders.
- Over time, the force of the water breaks the river bed. This forms **v-shaped valleys**. If the rock that a river flows over is particularly weak, it is broken more easily. This forms steps in the river called **waterfalls**.
- Settlements in the upper course are often small villages. Land here is used for farming livestock like sheep and goats.

Revision Questions

- What are the sides of a river called?
- What is the bottom of a river called?
- What is the long profile of a river?
- What are the three parts of a river's long profile?
- What does "source" mean?
- Where are the sources of most rivers?
- How steep, wide and deep are rivers in the upper course? Why?
- What is the bed like in the upper course?
- What is a v-shaped valley? How does it form?
- What is a waterfall? How does it form?
- How do people use the upper course of rivers?

Knowledge Organiser – Rivers

Journey Along a River (2 / 3)

Core Knowledge

Middle Course

- Rivers are less steep in the middle course because they are no longer flowing down mountains or hills. The river bed is smoother with small rocks.
- Rivers often merge with other rivers in the middle course. The place where two rivers merge is a **confluence**. A smaller river that flows into a larger river is a **tributary**. Rivers are wider and deeper in the middle course because they hold extra water from tributaries.
- Rivers bend in the middle course. These bends are called **meanders**. Many settlements are next to meanders because they are easy to defend with water on three sides.

Lower Course (1 / 2)

- Rivers are almost flat in the lower course. They are very deep and wide because they hold so much water from many tributaries and lots of rain. The river bed is smooth with lots of small, round pebbles. This means that large boats can easily move along the lower course of rivers.
- The land around rivers in the lower course is also very flat. It is covered by water when the river overflows, so is called a **floodplain**.

Revision Questions

- How steep are rivers in the middle course compared to the upper course?
- What is the river bed like in the middle course?
- What is a confluence?
- What is a tributary?
- Why are rivers wider and deeper in the middle course compared to the upper course?
- What are bends in a river called?
- Why are settlements built next to bends in a river?
- How steep, wide and deep are rivers in the lower course compared to the middle course? What is the river bed like?
- What is the river bed like in the lower course?
- What is flat land around a river's lower course called?
- What often happens to this land?

Knowledge Organiser – Rivers

Journey Along a River (3 / 3)

Core Knowledge

Lower Course (2 / 2)

- Rivers end where they flow into the sea. The end of a river is its **mouth**. At the edge of the river mouth, fresh river water mixes with salty sea water. This area is called an **estuary**.
- Sometimes strong winds blow sea water upstream, causing the river to overflow. This is called a storm surge.
- Settlements in the lower course of rivers are often large towns and cities. Factories and ports are located around the mouth of rivers.

Transportation

- As water flows from the upper course to lower course, it carries rocks and mud with it. This is called transportation.

Revision Questions

- What does “mouth” mean?
- Where is the mouth of most rivers?
- What is an estuary?

- Upstream and downstream. What is the difference?
- What is a storm surge?

- How do people use the lower course of rivers?

- What does river water carry as it flows downstream?
- What is the geographical word for this?

Where do rivers come from?

All rivers begin at a source
Little streams feed into bigger streams (tributaries), tributaries feed into rivers, and small rivers feed into large rivers.



Waterfalls and Gorges (1 / 2)

Core Knowledge

- **Erosion** is when water breaks rocks into smaller pieces. Rivers erode the land by three processes: hydraulic action, abrasion, solution.
- **Hydraulic action.** Flowing water is forced into small cracks in the banks and bed. This expands the cracks until loose pieces of rock break away from the banks and bed.
- **Abrasion.** Rocks transported by the river crash against the banks and bed, breaking pieces of rock away from them.
- **Solution.** Weak acids in river water dissolve rock, wearing away the banks and bed.
- Rocks transported by the river erode too. They crash into each other, eventually becoming small, smooth, pebbles. This process is called **attrition**.

What affects the speed of erosion?

- Rivers with more energy erode rock faster. Rivers have more energy when they flow fast.
- Some rocks are **more resistant** to erosion, so erode slowly. These are **stronger rocks**, or **harder rocks**. For example, granite, limestone.
- Some rocks are **less resistant** to erosion, so erode quickly. These are **weaker rocks**, or **softer rocks**. For example, clay, sandstone.

Revision Questions

- What is erosion?
- How do rivers erode the land?
- How are rocks transported by rivers eroded? What is this process called?
- How does river energy affect erosion?
- Some rocks erode slowly. What are they called? Give one example,
- Some rocks erode quickly. What are they called? Give one example.

Waterfalls and Gorges (2 / 2)

Core Knowledge

How do waterfalls and gorges form?

- Waterfalls form in the upper course where a river flows over an area of stronger rock then weaker rock.
1. The river erodes the weaker rock faster than the stronger rock. This forms a **step** in the land called a waterfall.
 2. Water hits the bottom of the step, eroding down to form a deep **plunge pool**.
 3. Water and rock **splash back** from the plunge pool, eroding the rock behind the falling water at the bottom of the step. This is called **undercutting**.
 4. Undercutting forms an **overhang**. This is the rock behind the falling water at the top of the step. It is unsupported, so eventually **gravity** pulls it into the plunge pool.
 5. Over hundreds of years, these steps repeat. Undercutting forms new overhangs which collapse again and again. This means that the waterfall moves upstream. A **gorge** is left where the waterfall used to be. This is a steep-sided trench.

Revision Questions

- What is a waterfall?
- Where do waterfalls form?

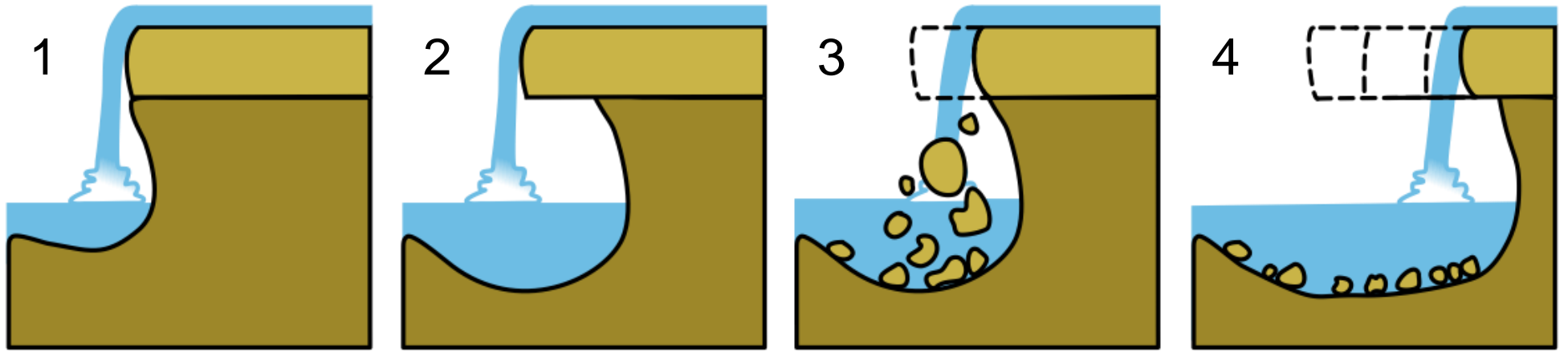
- How is a waterfall formed?

- What is a plunge pool?
- How is a plunge pool formed form?

- What is undercutting?
- What types of erosion are involved?

- What is an overhang?
- Why do overhangs collapse?

- What is a gorge?
- How is a gorge formed?



Waterfalls and Gorges

[Video 1](#)

Waterfalls and Gorges

[Video 2](#)

Knowledge Organiser – Rivers

Meanders and Ox-bow Lakes (1 / 2)

Core Knowledge

- **Deposition** is when a river drops rocks and mud it is transporting. Rivers deposit rocks when they lose energy and flow slower.
- **Meanders** are bends in a river.
- Meanders form when rivers bend around an obstacle. For example, a river will erode weaker rock faster, so its path will bend around areas of harder rock.

What are the features of a meander?

- Meanders change over time due to erosion and deposition.
- Water flows fastest around the outside of a meander, so the river has lots of energy to erode the bank. This forms a steep bank called a river cliff. The river is deeper here.
- Water flows slowest around the inside of a meander, so the river deposits rocks next to the bank. This forms a sloping bank called a slip off slope. The river is shallower here.

Revision Questions

- What is deposition?
- Why does deposition happen?
- What is a meander?
- Why do meanders form?
- On a meander, where does water flow fastest? What is formed here?
- On a meander, where does water flow slowest? What is formed here?

Meanders and Ox-bow Lakes (1 / 2)

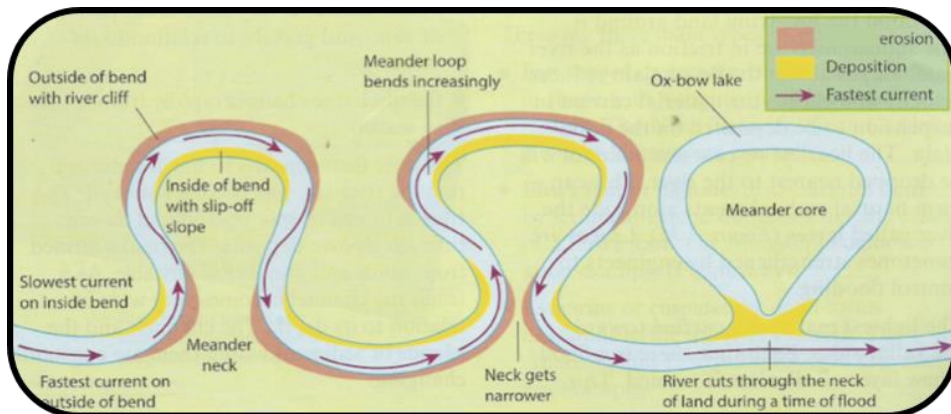
Core Knowledge

How do ox-bow lakes form?

- In the middle course, rivers bend back and forth. This means that there are many meanders next to each other. The land between two meanders is called the neck.
- Erosion on the outside banks of two meanders causes the neck between them to become very narrow. Eventually, the neck will be completely eroded. This means that the river flows straight.
- Still water in the meander has no energy, so deposits rocks. This means that the river becomes separated from the meander. This forms an ox-bow lake.

Revision Questions

- What is the land between two meanders called?
- What happens to the meander neck over time? Why?
- What happens to meanders separated from a river? What is formed?



Meanders and Ox-bow Lakes

[Video](#)