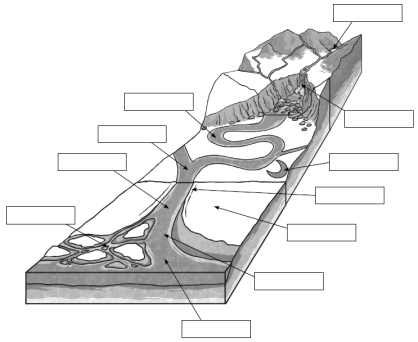
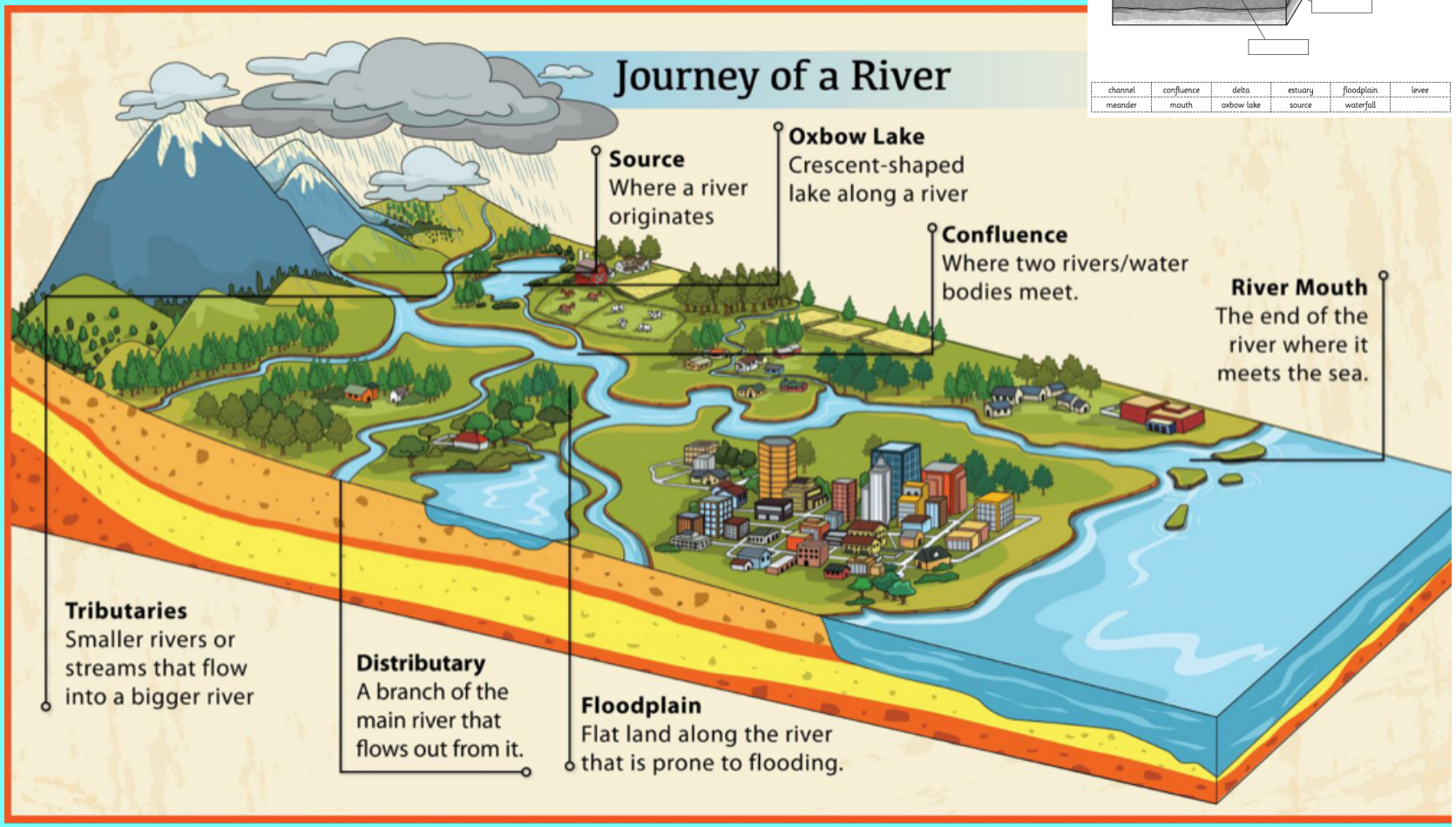
The Journey of a river - Practical Part

Let's continue where we left off last week!



channel	confluence	delta	estuary	floodplain	levee
meander	mouth	oxbow lake	source	waterfall	



River-Journey

The Journey of a river - Practical Part

First, let's look at 3 key processes that tells us what the river does over its course.

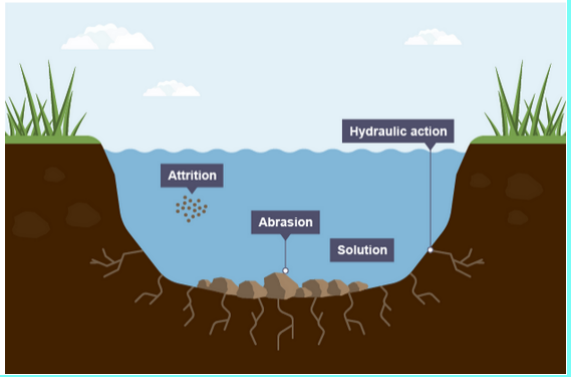
Erosion, weathering and mass movement

Erosion is the process that wears away the river bed and banks. Erosion also breaks up the rocks that are carried by the river.

There are four types of erosion:

TAKE

- **Hydraulic action** - This is the sheer power of the water as it smashes against the river banks. Air becomes trapped in the cracks in the rock of the river bank and bed, and causes the rock to break apart.
- **Abrasion** - When pebbles grind along the river bank and bed in a sand-papering effect.
- **Attrition** - When rocks that the river is carrying knock against each other. They break apart to become smaller and more rounded.
- **Solution** - When the water dissolves certain types of rocks, eg limestone.



Deposition

DROP

When a river loses energy, it will drop or deposit some of the material it is carrying.

- Deposition may take place when a river enters an area of shallow water or when the volume of water decreases - for example, after a flood or during times of drought.
- Deposition is common towards the end of a river's journey, at the mouth.
- Deposition at the mouth of a river can form deltas - for example, the Mississippi Delta.

and ... ~~Transportation~~ (material is moved onwards). MOVE

The Journey of a river - Practical Part

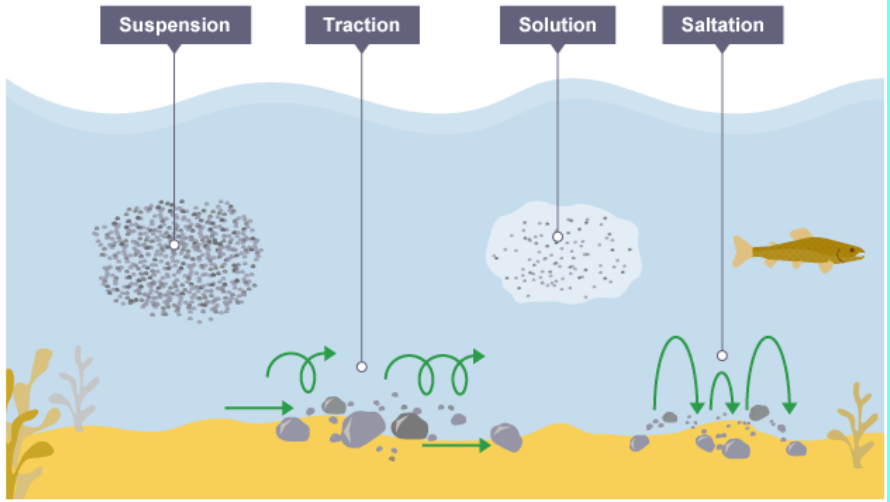
... if you want to find out more about transportation.

Transport

Rivers pick up and carry material as they flow downstream.

The four different river transport processes

- **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.



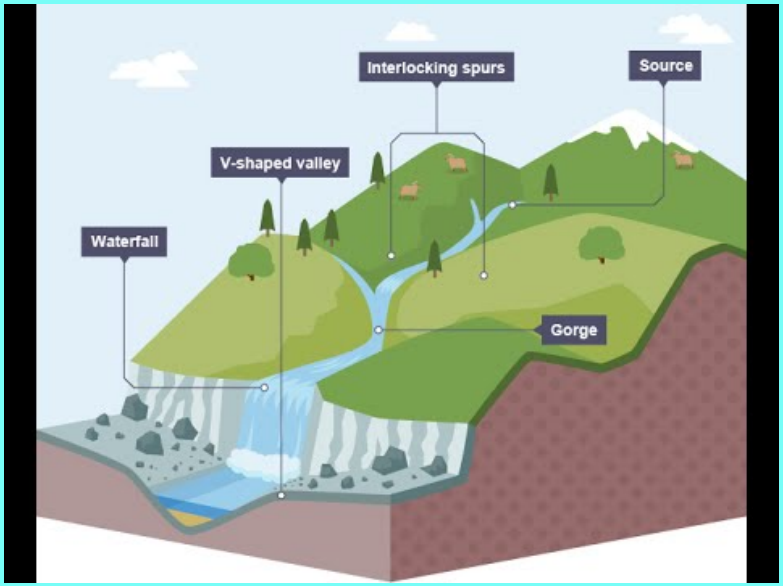
Rivers need energy to transport material, and levels of energy change as the river moves from source to mouth.

The source of a river ...

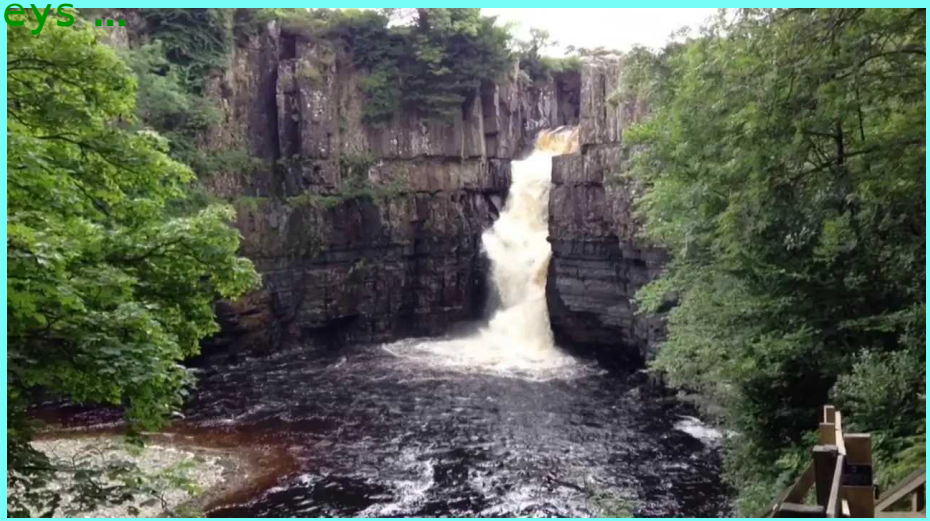
... can be a mountain, glacier, lake, spring or bog.

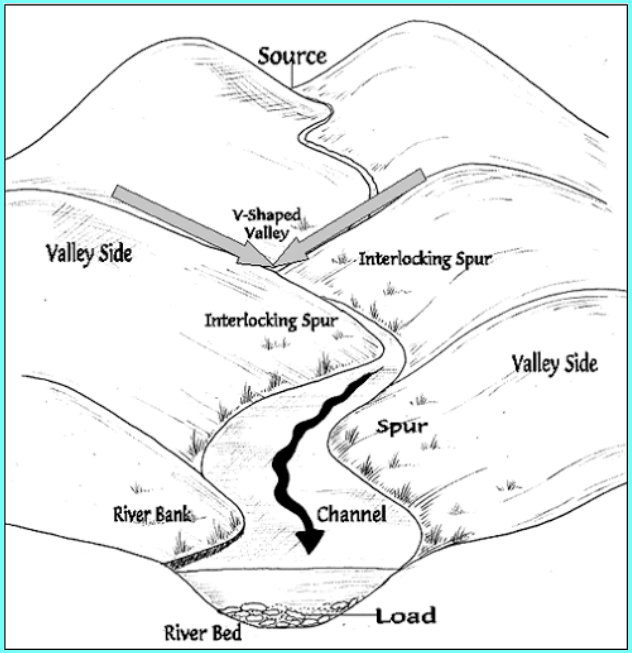
A bog
The source of our longest river in the UK, the Severn.

The Upper Course …



Here, the river flows very fast and erodes the ground as it travels from high up downwards and carves out valleys …





The Middle Course

The river flows out onto flatter land. It slows down hugely, but also expands thanks to other rivers joining (tributaries). It also starts to drop (deposit) some of the material it has washed out further up in the upper course.

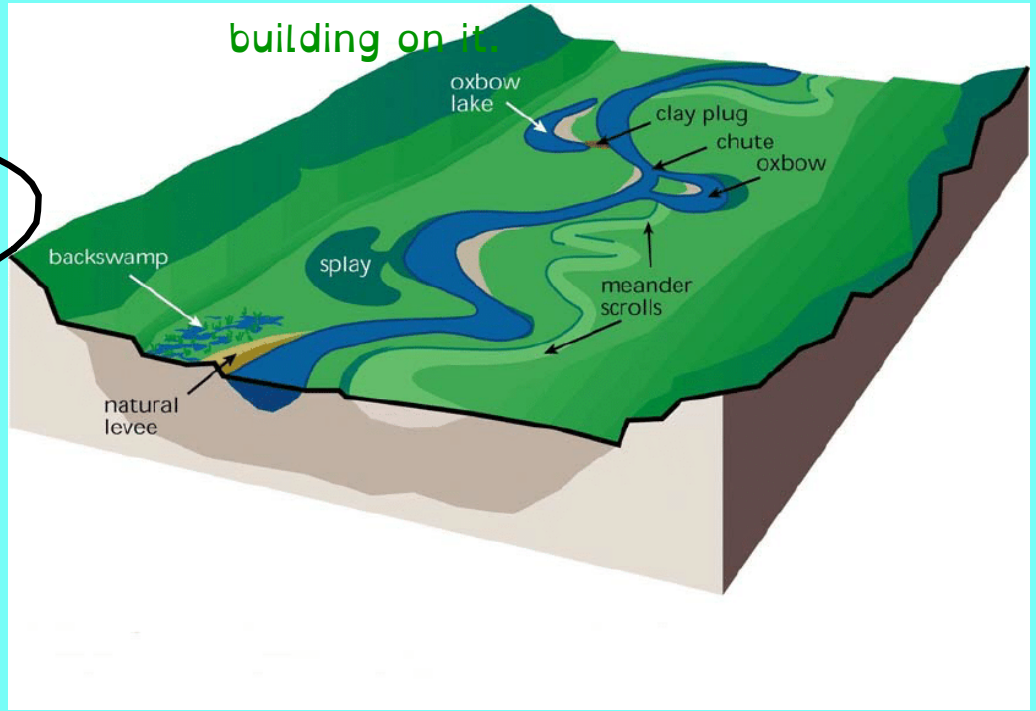
A slow flowing river starts to change direction. It begins to meander.
On the outside of the meander, the river is faster and erodes material. On the inside it flows slower and drops (deposits) material.

The flood plain of the river Danube - the second longest river in Europe.

The Middle Course II - Flood-plain

This area gets flooded every year and vegetation will trap material and nutrients. We say, the river deposits rich materials.

It is great for seasonal farming (mostly grazing), but not perfect for building on it.

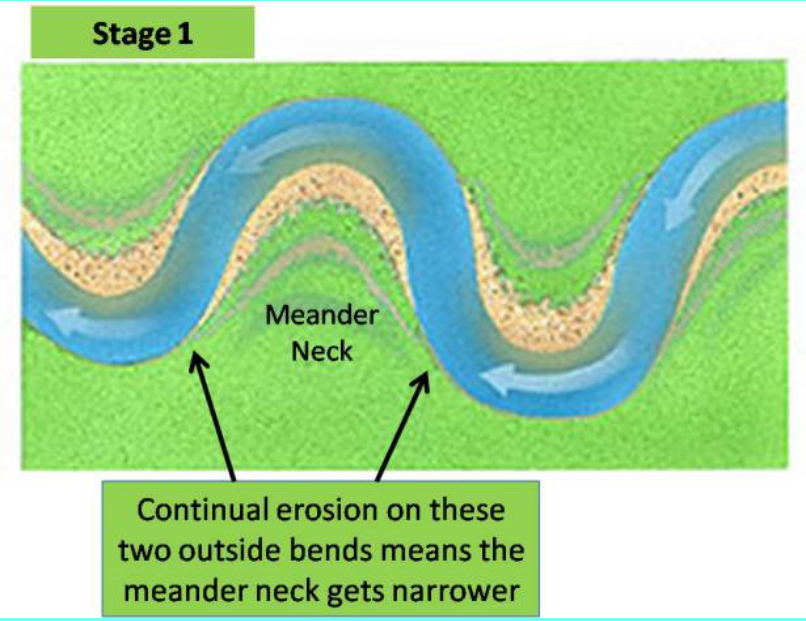


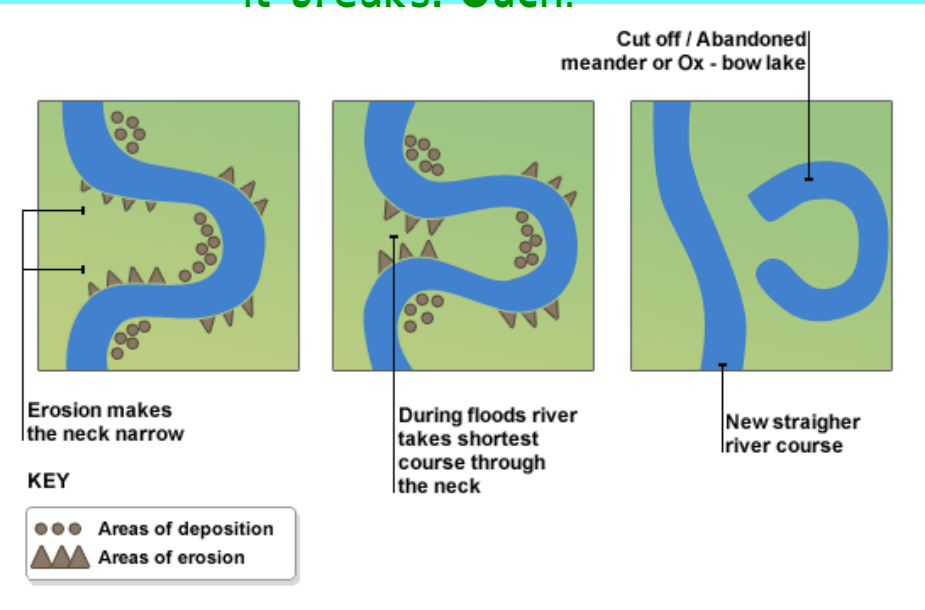
Sadly, humans have built a lot on flood plains and then complain about floods destroying houses.

The Middle Course III - Oxbow Lake

While the meander increases over time, during high water, the river looks for the shortest way.

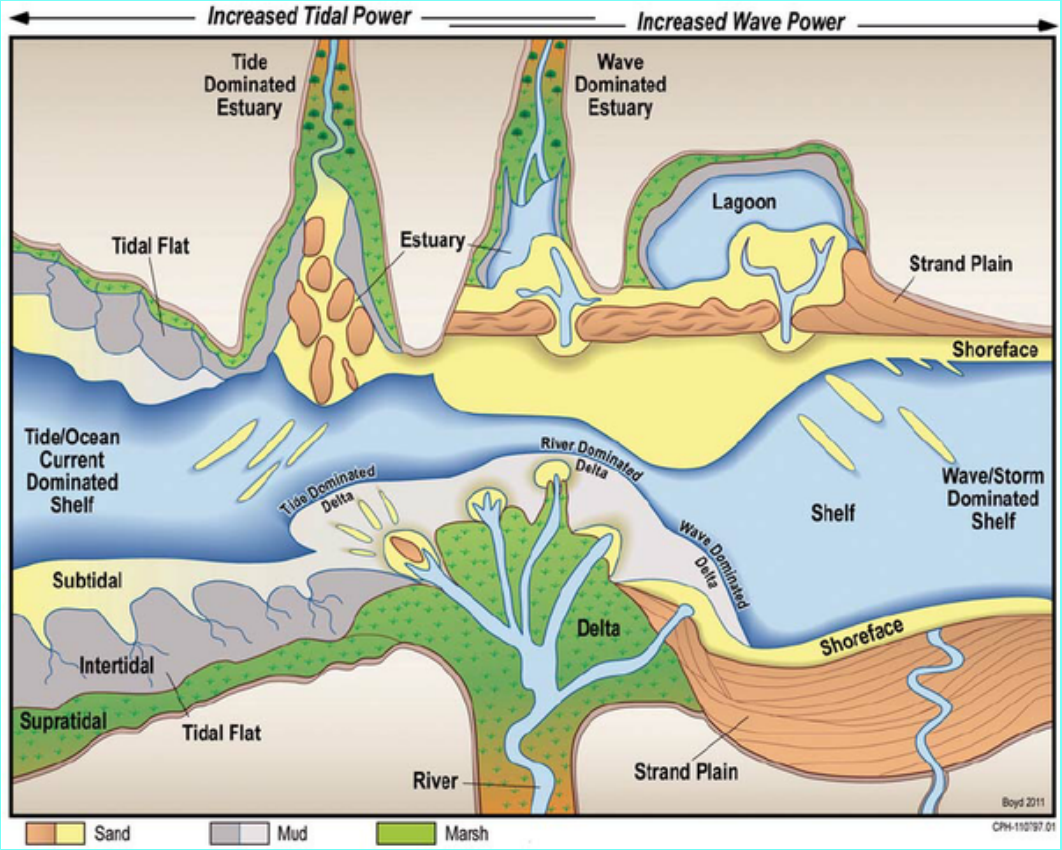
So, the neck of the meander gets thinner and thinner with every high-water season until it breaks. Ouch!





The Lower Course

The flood plain leads to the mouth of the river.



The river deposits the transported materials and joins the big body of water as an estuary (inwards orientated) or delta (spreading and creating new land towards the sea).