



Changes in Rivers and Valleys

Learning Objective:

- **Analyse** *how* a river channel and valley changes downstream



Learning Outcomes:

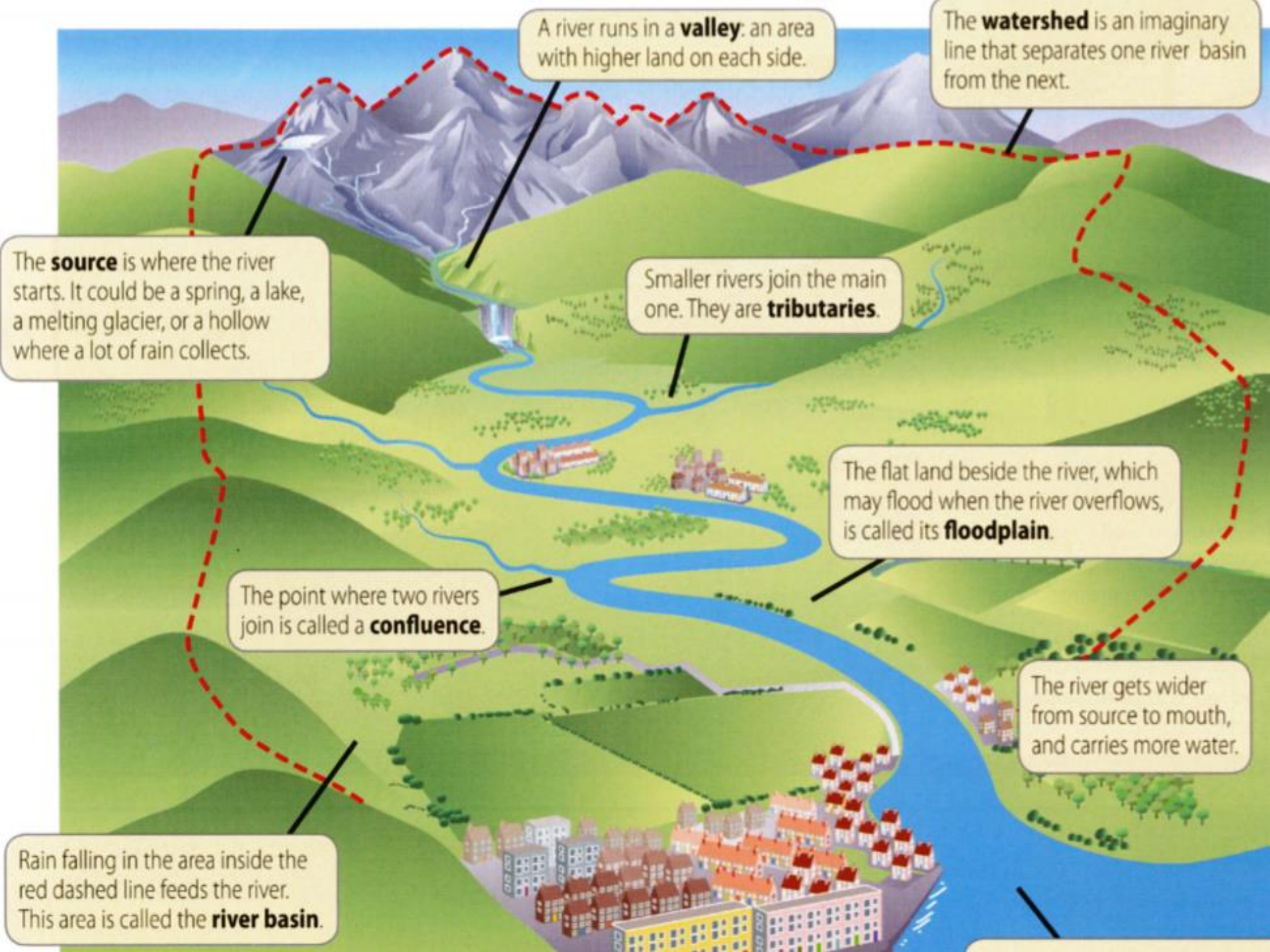
- **Identify** features of a *drainage basin*
- **Examine** changes in the *long* and *cross profile* of a river channel and valley
- **Suggest** how the river channel and valley *change* with distance downstream

How is a drainage basin like a sink?



A drainage basin...





A river runs in a **valley**: an area with higher land on each side.

The **watershed** is an imaginary line that separates one river basin from the next.

The **source** is where the river starts. It could be a spring, a lake, a melting glacier, or a hollow where a lot of rain collects.

Smaller rivers join the main one. They are **tributaries**.

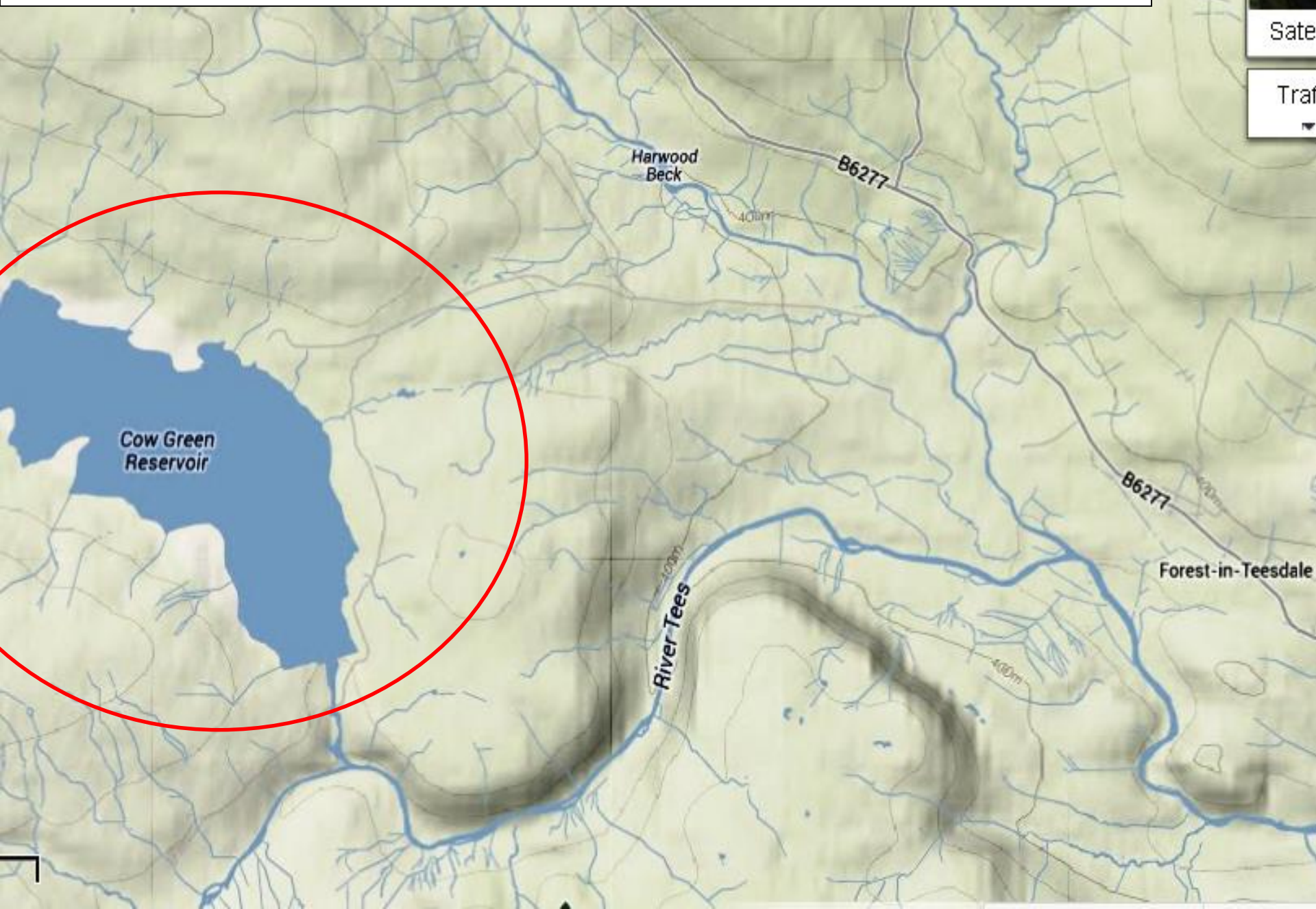
The flat land beside the river, which may flood when the river overflows, is called its **floodplain**.

The point where two rivers join is called a **confluence**.

The river gets wider from source to mouth, and carries more water.

Rain falling in the area inside the red dashed line feeds the river. This area is called the **river basin**.

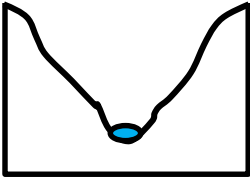
Upper course of the River Tees – width?



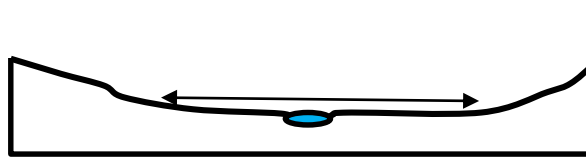
Lower course of the River Tees – width?



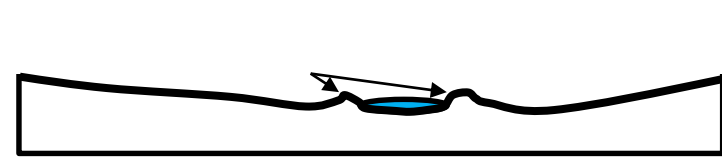
Long profile of a river with cross profiles



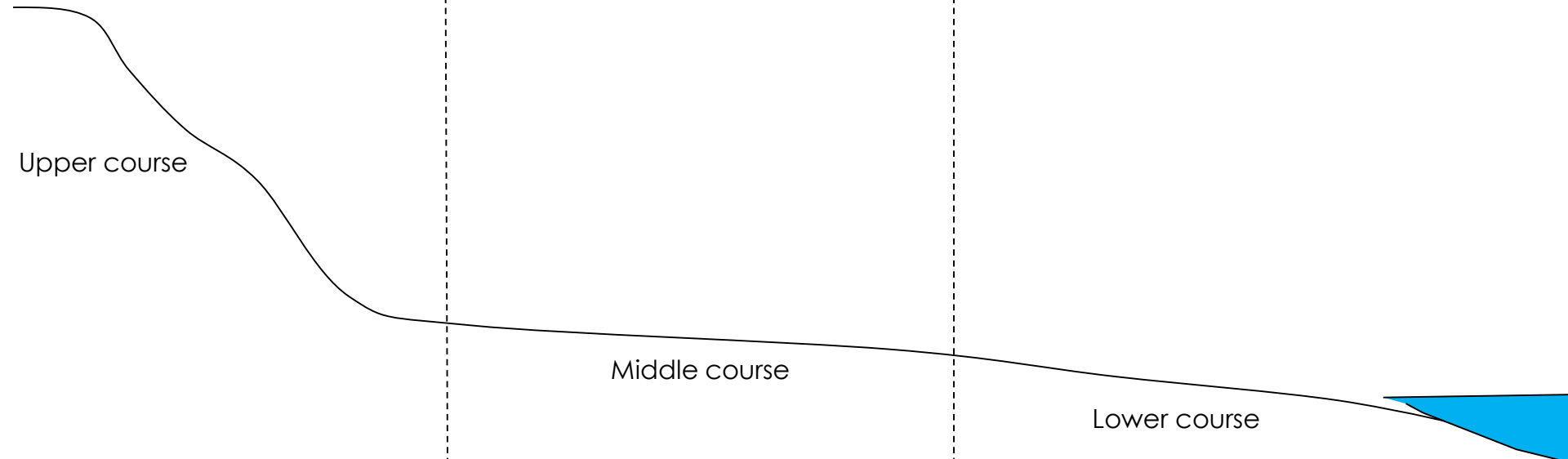
Upper course cross profile



Middle course cross profile



Lower course cross profile



Upper course

Middle course

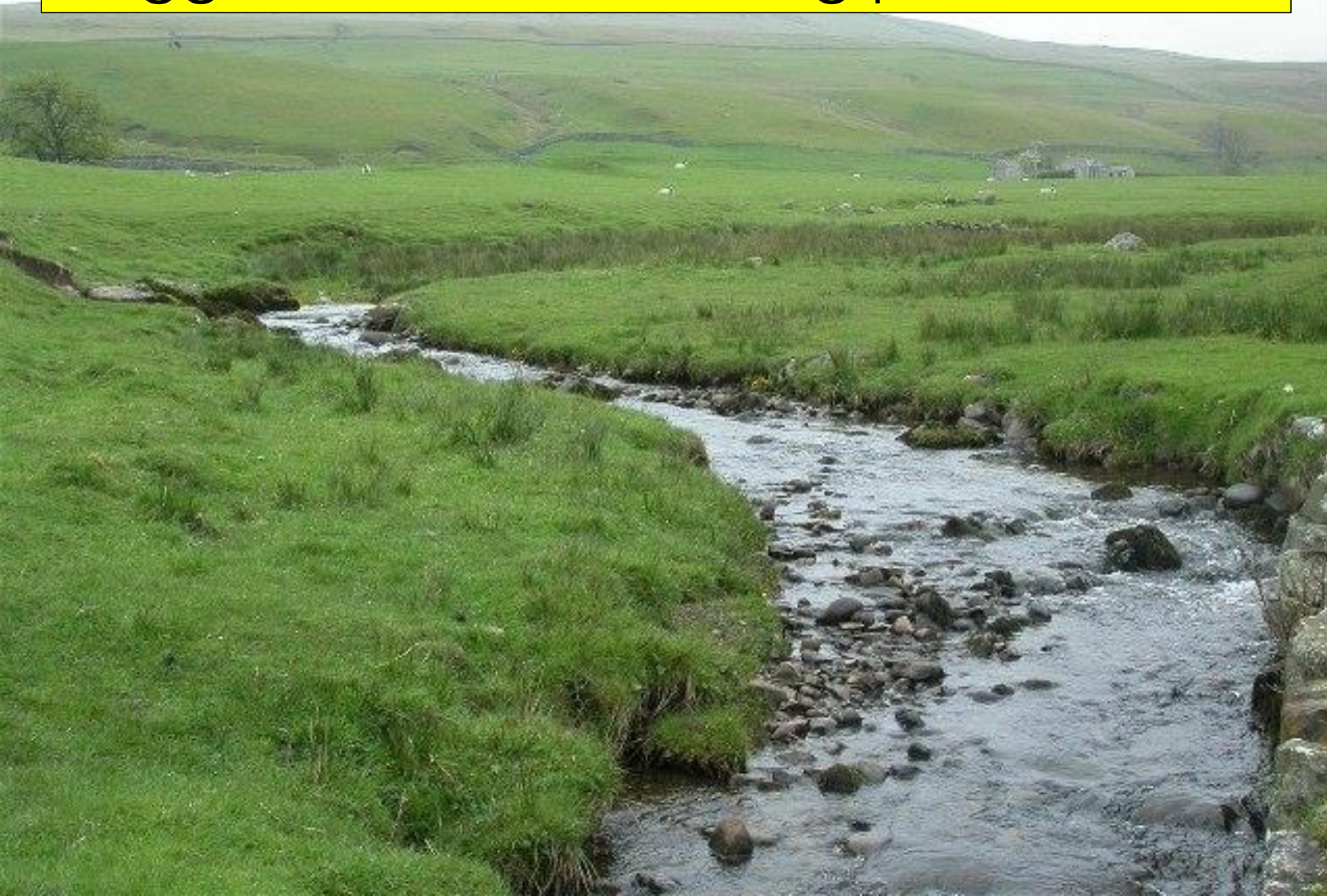
Lower course

V-shaped valley	Very wide and flat valley	Wide and deep river	Gentle gradient	Wider and deeper river
Turbulent river	Steep gradient	Steep sided valley	Levees	Shallow river
Floodplain	Wider valley with flat floor	Very gentle gradient	Narrow and shallow river	Large sediment load
Sea	Distance	Source	Elevation	Mouth

Describe how the long and cross profile of a river channel and valley changes downstream (4 marks)

The long profile of a river channel changes from being steep at the source to having a more gentle gradient in the middle course and a very gentle gradient as it reaches the mouth. It has a concave shape overall. The cross profile of a river channel becomes wider and deeper, with the river valley becoming wider and flatter. Its valley sides are less steep compared with being V-shaped further upstream.

Suggest where in the long profile this is?



3 international borders!

A confluence...

Argentina

Paraguay

Brazil

