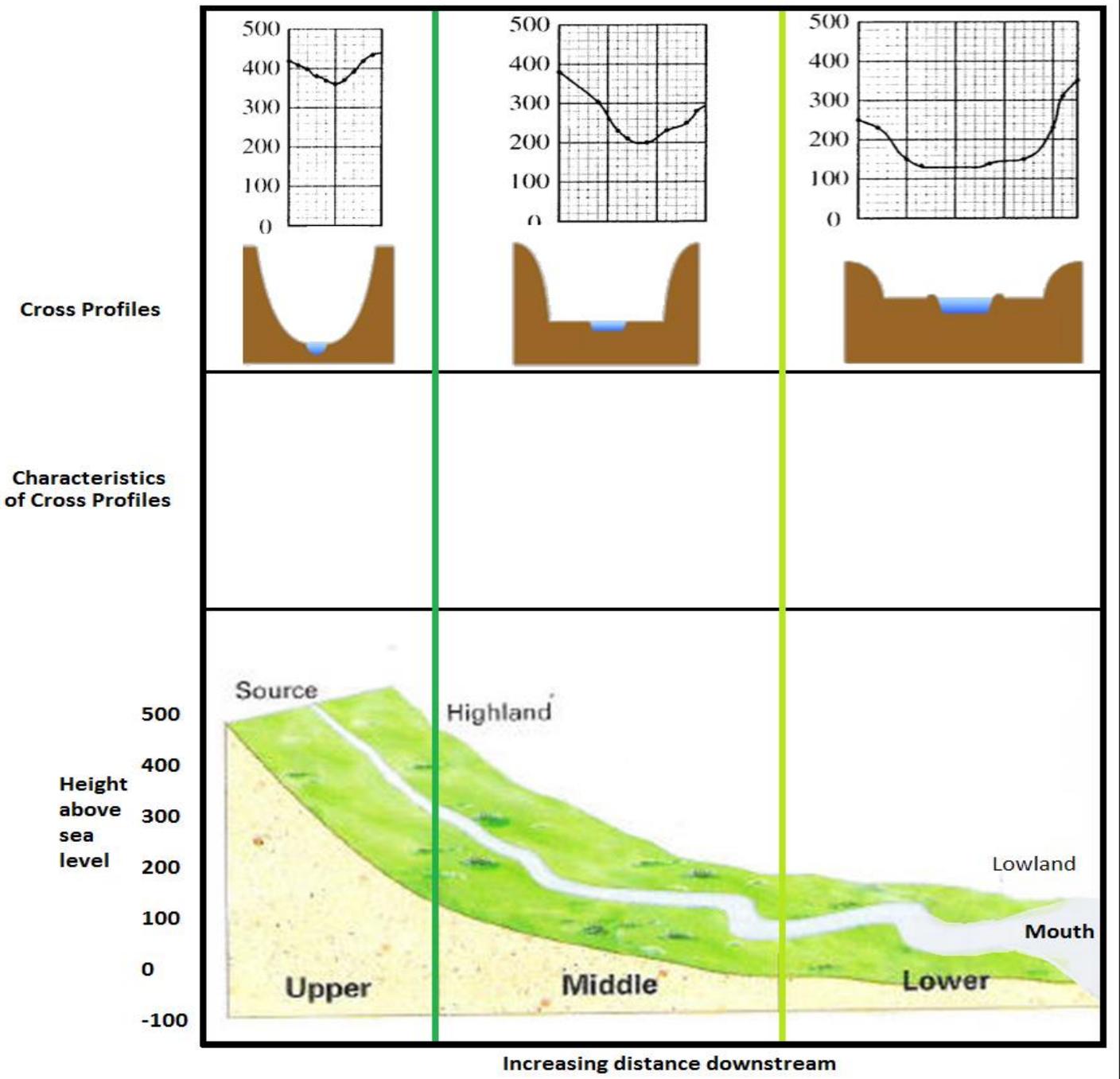


Examine the long and cross profiles of a river and its valley. Cut out the statements at the bottom of this page and glue them in the correct course of the river to **describe** the characteristics. Each box should have a statement about the valley and one about the channel.

1. Changing Profile of a River and its Valley

Long and Cross Profiles of a River and its Valley



Steep gradient, V-shaped valley, steep sides.

Gently gradient, very wide, almost flat valley.

Very wide, deep channel.

Vertical erosion

Medium gradient, gently sloping valley sides.

Wider, deeper channel.

Narrow, shallow channel.

Lateral erosion

3. Read the text below and delete (cross out with black marker) the incorrect word. I have done one for you.

Explain how the profile of a river changes downstream.

The average velocity (speed of water) and discharge (amount of water) of a river **increases** along its course. Although the upper course has a **steep/gentle** gradient and is **v/u** shaped, the velocity depends on how much water comes into contact with the channel banks and bed. In the upper course the channel is **shallow/deep** due to **vertical/lateral** erosion and **narrow/wide**, so there is **much/less** friction. This is because in the upper course the rock is **harder/softer** and so the valley sides **are/are not** widened out much by weathering and erosion. Therefore, velocity is **low/high**.

In the middle course the river is flowing through lower country. The gradient is **less/more** steep, so the river begins to meander and erode **vertically/laterally** into the valley sides. The rate of erosion **increases/decreases** as the rocks that make up the valley sides are **harder/softer**. As the river uses more energy in lateral erosion it is not able to remove all the eroded material so this builds up the valley floor to give it a more **steep/gentle** profile.

The lower course of river flows through low lying land and has a **narrow/wide** and **deep/shallow** channel. Therefore, there is **much/less** friction resulting in a **low/high** velocity. The speed is boosted by the additional discharge from all the tributaries. Deposition from floods builds up the flood plain and meanders migrate. This builds up and **narrows/widens** the valley.