

## Formation of Meanders| sample answer

**Q. 'Explain with the aid of a labeled diagram(s) the formation of one landform of deposition that you have studied' (2012 Q2 b(i))**

Meanders are a series of gently curving bend in the course of a river. They reflect both the processes of erosion and deposition. Examples can be found along the Suck river, Co. Galway and the Amazon river, South america.

Meanders are the pronounced in mature and old stage because they do not have enough energy to go through raised bumps in the landscape. The bumps in the terrain cause the river's flow to gently swing side to side.

Pools and riffles develop along a straight stretch of river. the pools are areas of deep water and erosion. while the riffles are areas of shallow water and deposition, they affect the pattern of currents in the river. The uneven depths of water cause further swinging of the current.

Within the main flow of a river there are secondary flows. The primary flows are predominantly straight while the secondary flows move in a corkscrew pattern. These spiraling flows are called helical flows.

The flows help to move the material along the river bed from the outside of a meander bend and deposit it on the inside of the next bend.

This secondary flow helps to develop and increase the curving nature of the meander. The current is travelling quickly at the outside bend of a meander, and lateral erosion occurs here due to hydraulic action and abrasion.

The bank of the river becomes undercut, it collapses and a small river cliff is formed.

On the convex bend, sand and shingle are deposited as the current is travelling slowly and friction is at its greatest. As a result, a point bar is formed on the inner bend

With erosion on the outer bend and deposition on the inner bank the meanders begin to migrate, shirting position from side to side and migrating downstream.

If one meander is migrating at a faster rate than its neighbours, a narrow neck develops between them because the faster the water flows the faster it will erode.

During times of flood, the river will cut through the narrow neck and form a new, straighter course. The river maintains this straight, narrow course and the meander is bypassed as the river abandons part of its original channel

Deposition occurs alongside the bank and the old bend of the river is now cut off. This is called an oxbow lake. The still water may evaporate and this as a result forms a meander scar or a mort.

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