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Explain the formation and characteristic of major fluvial landforms created by the process of erosion, deposition and Transporation with Exa

Fluvial Landforms:

Introduction

The term fluvial comes from the latin word "fluvius" meaning "river" Fluvial landforms are the landforms created by the action of running water like river and streams through the process of erosion transporation and depositions of sediments while flowing from their source in the mountains to their mouth in seas lakes and basins. Hence, fluvial landforms represent the most dynamic procers of landscape evolution as rivers continuously modify the surface by cutting valleys creating plains and building deltas.

Formation Process of Fluvial Landforms:

Fluvial landforms are formed Through Three main geomorphic processes.

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Erosion ← process → Transportation

↓

Deposition

(2.1) **Erosion:** It is the wearing away of rocks and soil by the force of running water river erode their channels in different ways such as

Hydraulic Action	Abrasion	Attrition	Solution or Corrision
Force of moving water loosening and breaking rocks	Sediments carried by rivers Scrapping and grinding against bedrocks	Rock fragments carried by rivers collide & break into smaller smoother pieces	Minerals are dissolved in water through solution

Erosional Landform	V Shaped valleys, gorges waterfalls, river cliffs.

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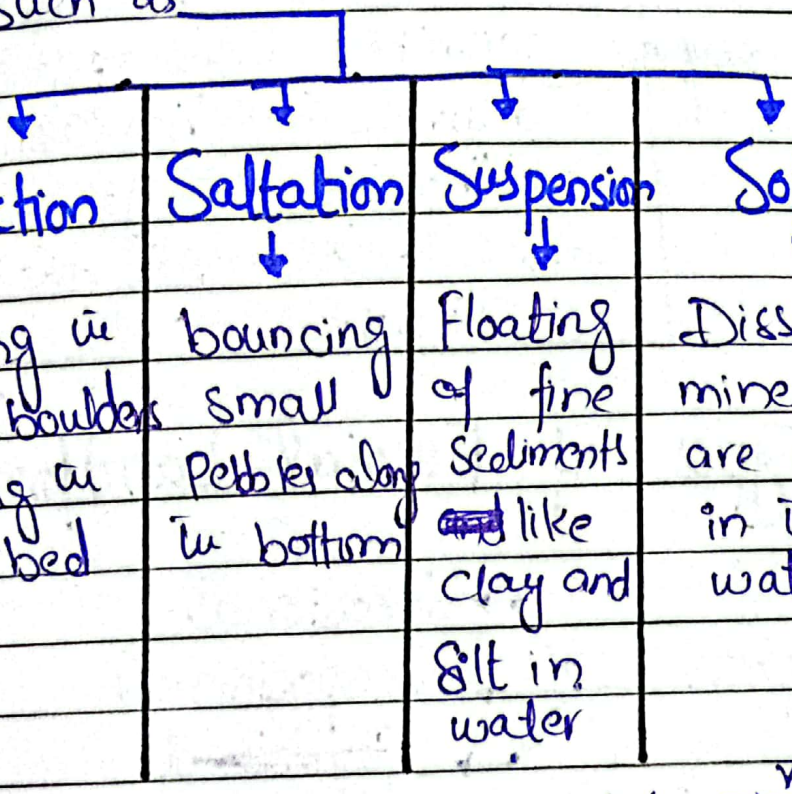
Example: The Grand Canyon in the USA is a result of millions of years of river erosion.

(2.2) **Transporation:** After eroding material from one place, rivers transport it down stream. This transporation eroded material in four main ways such as



This process explains why rivers often appears muddy in the middle and lower Course, Carrying sediments over long distances.

For Instance The transported load of the indus river, eventually Settled in its delta near Karachi

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3) **Deposition:** When a river loses energy due to reduced velocity, it begins to deposit the sediments it carries. Deposition is common in the middle and lower course of rivers, particularly on flood plains, meanders and at the river mouth.

For example: The Nile Delta in Egypt is a classic example of deposition where fertile alluvial soil has accumulated of thousand of years, supporting one of the world's oldest civilization

(3) Types of Fluvial Landforms:

Types → Erosional
Depositional
~~Combined~~

(3.1) Erosional Landforms:

Erosional landforms are produced when the river cut into the Earth's surface and produced

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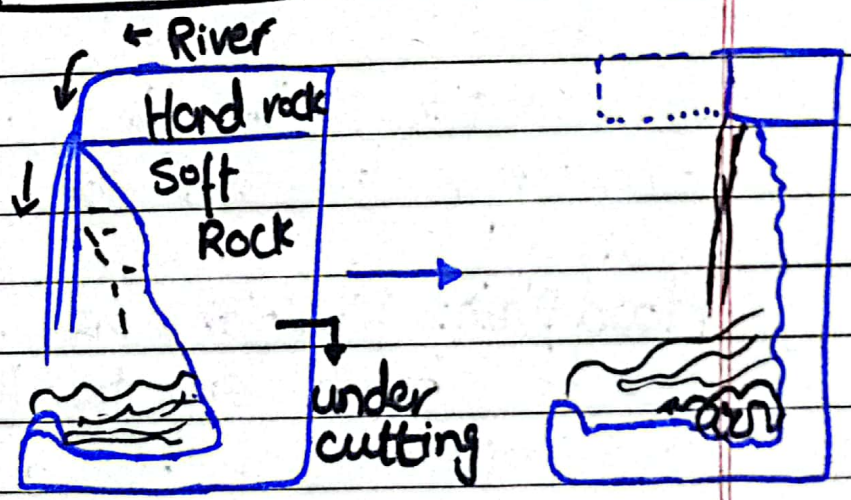
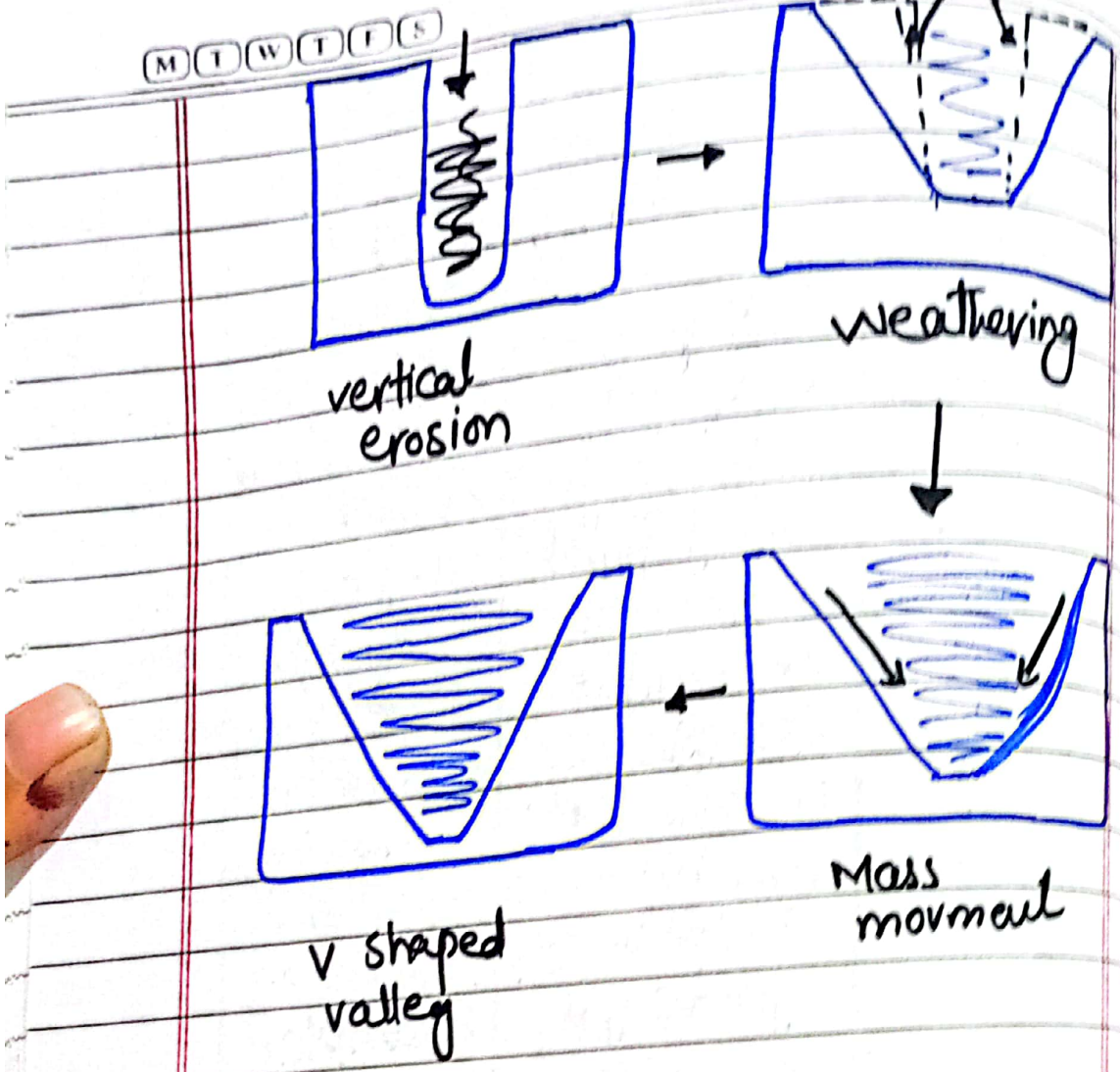
V shaped valleys	Gorges and Canyons	Waterfall and rapids	River Cliffs
↓	↓	↓	↓
V shaped valleys are narrow, steep sided valleys formed in the upper course as river cut vertically downward	Gorges and Canyons are deeper and wider valleys usually formed where rocks are resistant Example The Colorado river has created the grand Canyon	waterfalls and rapids appears where hard rock layers lie over softer ones, leading to sudden drops in the river Course Example ↳ Nigeria falls	Steep bank formed at the outer bends of Meanders



Gorge



(3.2) Depositional Landforms:

Depositional landforms are created when river drop their load these are:

Flood plain: Floodplains are wide flat areas formed due to repeated flooding and deposition of fine sediments making them very fertile for agriculture as seen along the Ganges river in India.

Floodplain

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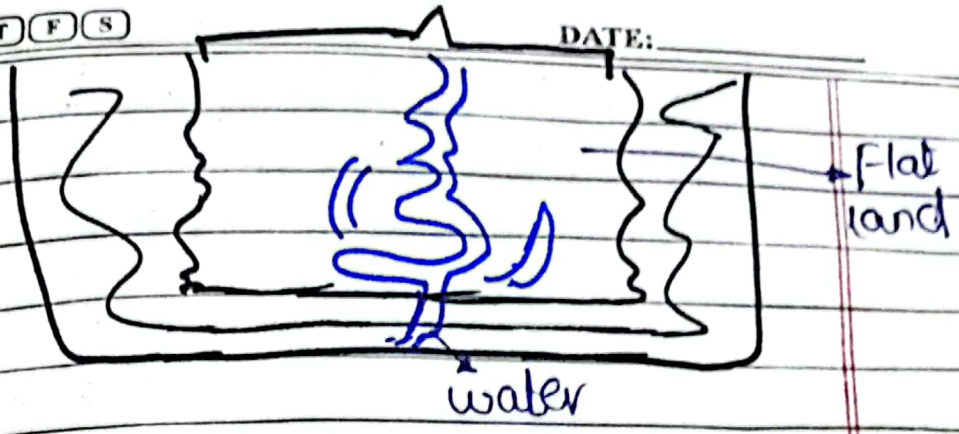
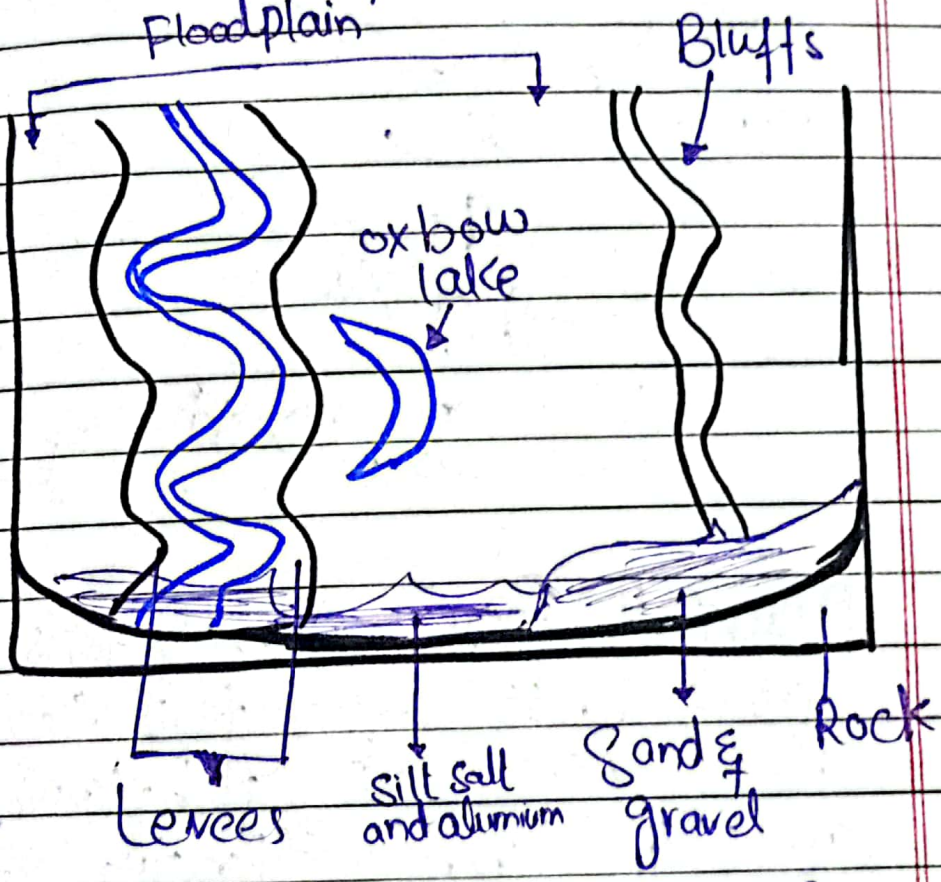


Leeves: Leeves are natural embankments along riverbanks, built up by seeliments deposits during floods.



Deltas: Deltas are triangular or fan shaped features at river mouths where river meet seas or lakes and deposit large amount of sediments.

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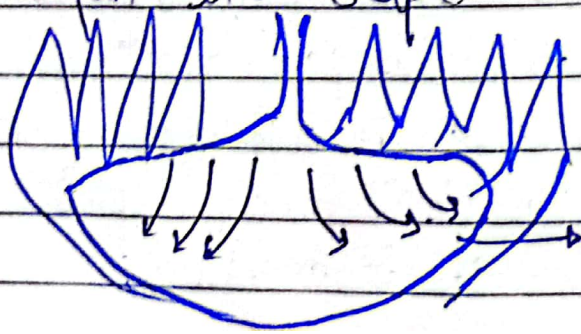
Example: The Indus and Brahmaputra Deltas

Alluvial fans: Alluvial fans form at foothills where fast flowing river emerge onto flat plains and lose energy depositing sediments in a fan like shape.



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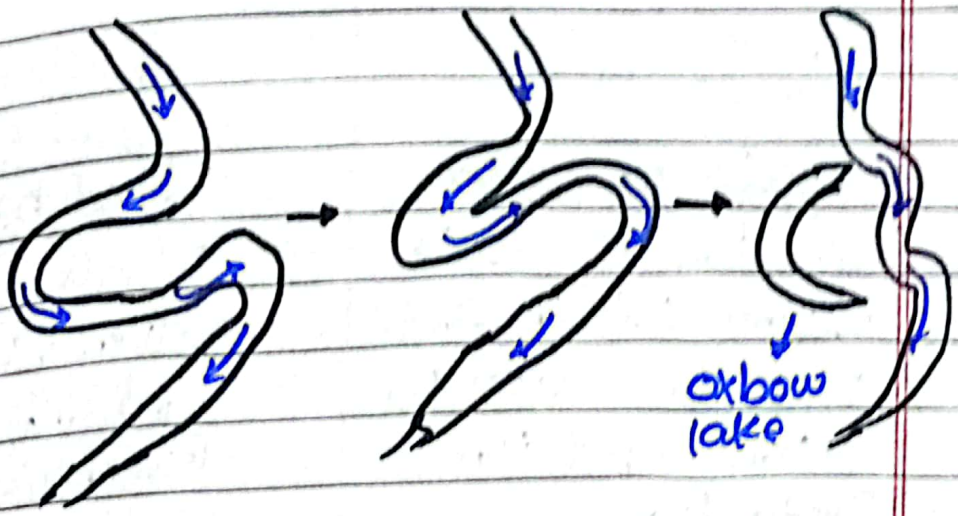
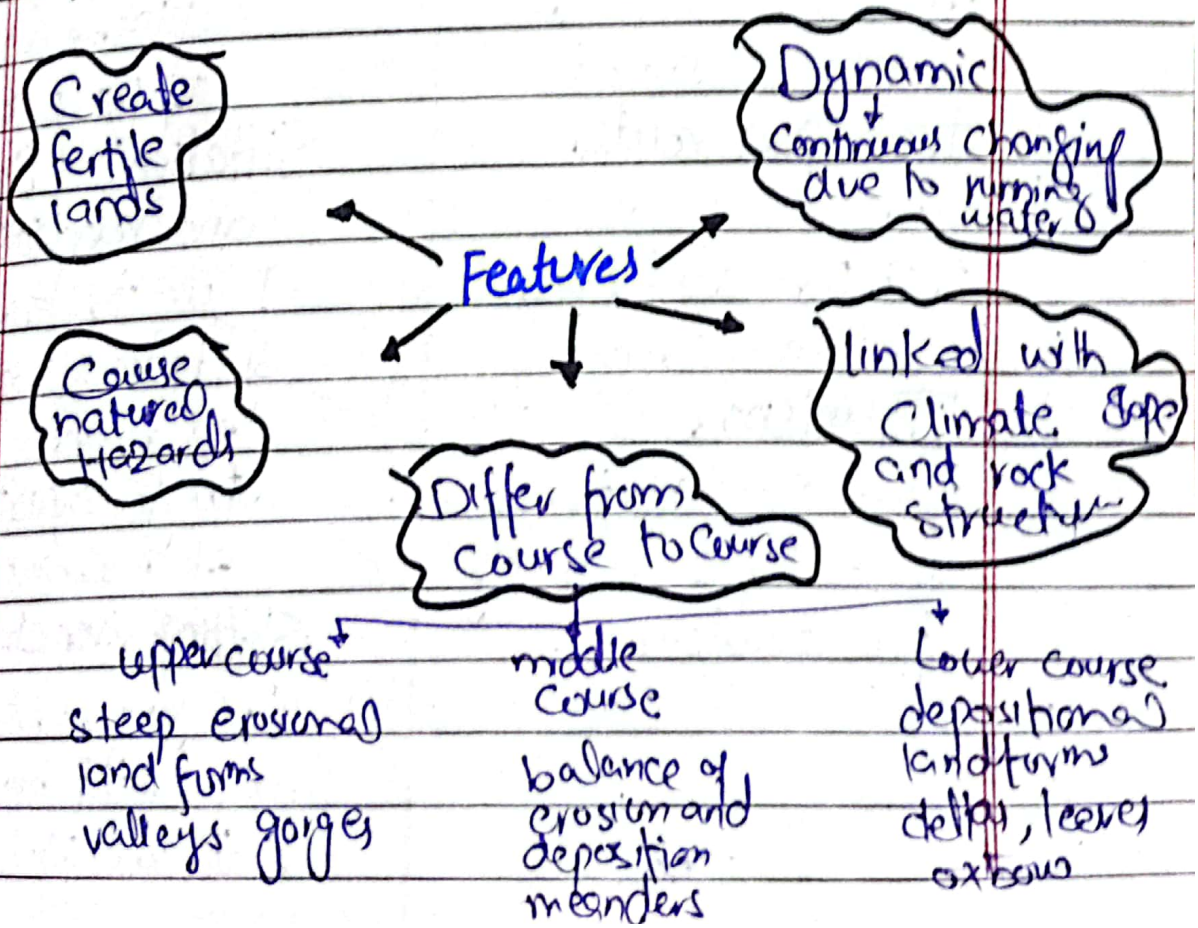
Oxbow Lake: A U shaped lake formed when a river cuts through the narrow neck of a meander bypassing it and leaving the old meander loop isolated



(4) Features of Fluvial Landforms:



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(5) Impacts of Fluvial Processes

Two types of impacts

Positive impacts

supports agriculture.
Formation of fertile alluvial soil in flood plains and deltas that supports agriculture

Irrigation.
It provides natural irrigation and fresh water resources

transport route.
Rivers serves as transport routes for trade and travel

Tourism.
Fluvial landforms are scenic beauty for tourism

Negative impacts.

Flood hazards
river cause floods
Floods destroy settlements, crops and infrastructure

Riverbank erosion.
it causing loss of land and displacement of people

Siltation of Dams and reservoirs:
Due to deposition siltation happen this reduces the storage capacity of reservoirs.

Shifting river channel.
Changing river course may affect human settlements.

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(6) Conclusion:

Fluvial landforms are the outcome of the interaction between running water and Earth's surface through the process of erosion and deposition Transporation. These landforms plays a crucial role in human life by creating fertile soil supporting agriculture land shaping settlement pattern while also posing risks through floods and erosion. In this way rivers are both creator and destroyer of landscapes, constantly reshaping the surface of earth.