



2.23 The work of rivers.

THEME 2-TOPIC 23

Learning objectives:

1. Erosion
2. Transport
3. Deposition
4. Erosion of river valleys

Key terms:

Condensation – конденсац, усны уурын өтгөрөл

Evapotranspiration- нийлмэл ууршилт

Evaporation - ууршилт

Interception – орсон борооны тусал мод навчин дээр унах

Overland flow – хажуугийн урсац

Ox-bow lake – хар усан тохой

Floodplain - татам

Load – голын хатуу урсац, хагшаас

Estuary-голын адаг

Levee-голын эргийн далан

traction – өнхөрч зөөгдөх

saltation – үсэргэж зөөх

Suspension – хөвж байгаа зүйл, булингар

bed load – тунамал хагшаас

Confluence – нийлэх \үндсэн голд\

tributary – цутгал гол

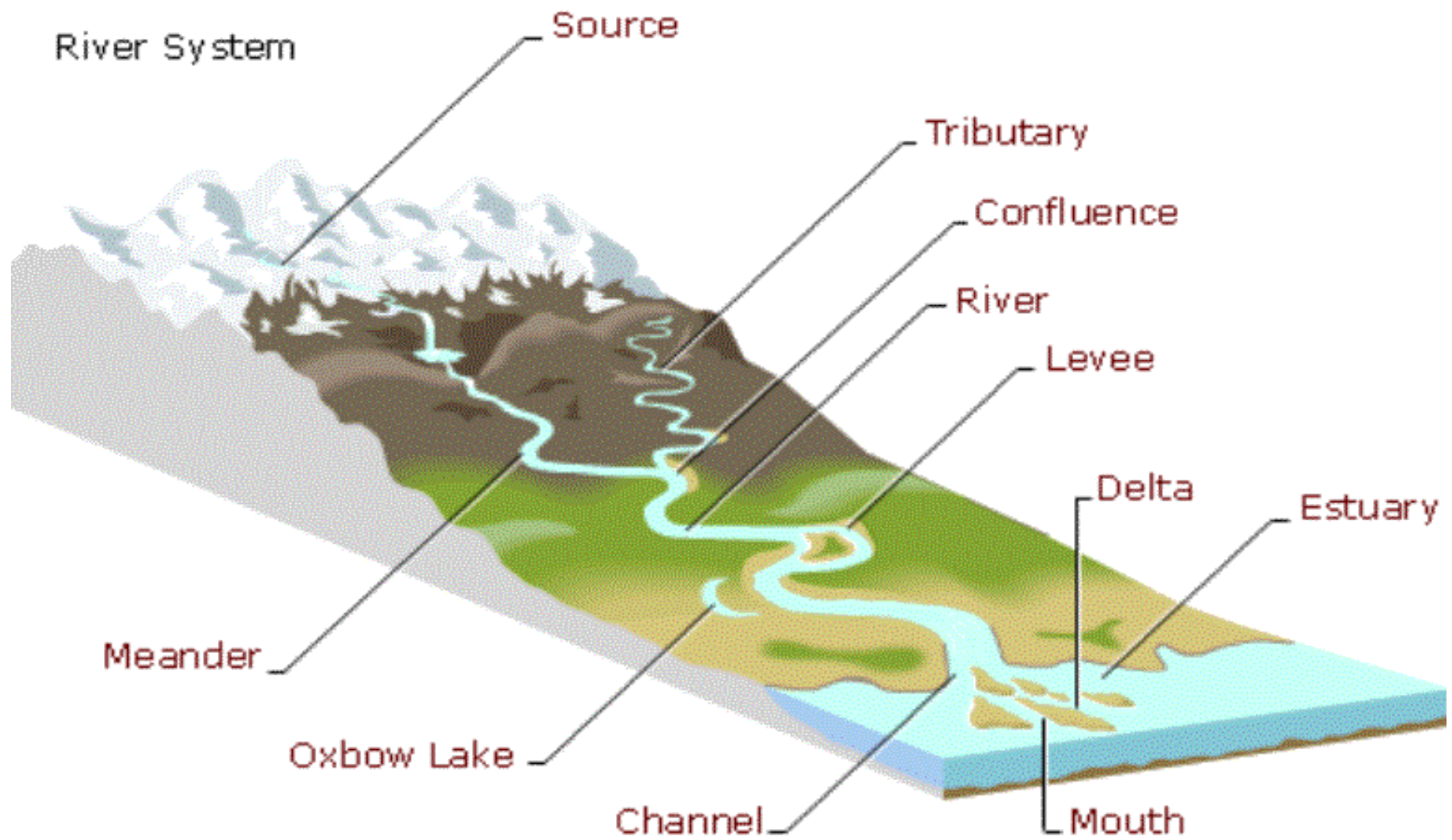
River basin - ай сав, ус хураах талбай

Drainage-голын сүлжээ

River source – голын эх

Watershed - ус хагалбарын шугам

Drainage divide \drainage basin\ - голын ус хагалбар



The work of rivers.



Erosion

Элэгдэл,
идэгдэл



Transportation

зөөгдөл



Deposition

Тунамал хагшаас

River processes – the work carried out by a river

- ⇒ A river gradually wears away and removes material from its channel (the river bed and banks). This is called **erosion** and it can make the river channel deeper and/or wider.
- ⇒ The boulders, pebbles, sand, silt and mud eroded by the river are carried downstream – a process called **transportation**. The material being transported is called the river's load.
- ⇒ When the river no longer has enough energy to carry its load, it gradually drops it on the river bed – a process called **deposition**. The largest and heaviest material (like boulders) is deposited first, while the lightest material (like silt and mud) is deposited last.

1. River erosion

By **corrasion (abrasion)** – where sand and pebbles are dragged along the river bed, wearing it away.

By **hydraulic action** – where fast-flowing water is forced into cracks, breaking up the bank over time.

By **attrition** – where rocks and stones wear each other away as they knock together, becoming smaller and more rounded.

By **solution** – where rocks such as limestone are dissolved in acid rainwater.

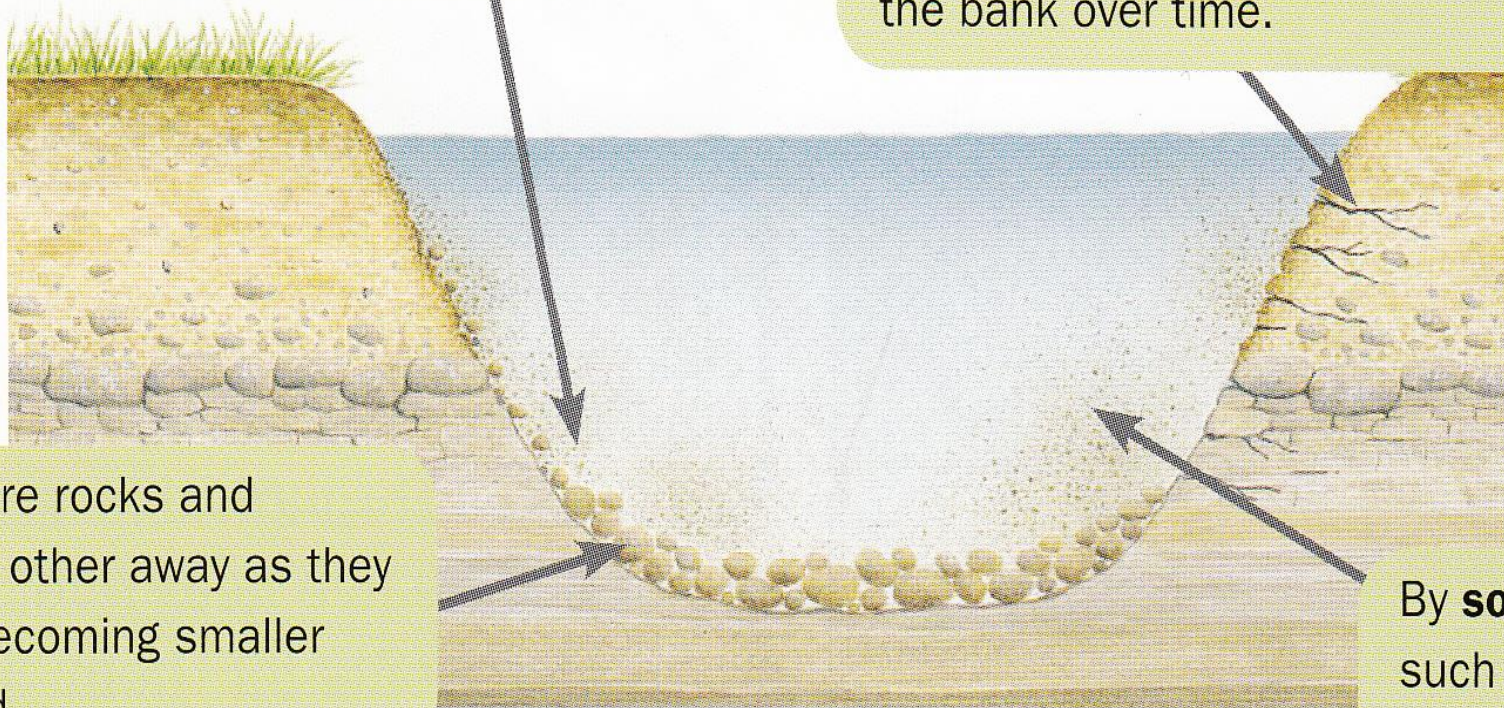


Fig. 5.1 How a river erodes its channel – there are four processes of river erosion

2. River transport

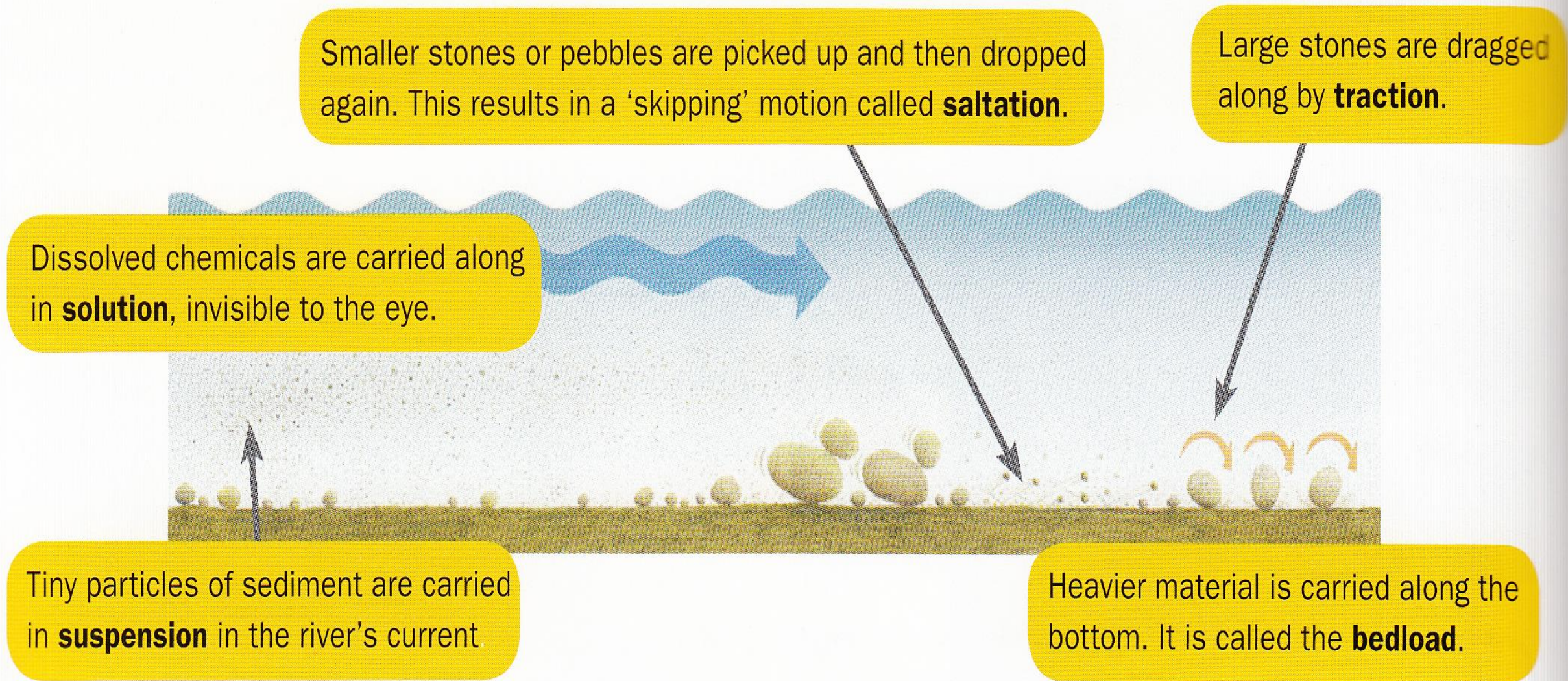


Fig. 5.2 How a river transports its load - there are four processes of river transport

3. River deposition

Deposition is the processes where material being transported

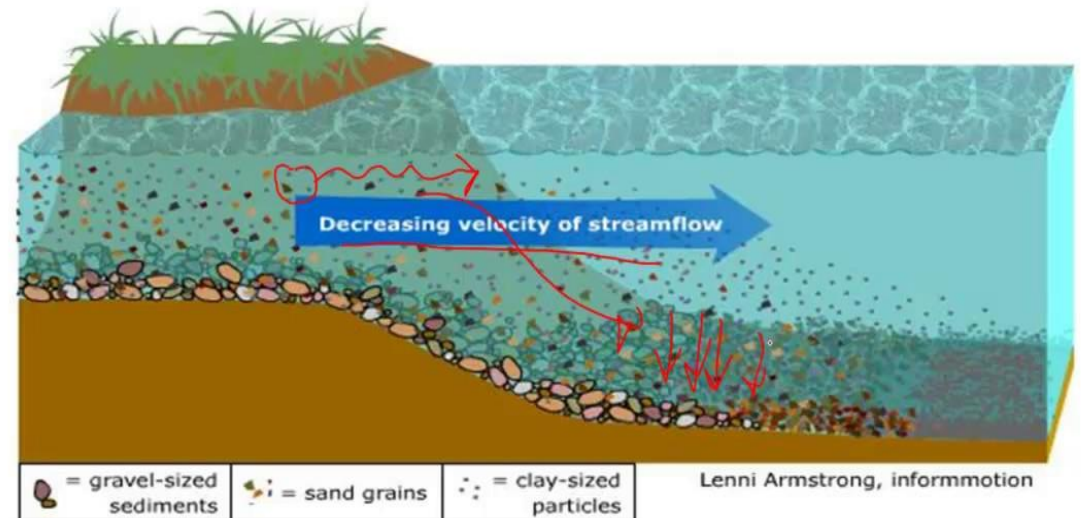
a **river** is **deposited**. **Deposition** occurs when a **river** loses energy. This can be when a **river** enters a shallow area (this could be when it floods and comes into contact with the flood plain) or towards its mouth where it meets another body of water.

When the river loses energy, it drops any of the material it has been carrying. This is known as **deposition**.

Factors leading to deposition:

1. shallow water
2. at the end of the river's journey, at the river's **mouth**
3. when the volume of the water decreases

How Deposition Works



4.Erosion of river valleys.

Vertical erosion

Босоо идэлт

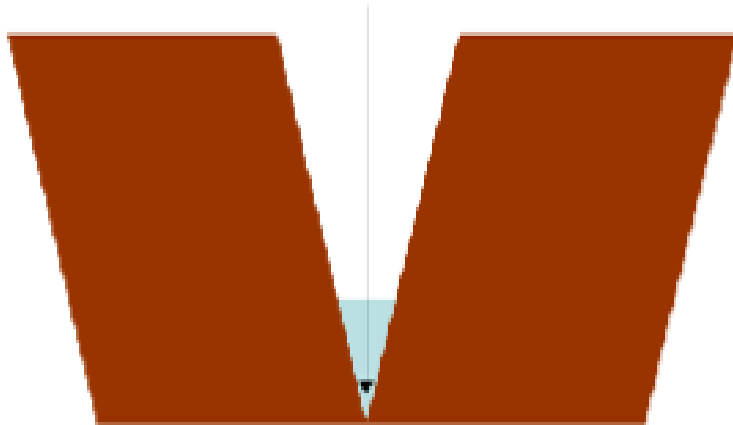


Lateral erosion

хажуугийн идэлт



Vertical Erosion



Vertical Erosion

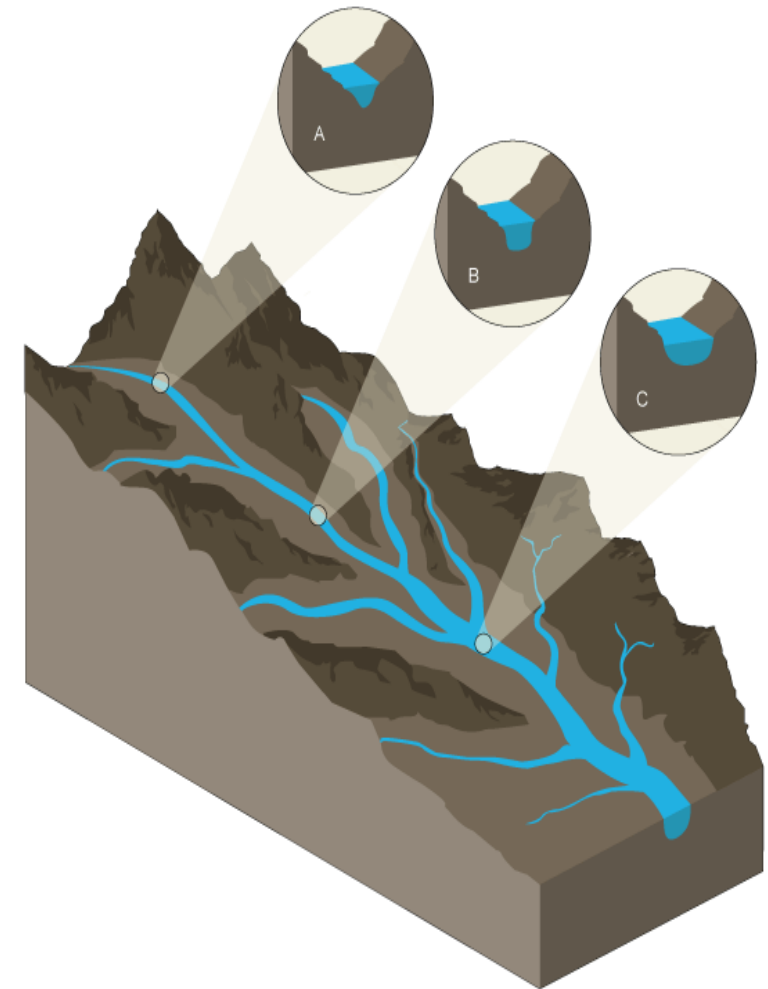
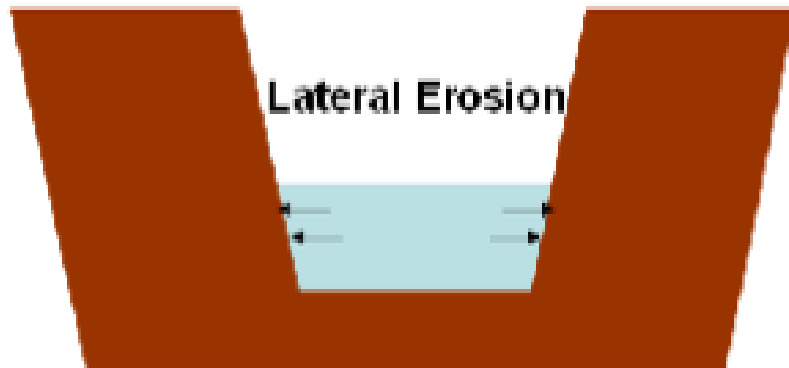
At the upper course of the river, the gradient is steep and the river flows quickly, resulting in vertical erosion.

This causes the channel to deepen to form a deep-sided V-shaped valley

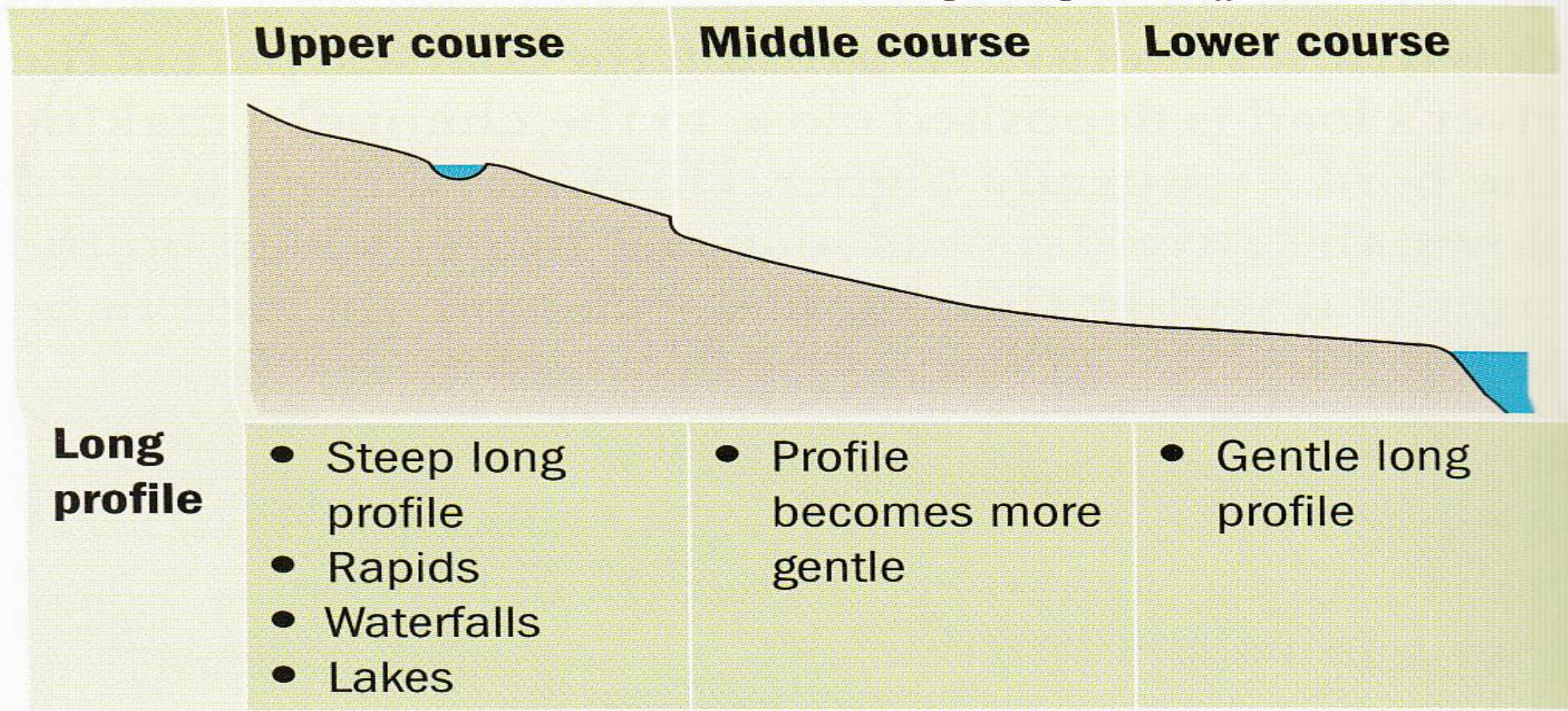
Lateral Erosion

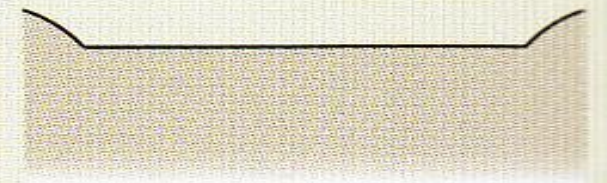
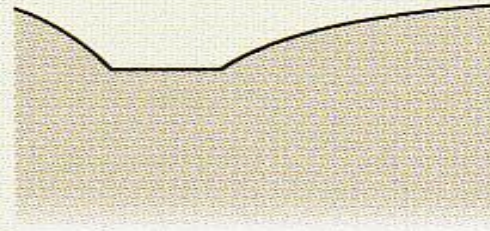
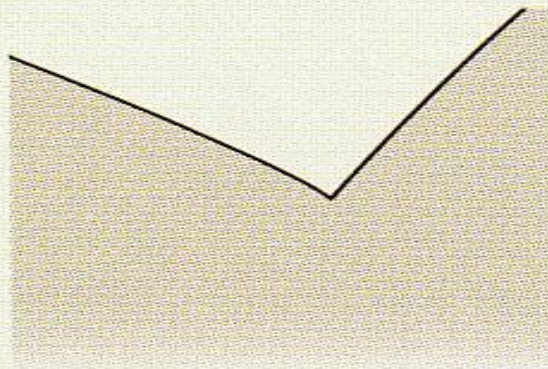
At the lower course of the river, the gradient is gentler and the volume of water is higher. The speed of the flow is slow and causes the river to erode horizontally.

Lateral erosion causes river channel to widen and form a broad and flat valley



The long profile of a river





Cross profile

- Cross profile steep and V-shaped
- Valley floor narrow or non-existent

- Cross profile more gentle
- Flood plain beginning to develop
- Cross profile is often asymmetrical, with river cliffs and slip-off slopes

- Cross profile is very gentle
- Wide flood plain