

Erosion and Running Water

- In this lesson you will:
 - 1.3.1 Describe the three stages in the life cycle of a river. (k)

Trivia...

What is the largest river in the world?

This is a popular question in trivia games. If someone ever ask you, "What is the largest river in the world?" You'll have to inquire, "Do you mean the most fresh water or the longest river? because the Nile in Africa is longer, but the Amazon Drainage Basis in South America has more water.

Drainage basin. (p. 26)



Brazil

- **Drainage Basin** = the area of land drained by a river and its tributaries.
- The **Amazon Basin** is the planet's largest body of fresh water with **1100 tributaries**, 17 of which are more than 1000 miles long. Many of the tributaries begin in Colombia and Peru.

Amazon River



Nile River Basin



- The Nile River in Africa is the longest river in the world.
- The green area on the map marks the Nile River basin.

Section of the Nile River



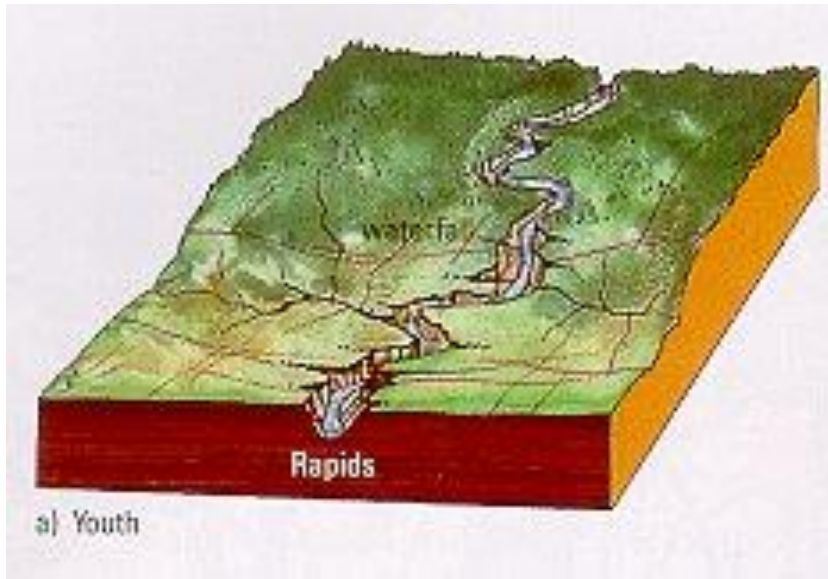
Nile River



Life Cycle of a River

- Rivers change over time and seem to go through three stages:
 - Youth
 - Maturity
 - Old Age

1. Youth Stage



- Usually found in **highland or mountain regions**
- **Steep slope** (high gradient)
- **Small volume** of water
- **Rapid flow** of water
- **Rapid erosion**
- **Narrow "V" shaped valley**
- **Water falls & rapids** common



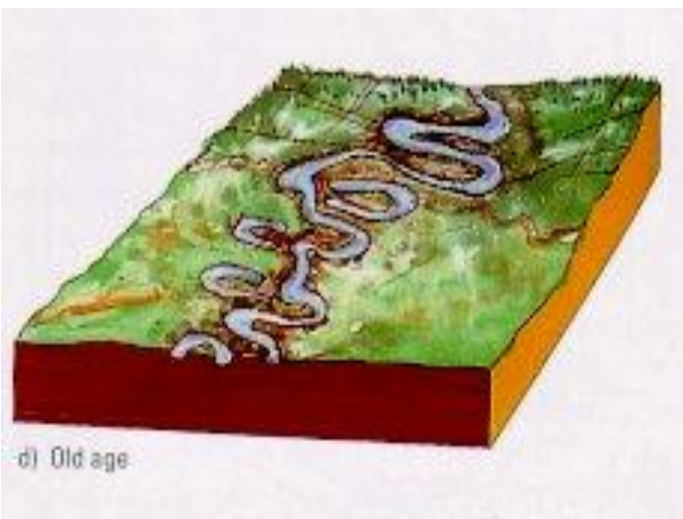
2. Mature Stage



- Most high relief eroded
- **Gentler slope**
- Many **well developed tributaries** (smaller rivers that feed the main one)
- **Broad flat** river valley
- **Well developed flood plain** (area that would be covered if the river flooded)
- **More lateral (width) erosion** than vertical
- **Meandering** (curving) results



3. Old Age Stage



- Almost no slope
- Very little relief
- Elaborate meandering
- Often swampy areas around river
- Very muddy due to slow speed
- Most susceptible to flooding because of large flood plain.
- Flooding in old age rivers can also lead to the formation of **oxbow lakes**. The flood causes the river to cut a new channel and cut off some of the meanders.



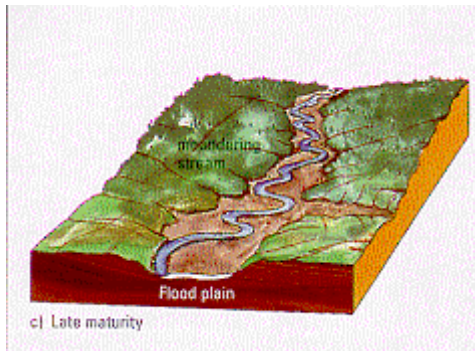


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Erosion and Running Water

- In this lesson you will:
 - 1.3.3 Examine evidence to determine the life cycle stage of a river. (a)

Examine evidence to determine the life cycle stage of a river. (P. 28 questions #5 & 6)



- Evidence to look for
 1. **Slope** of the river
 2. **Relief** of the banks
 3. Width of the **valley**
 4. Degree of **meandering**
 5. Size of **flood plain**
 6. **Rapids** or water falls

Erosion and Running Water

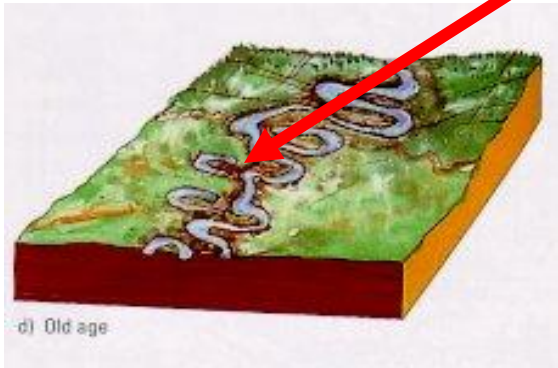
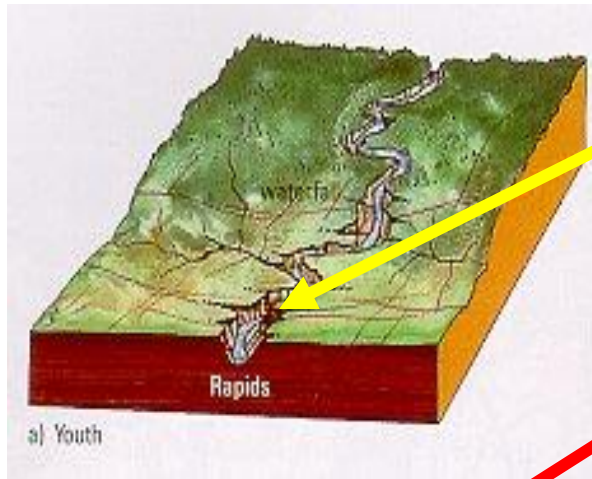
- In this lesson you will:
 - 1.3.2 State two ways in which water erosion occurs.
(k)

Two Directions of River Erosion

- **Vertical erosion** makes rivers deeper as is the case in young rivers
- **Lateral erosion** makes rivers wider leading to the meandering of mature rivers.

Describe two ways in which water erosion occurs. (P. 31)

- **Vertical erosion** makes rivers deeper as is the case in young rivers with faster-moving water.
- **Lateral erosion** makes rivers wider leading to the meandering of mature rivers.



What stage is this river in?



Young

- Water falls & rapids
- Steep slope

What stage is this river?



Early maturity

- Some meandering
- However still some relief
- Associated with mountain

What river Stage?



Youth

- Rapid water movement
- Rapids & water falls
- High relief on banks