



# GEOMORPHOLOGY



# RIVER REJUVENATION

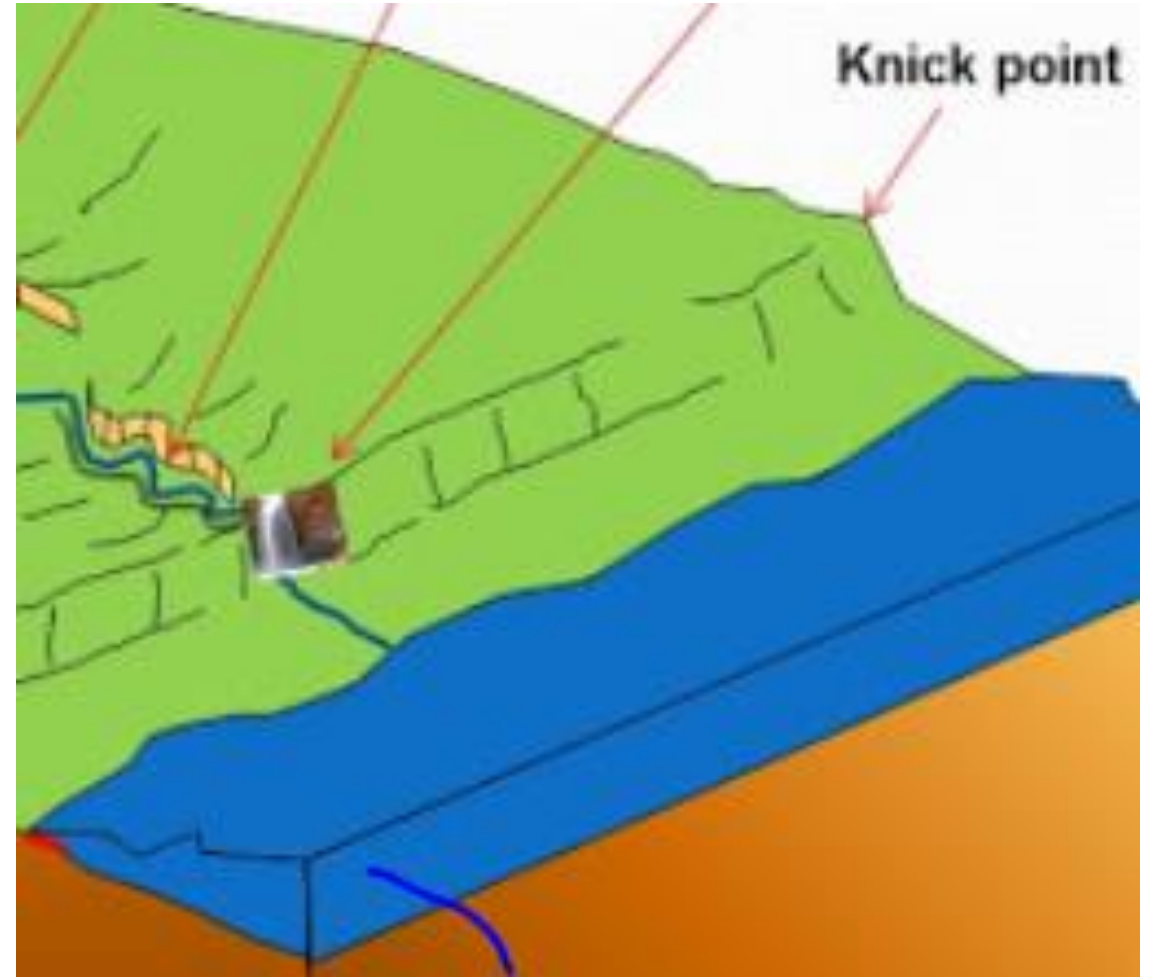


## River rejuvenation:

- Reasons for rejuvenation
- Features of rejuvenation
  - Knickpoint
  - Terraces
  - Valley in a valley
  - Incised/Entrenched meanders



Tweets by

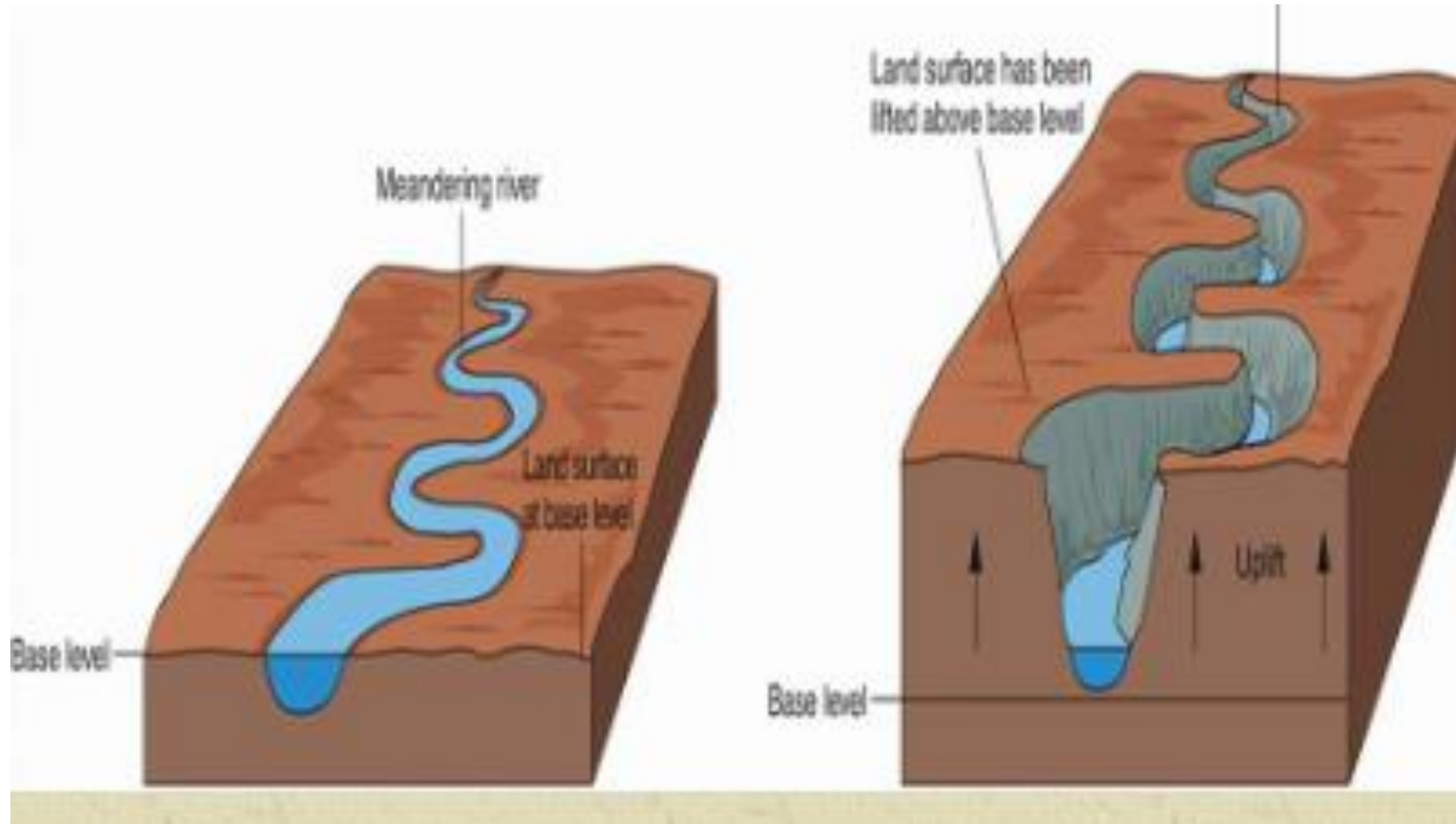


Cool Geography



# Rejuvenation

Occurs when the rivers speed and erosive power increases resulting in an increase in downward erosion (vertical erosion)





**Characteristics of a rejuvenated river include water that flows rapidly with sloping sides that create steep cuts on the valley floor.**



# Reasons for rejuvenation

When the sea level is lowered

When land is uplifted e.g. due to tectonic processes

Increase in volume of water e.g. due to rainfall


River capture



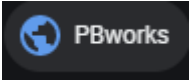
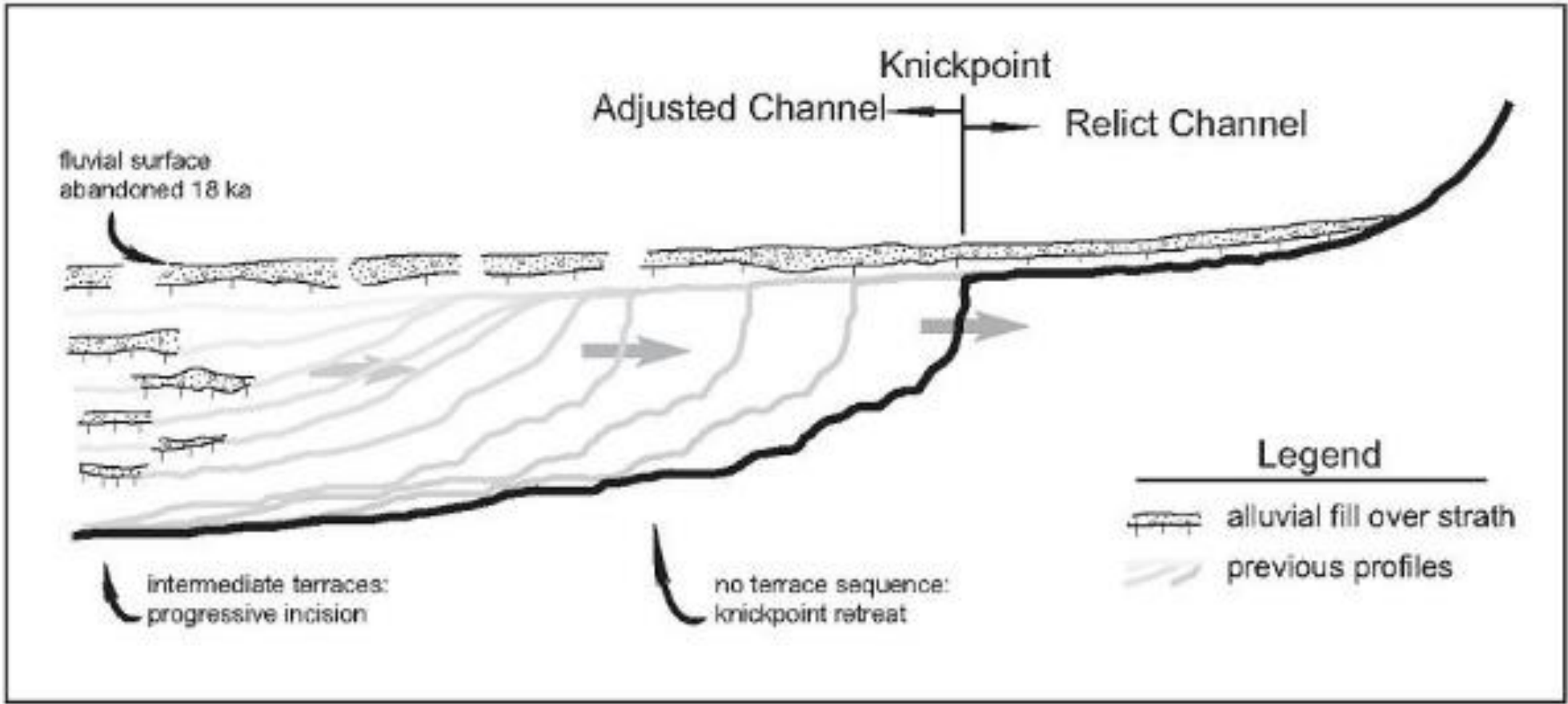
# FEATURES OF REJUVENATION

## Knickpoint



 WaterfallModel3D - WordPress.com



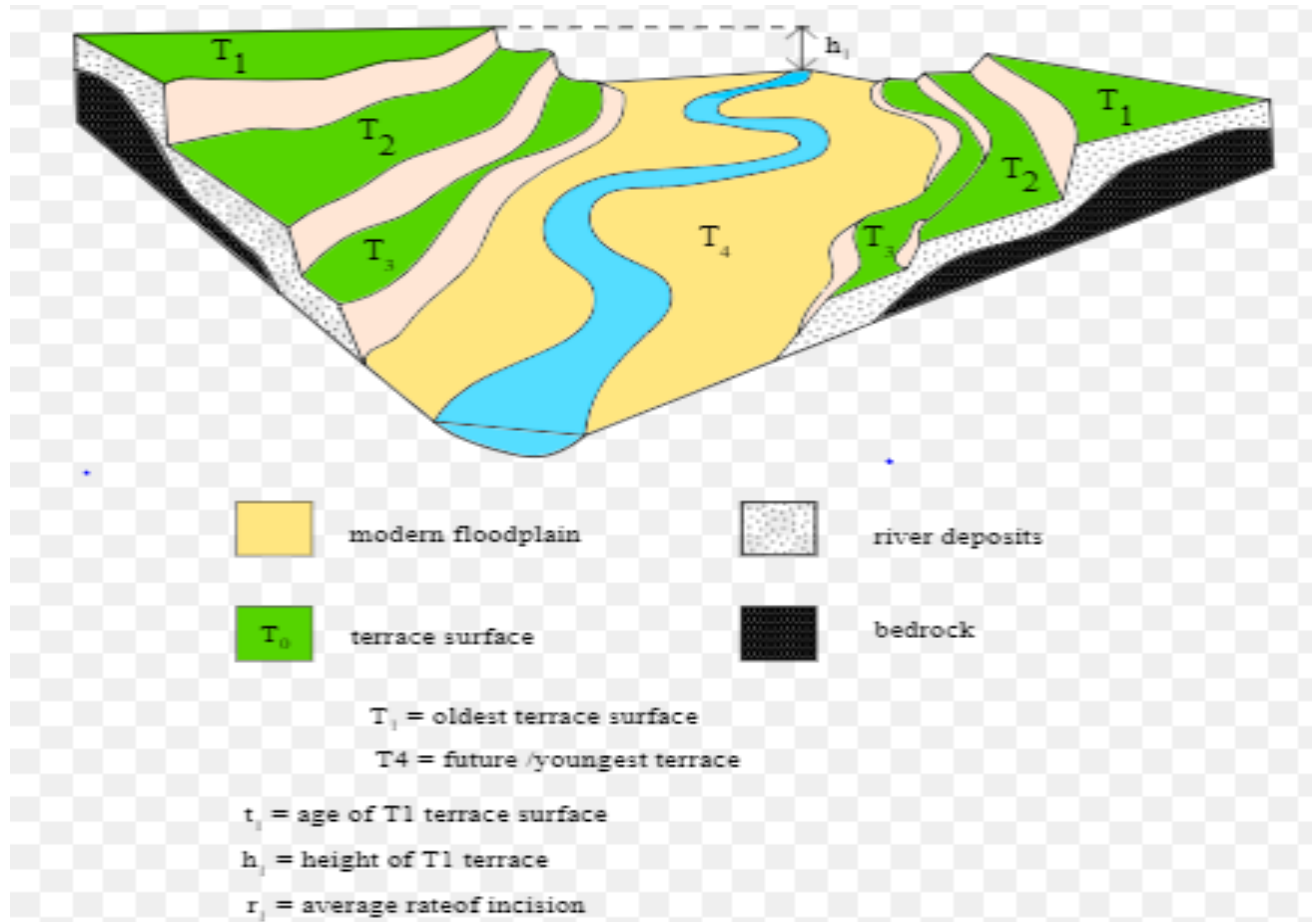


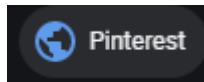


**Knickpoint** is part of a river or channel where there is a sharp change in channel slope (gradient). This can result from an increase in downward (vertical erosion) due to rejuvenation.



## River terraces





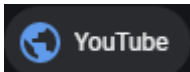
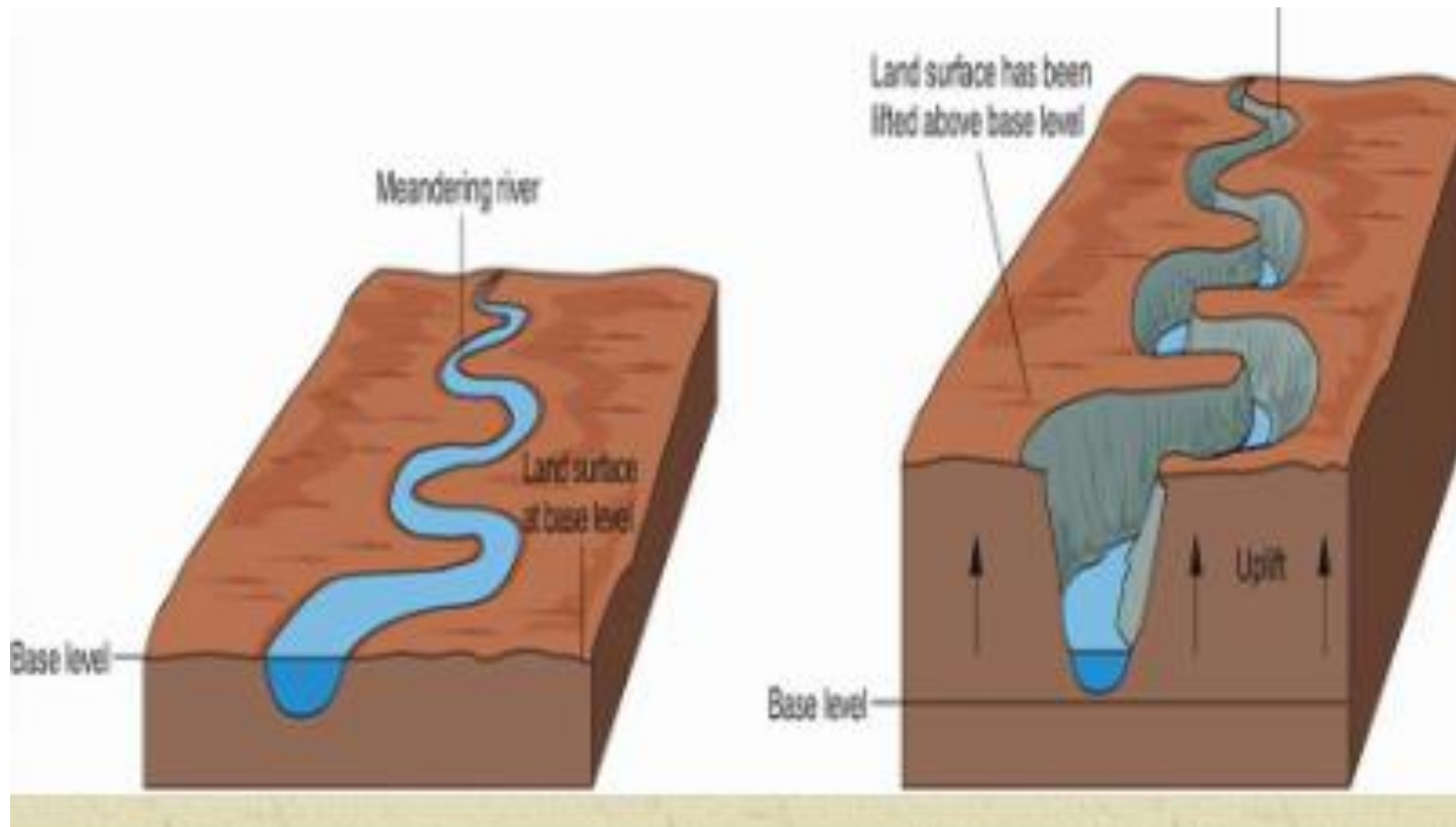


# Terrace

When a river flowing on the valley floor experiences rejuvenation it cuts into the valley floor. As this process continues it creates steps at different levels known as terraces. They are found on both sides of the river valley




## Incised/Entrenched meander





## Incised/Entrenched meander



 A level Geography



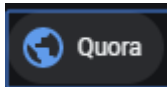
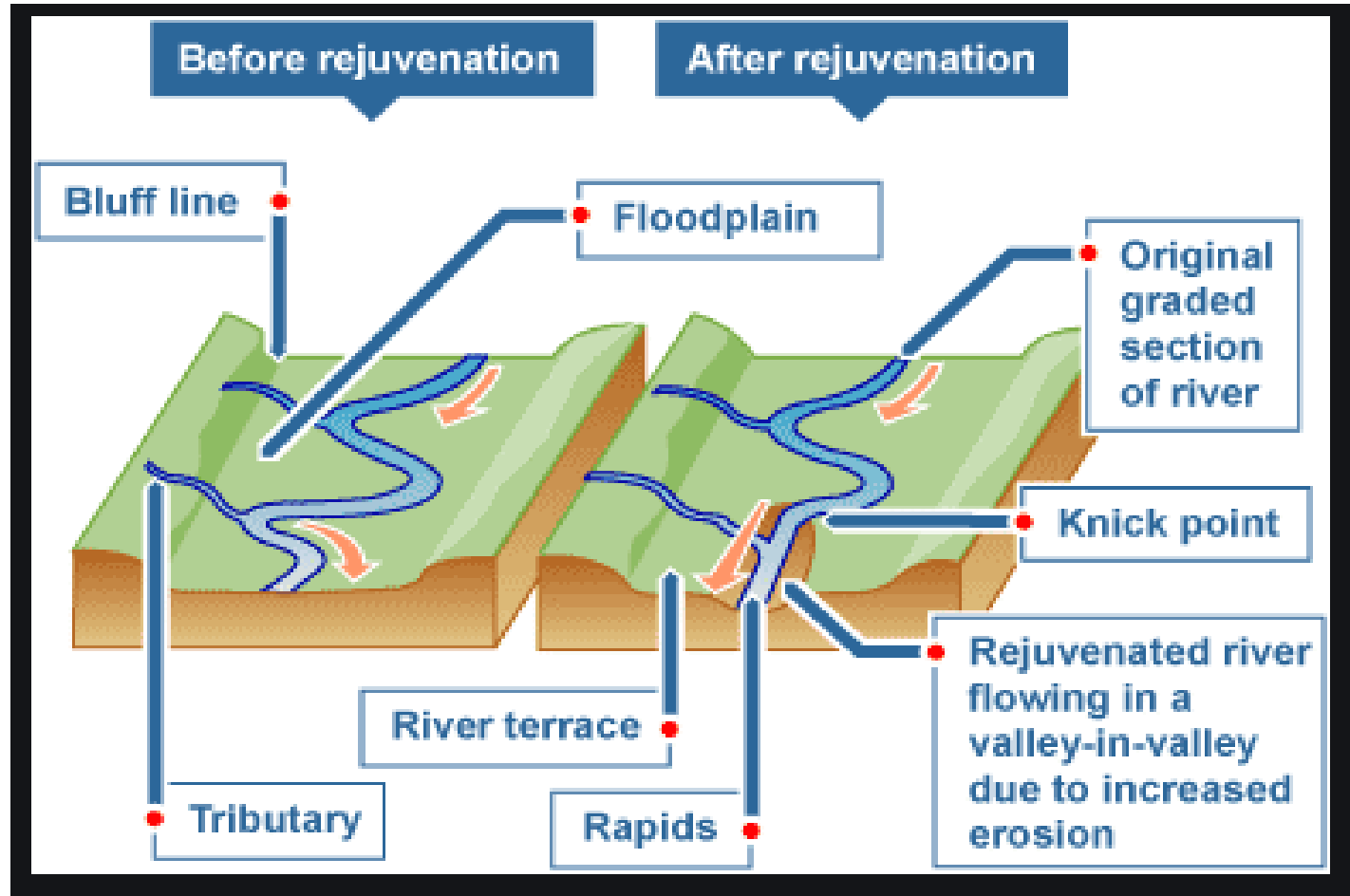
## **Incised/Entrenched meander**

It occurs when a meandering river experiences rejuvenation resulting in more downward (vertical) erosion. This causes in deep incisions (cuts) resulting in incised meanders.



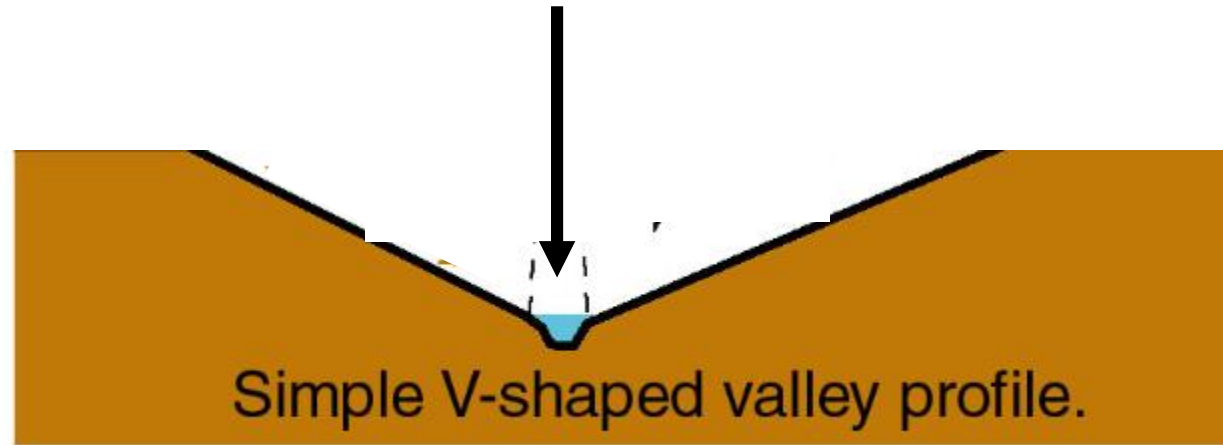


## Valley in a valley

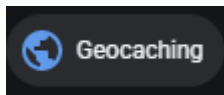




. Valley in a valley



Adapted from





## **Valley in a valley**

The newly formed terrace begins to cut back and form a valley. This valley widens through lateral erosion. The process continues gradually and if rejuvenation occurs repeatedly new terraces form as well due to increase in vertical erosion. This creates a smaller valley. .



# Identifying rejuvenation.

Waterfalls

Ox-bow lakes

River capture

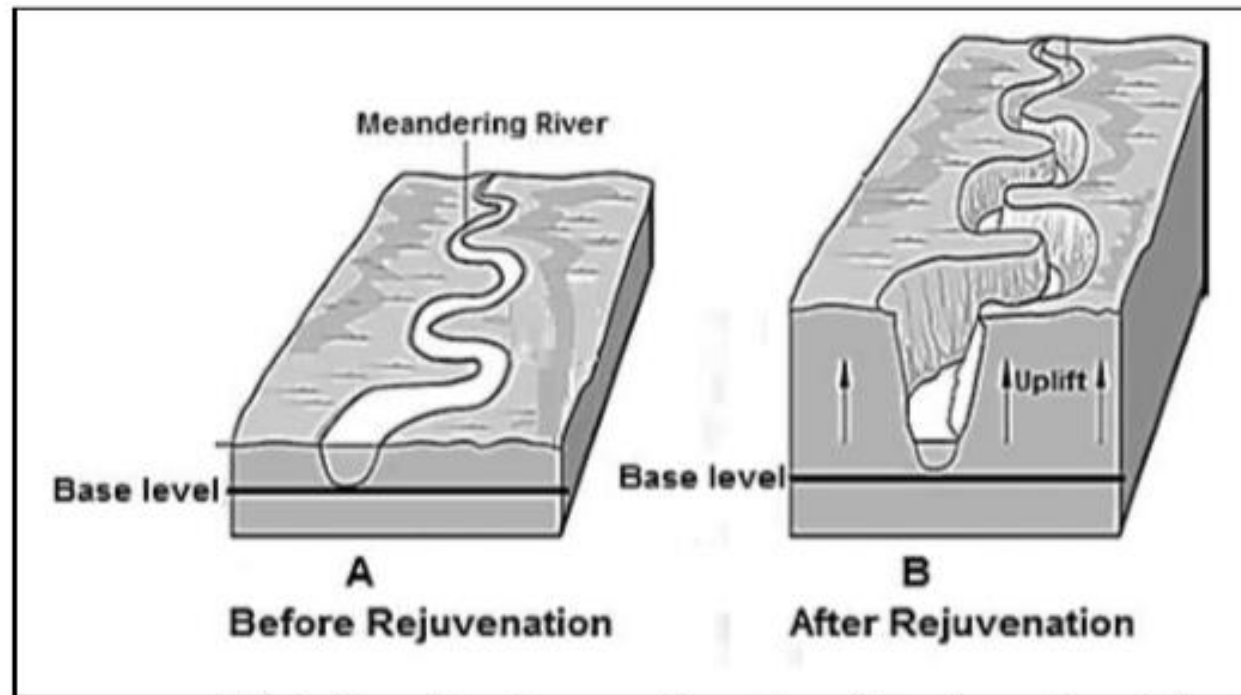
Incised Meanders

River terraces



DBE PAST PAPER

FIGURE 1.6: RIVER REJUVENATION



[Adapted from <https://www.google.com/search?q=rejuvenation+of+rivers;>]



1.6 FIGURE 1.6 shows river rejuvenation.

1.6.1 What type of erosion is associated with river rejuvenation? (1 x 1) (1)

1.6.1 Vertical (Accept downward) (1) (1 x 1) (1)



1.6.2 What evidence indicates that river rejuvenation has taken place?  
(1 x 1) (1)

1.6.2 Upliftment (1)  
Entrenched/Incised meanders (1)  
**[ANY ONE]** (1 x 1) (1)



1.6.3 Identify the force of upliftment associated with rejuvenation. (1 x 1) (1)

1.6.3 Isostatic uplift/Tectonic forces (1) (1 x 1) (1)





1.6.4 Why is rejuvenated land not suitable for human activity? (2 x 2) (4)

- 1.6.4 Steeper slopes make it unsuitable for human living (2)
- Deeper gorges makes farming activity impossible (2)
- Building infrastructure will be more expensive (2)
- More specialised farming machinery will be needed (2)
- Water will not be easily accessible for human usage (2)
- Narrow floodplains reduce fertile farming land (2)

**[ANY TWO]**

(2 x 2) (4)



1.6.5 In a paragraph of approximately EIGHT lines, explain how rejuvenation could change the fluvial features downstream of the point of rejuvenation. (4 x 2) (8)

1.6.5 A knick point will develop between the old and the new point of erosion (2)  
Waterfalls develop at the knick point where there is a sharp change in gradient (2)  
Vertical (accept downward) erosion results in (paired) terraces (2)  
Valleys within valleys develop as a result of a new valley floor (2)  
Meanders deeply erode to form entrenched or incised meanders (2)  
Floodplains are narrowed (2)  
**[ALSO ACCEPT THE FOLLOWING]**  
Higher velocity may remove some braided streams (2)  
Higher velocity may break through the levees (2)  
Higher velocity may wash the existing deltas away (2)  
Higher velocity may result in more oxbow-lakes (2)  
**[ANY FOUR]** (4 x 2) (8)