

Erosion processes

River Incision

- Vertical Downcutting
- Lateral Erosion
- Headward Erosion



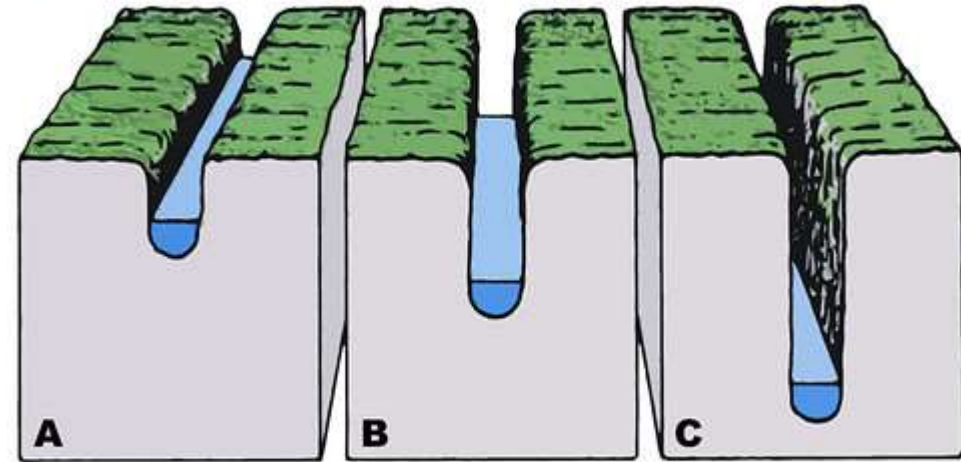
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➤ Vertical Downcutting

Vertical downcutting is a characteristic feature of fast-flowing streams with a large coarse bed load.

DOWNCUTTING



Downcutting, mass wasting and sheet erosion shape valleys and canyons. Downcutting can create slot canyons in resistant rock, particularly where downcutting is rapid. Rivers erode vertically and it is mainly mass wasting and sheet erosion which lowers the land on either side of the stream to form a wide V-shaped valley.

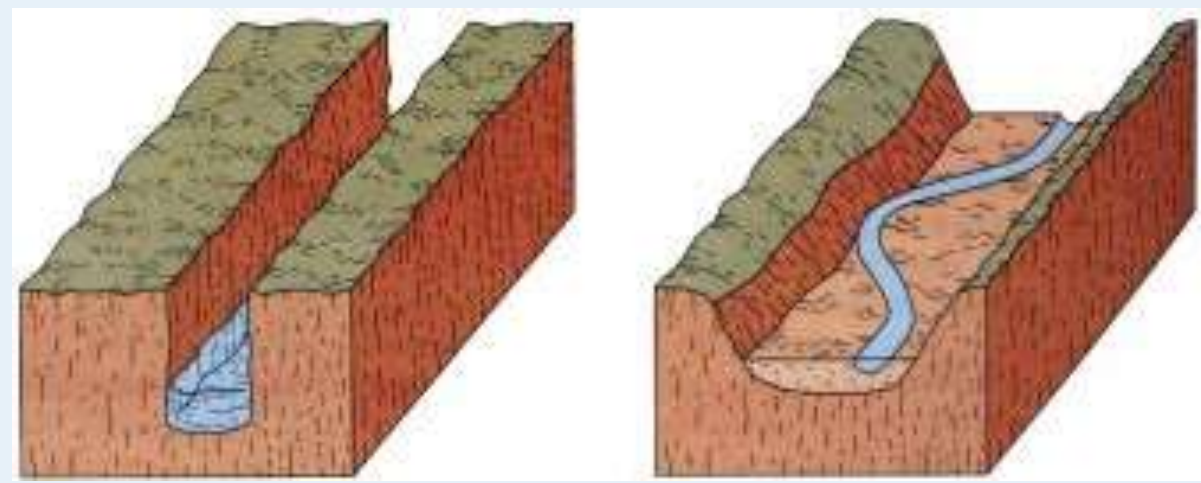


<https://www.flickrriver.com/photos/tags/downcutting/interesting/>

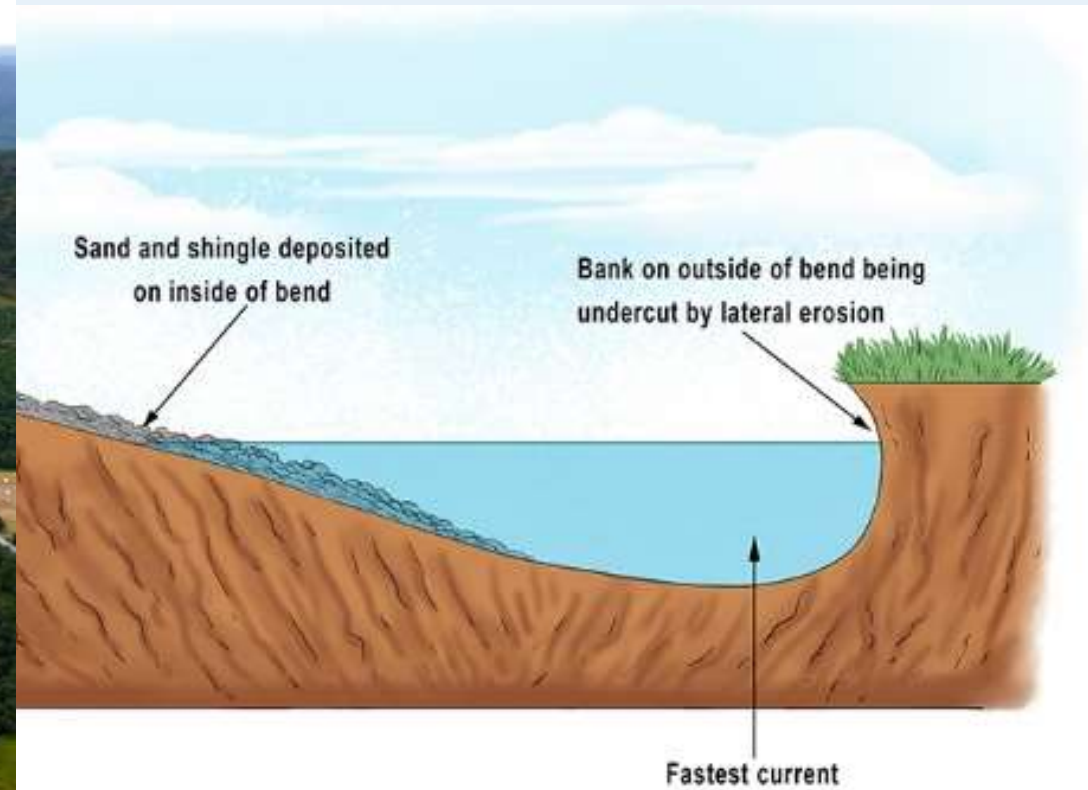
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➤ Lateral Erosion



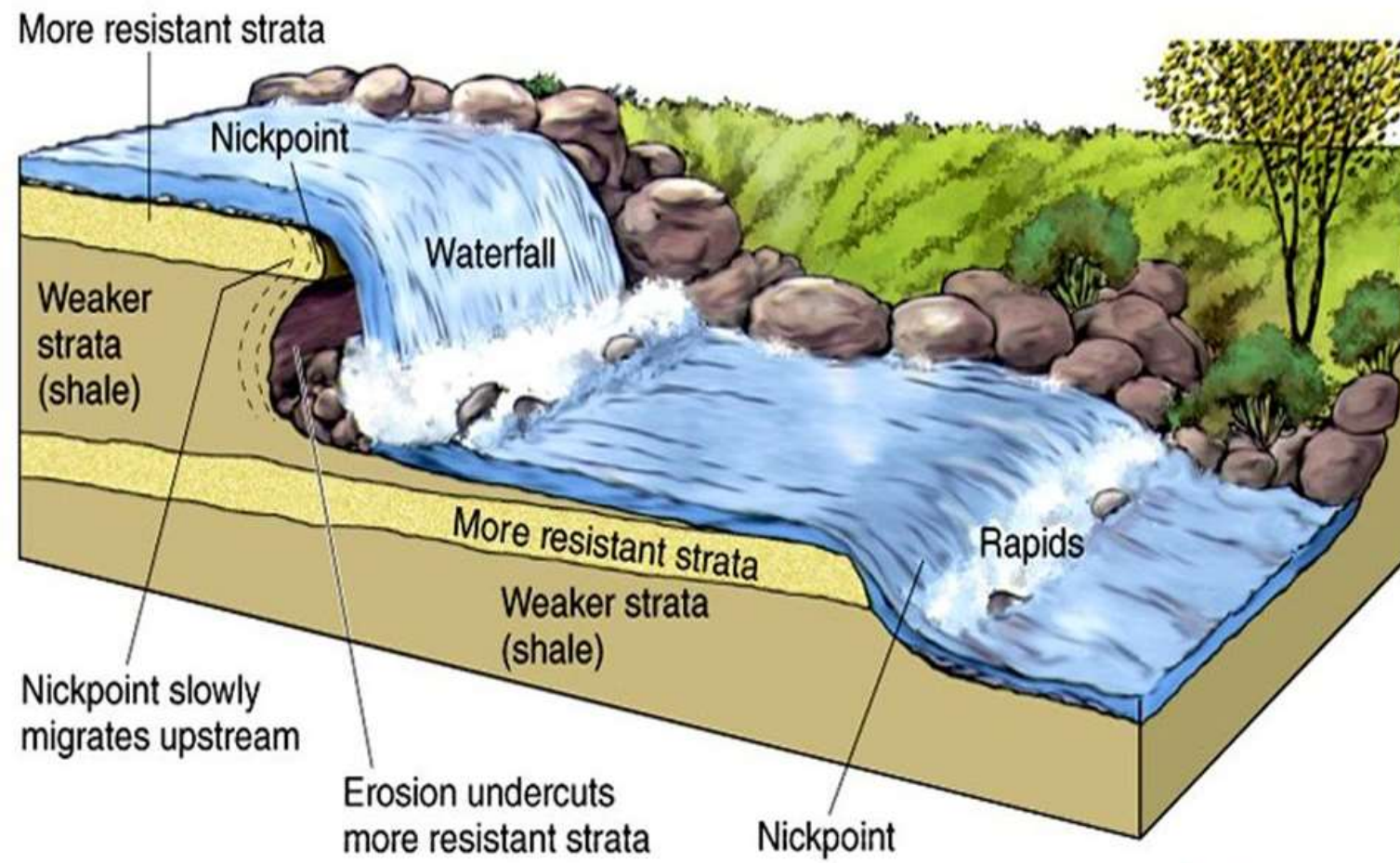
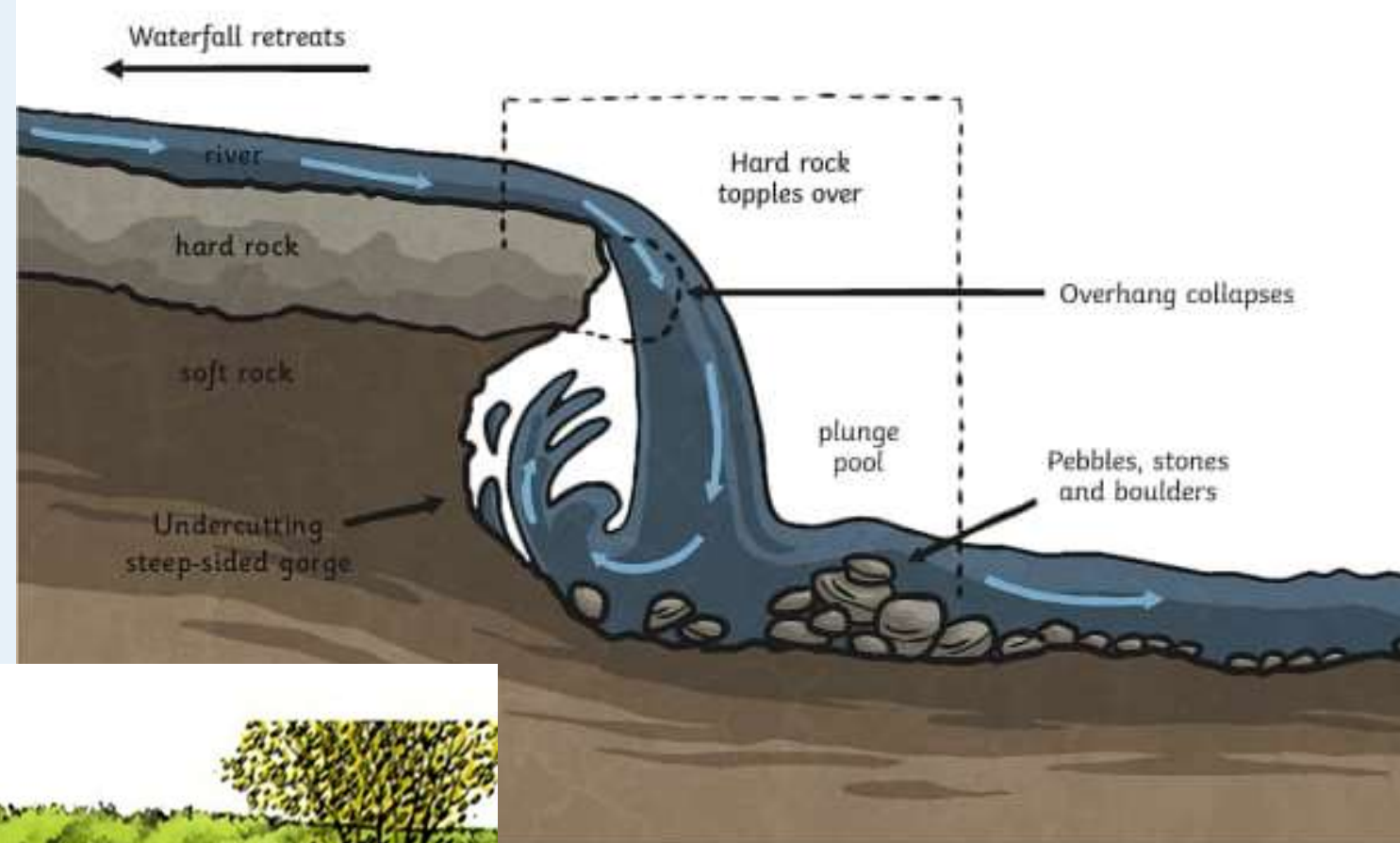
<https://blank005.tripod.com/geology/runningwater.html>



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➤ Headward Erosion



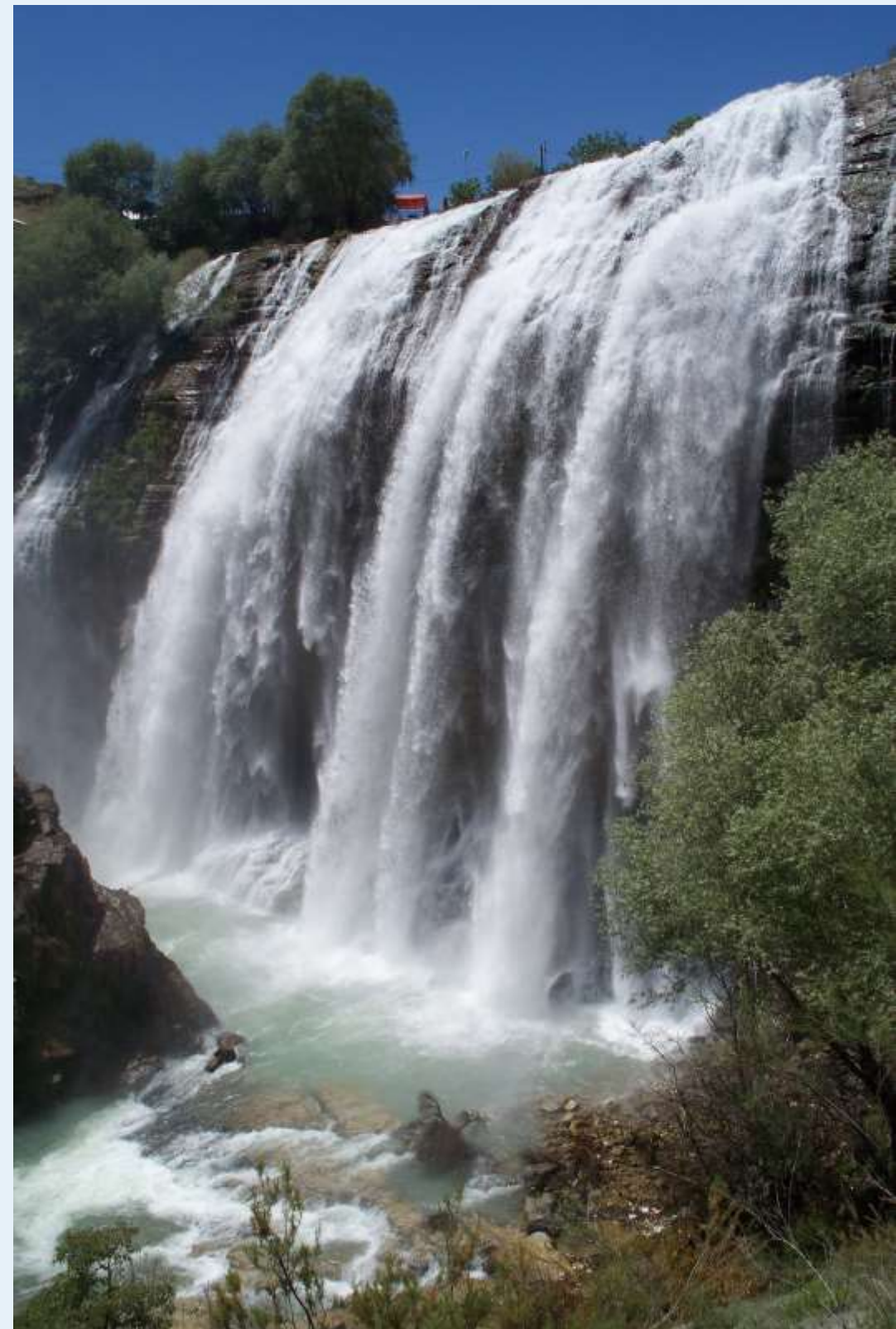
<https://www.twinkl.com.tr/homework-help/geography-homework-help/rivers-facts-for-kids/what-are-the-main-features-of-a-river-landscape>

<https://slideplayer.com/slide/685320/>

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➤ Headward Erosion

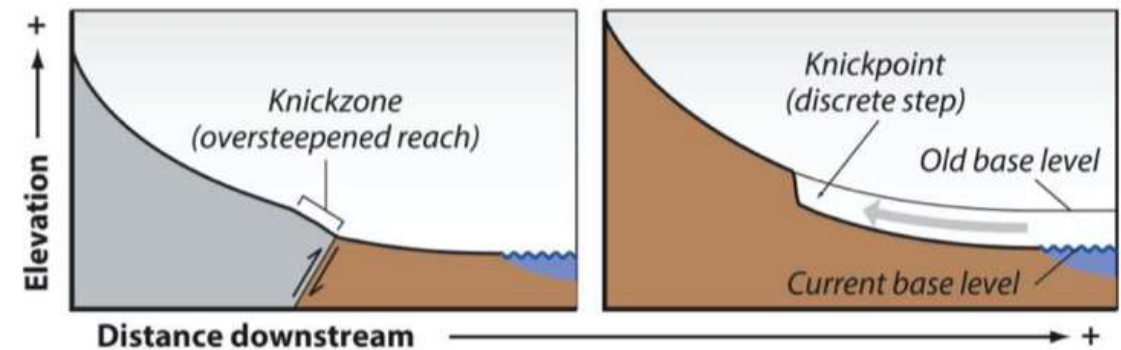
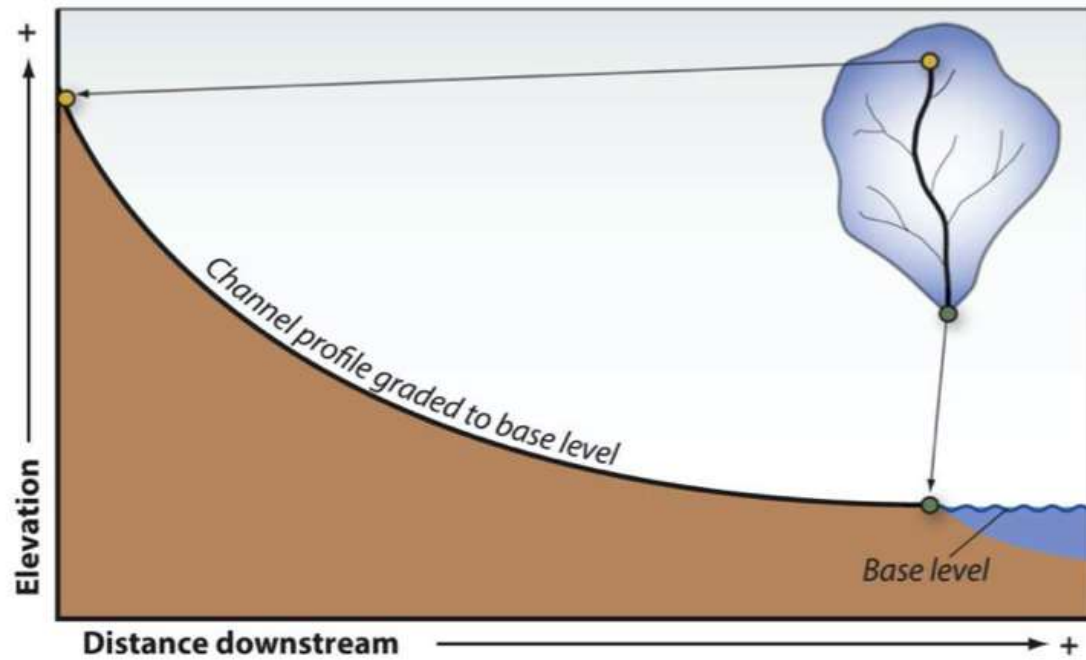


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➤ Headward Erosion

River long profiles, baselevel and knickpoints



Examining the longitudinal profile of stream channels can be geomorphically informative. Channels with gradients that smoothly decrease downstream are considered **graded**. Channels with abrupt changes in steepness are thought of as being out of equilibrium and responding to changes in external conditions such as **base-level** change. However, channels can also establish a dynamic equilibrium where steeper reaches may reflect more resistant bed material.

Knickzones are areas where the bed of the river is steeper than up or downstream—a cascade or area of fast water. Such oversteepened reaches can reflect faulting or the presence of strong rocks that are resistant to erosion.

Knickpoints are discrete jumps in elevation along a river's bed, or waterfalls. Such jumps commonly retreat and grow less steep over time. Knickpoints can result from base level change, faulting, resistant rocks, or the lingering effects of valley glaciation.

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