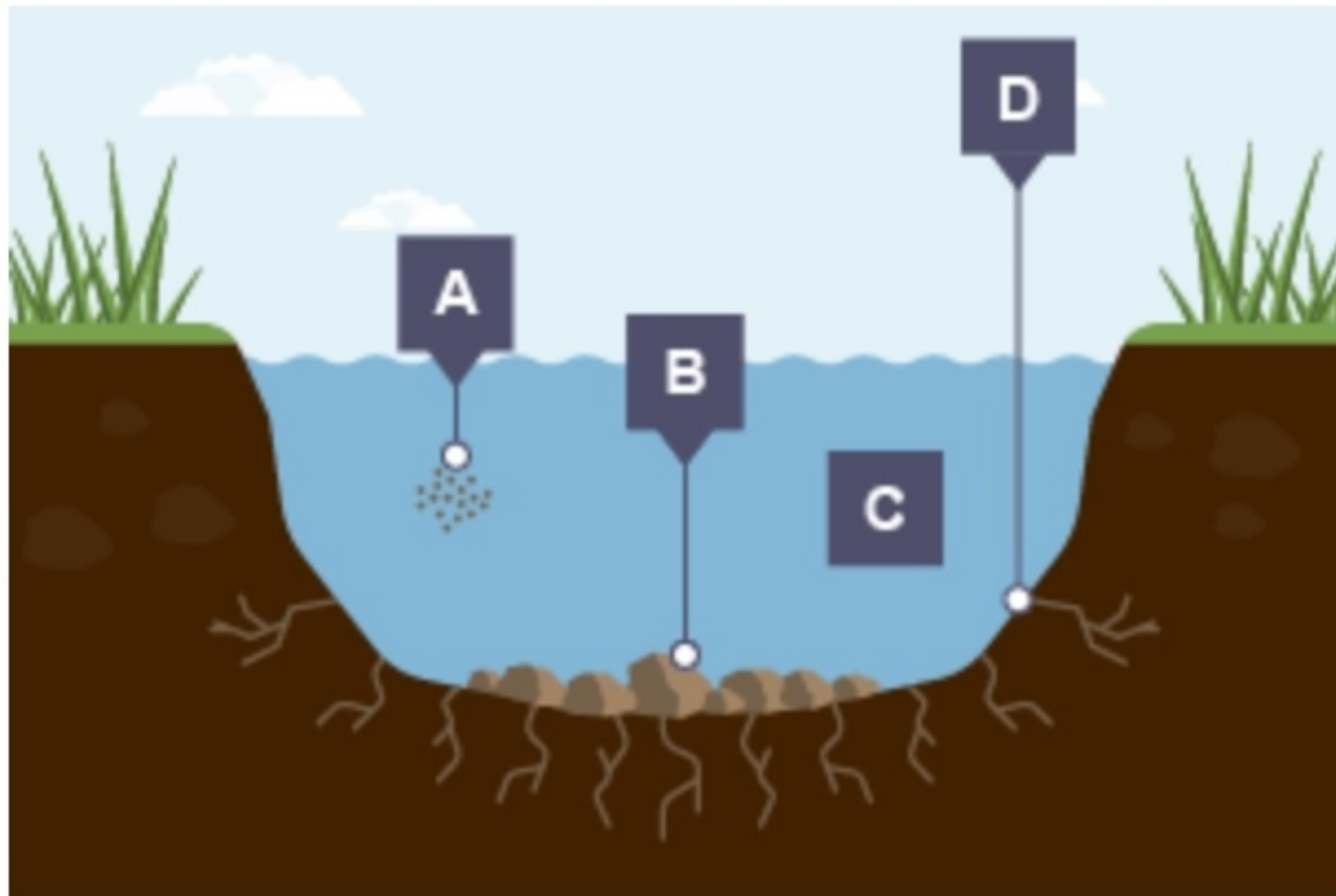


Types of erosion

Erosion is the process that wears away the river bed and banks. Erosion also breaks up the rocks that are carried by the river.

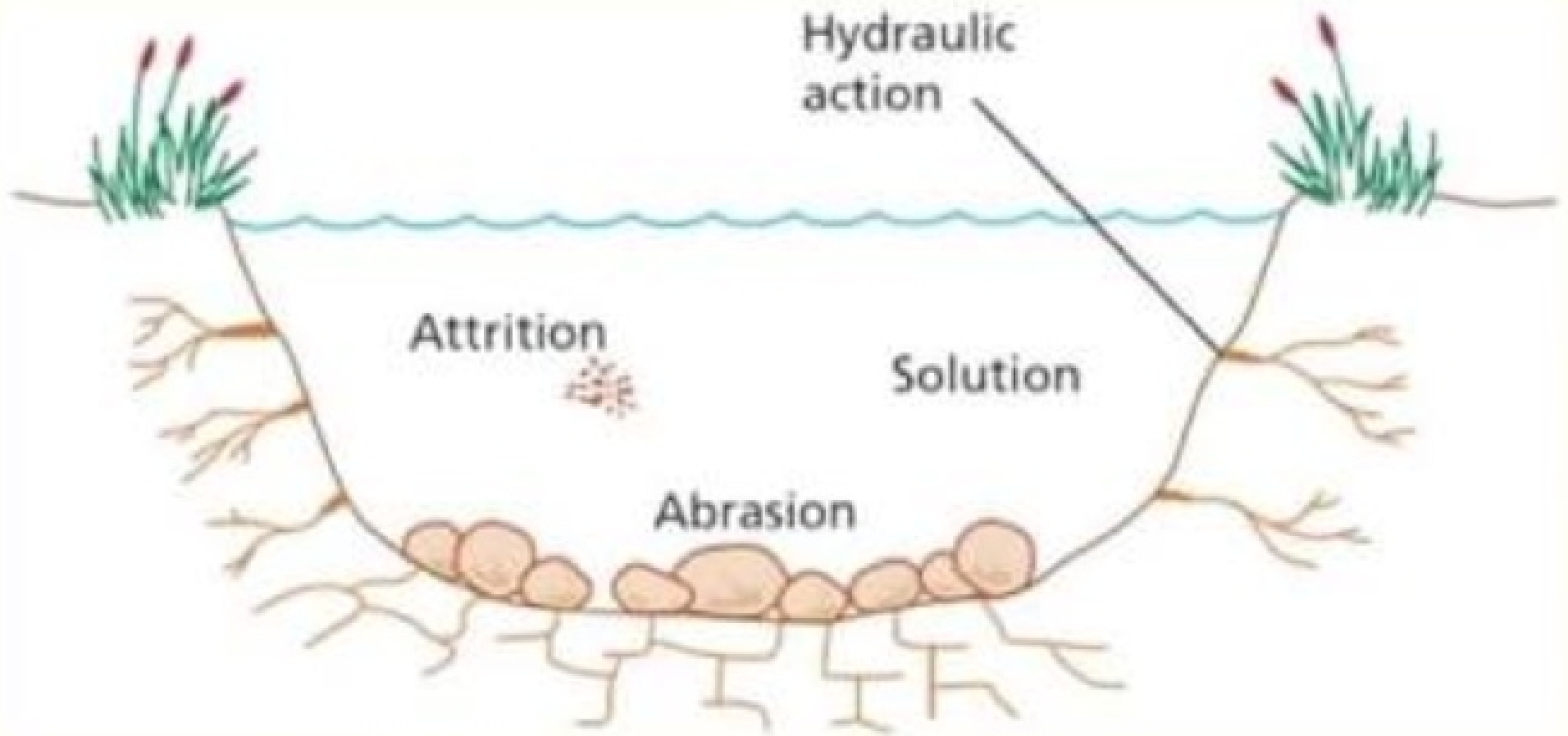
There are four types of erosion:

- **Hydraulic action** - This is the sheer power of the water as it smashes against the river banks. Air becomes trapped in the cracks of the river bank and bed, and causes the rock to break apart.
- **Abrasion** - When pebbles grind along the river bank and bed in a sand-papering effect.
- **Attrition** - When rocks that the river is carrying knock against each other. They break apart to become smaller and more rounded.
- **Solution** - When the water dissolves certain types of rocks, eg limestone.



- A** Attrition
- B** Abrasion
- C** Solution
- D** Hydraulic action

River erosion processes



Definitions



- **Hydraulic Action**

This process involves the force of water against the bed and banks.

- **Abrasion/Corrasion**

This is the process by which the bed and banks are worn down by the river's load. The river throws these particles against the bed and banks, sometimes at high velocity.

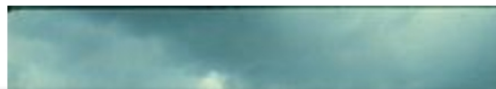
- **Attrition**

Material (the load) carried by the river bump into each other and so are smoothed and broken down into smaller particles.

- **Corrosion**

This is the chemical action of river water. The acids in the water slowly dissolve the bed and the banks.

In **earth science**, **erosion** is the action of surface processes (such as **water flow** or **wind**) that removes **soil**, **rock**, or dissolved material from one location on the **Earth's crust**, and then **transports** it to another location^[1] (not to be confused with **weathering** which involves no movement). This natural process is caused by the dynamic activity of erosive agents, that is, water, ice (glaciers), snow, air (wind), plants, animals, and humans. In accordance with these agents, erosion is sometimes divided into water erosion, glacial erosion, snow erosion, wind (aeolic) erosion, zoogenic erosion, and anthropogenic erosion.^[2] The particulate breakdown of rock or soil into **clastic sediment** is referred to as *physical or mechanical* erosion; this contrasts with *chemical* erosion, where soil or rock material is removed from an area by its dissolving into a solvent (typically water), followed by the flow away of that solution. Eroded **sediment** or solutes may be transported just a few millimetres, or for thousands of kilometres.



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Natural rates of erosion are controlled by the action of geological weathering [geomorphic](#) drivers, such as [rainfall](#);^[3] bedrock wear in [rivers](#); coastal erosion by the sea and [waves](#); [glacial](#) plucking, [abrasion](#), and scour; areal flooding; [wind](#) abrasion; [groundwater](#) processes; and [mass movement](#) processes in steep landscapes like [landslides](#) and [debris flows](#). The rates at which such processes act control how fast a surface is eroded. Typically, physical erosion proceeds fastest on steeply sloping surfaces, and rates may also be sensitive to some climatically-controlled properties including amounts of water supplied (e.g., by rain), storminess, wind speed, wave [fetch](#), or atmospheric temperature (especially for some ice-related processes). [Feedbacks](#) are also possible between rates of erosion and the amount of eroded material that is already carried by, for example, a river or glacier.^{[4][5]}

Processes of erosion that produce sediment or solutes from a place contrast with those of [deposition](#), which control the arrival and emplacement of material at a new location.^[1]

While erosion is a natural process, human activities have increased by 10-40 times the rate at which erosion is occurring globally.^[6] At well-known agriculture sites such as the Appalachian Mountains, intensive farming practices have caused erosion up to 100x the speed of the natural rate of erosion in the region.^[7] Excessive (or accelerated) erosion causes both "on-site" and "off-site" problems. On-site impacts include decreases in [agricultural productivity](#) and (on [natural landscapes](#)) [ecological collapse](#), both because of loss of the nutrient-rich upper [soil layers](#). In some cases, the eventual end result is [desertification](#). Off-site effects include [sedimentation of waterways](#) and [eutrophication](#) of water bodies, as well as sediment-related damage to roads and houses. Water and wind erosion are the two primary causes of [land degradation](#); combined, they are responsible for about 84% of the global extent of degraded land, making excessive erosion one of the most significant [environmental problems](#) worldwide.^{[8]:2[9]:1}

Intensive agriculture, deforestation, roads, anthropogenic climate change and urban sprawl are amongst the most significant human activities in regard to their effect on stimulating erosion.^[10] However, there are many prevention and remediation practices that can curtail or limit erosion of vulnerable soils.



A natural arch produced by the wind erosion of differentially weathered rock in Jebel Kharaz, Jordan



A wave-like sea cliff produced by coastal erosion, in Jinshitan Coastal