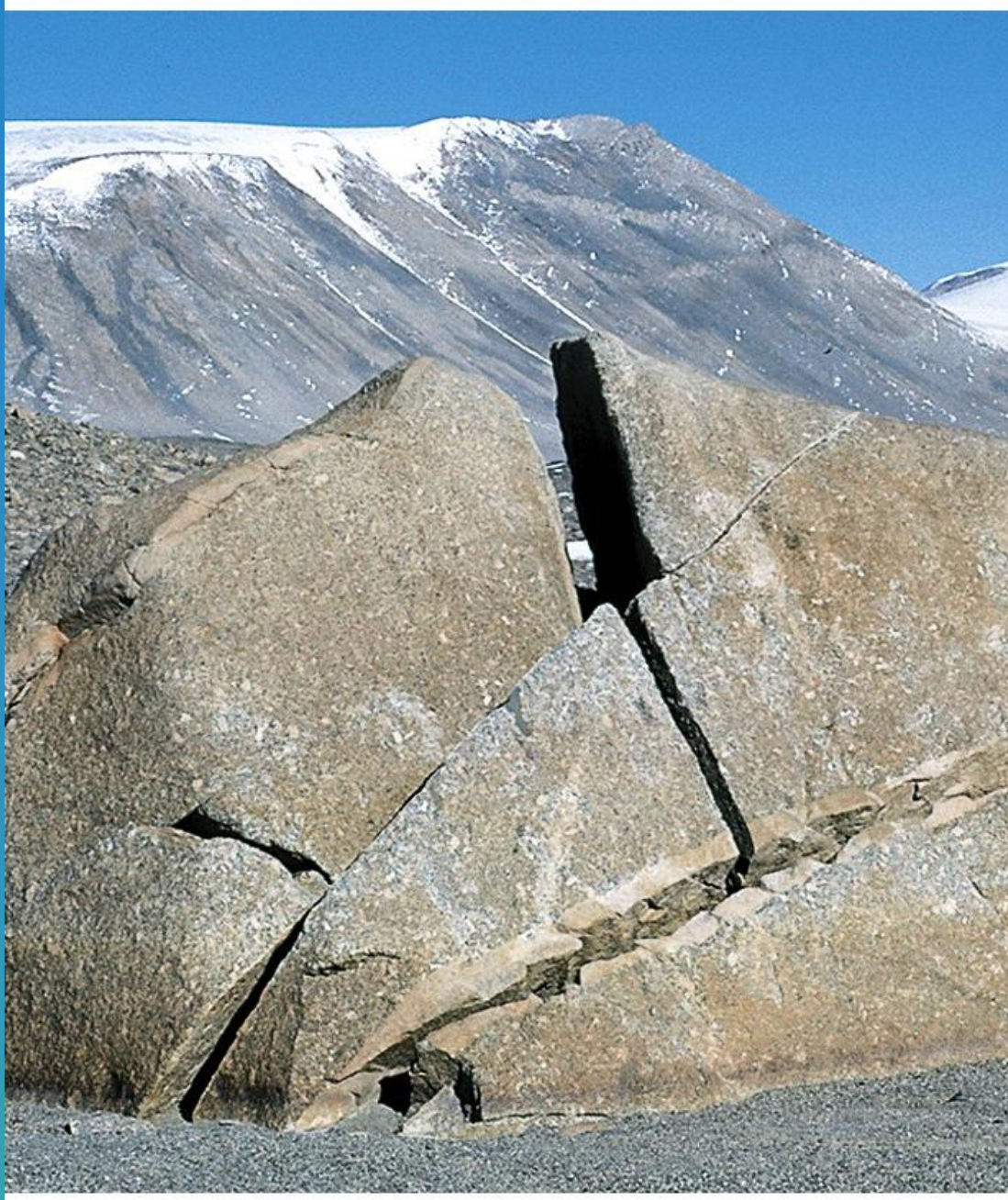


WEATHERING EROSION AND DEPOSITION





Weathering

- The process that breaks down rock into smaller pieces (sediment).

WEATHERING

Parent material
(rock)



Biological
weathering

(tree roots and
lichens)



Chemical
weathering

(water, acids,
and gases)



Physical
weathering

(wind, rain,
thermal expansion
and contraction,
water freezing)



Particles of parent material

Erosion

- Removal of sediment by wind, water, ice or gravity



Weathering and Erosion

Weathering is when a rock is changed or broken but stays where it is.

Erosion is when the pieces of weathered rock are moved away.

Together they work to wear down the material on Earth's surface.

WEATHERING VS. EROSION



Weathering	Erosion
happens at site of rock or mineral	happens away from original location
does not involve movement of materials	involves movement of materials
breaks down rocks and minerals	moves and deposits rocks and minerals

Weathering causes the rocks to break down



Erosion (water) and transport moves the sediments downhill to another place

eschooltoday.com



Weathering

large rocks in a river being broken down

sand-sized particles of a rock breaking off their original source

fragments breaking off a large deposit of rock salt

Erosion

pebbles rolling along a river bed

grains of sand suspended in and moving with wind

salt suspended in ocean water and moving with currents

WEATHERING VS EROSION

Deposition

The process in which sediments are laid down in a new location.

Caused by water, wind, ice, and gravity.

Deposition changes the shape of the land



Two Types of Weathering (Worksheet)



Mechanical (Physical)



Chemical

Mechanical Weathering

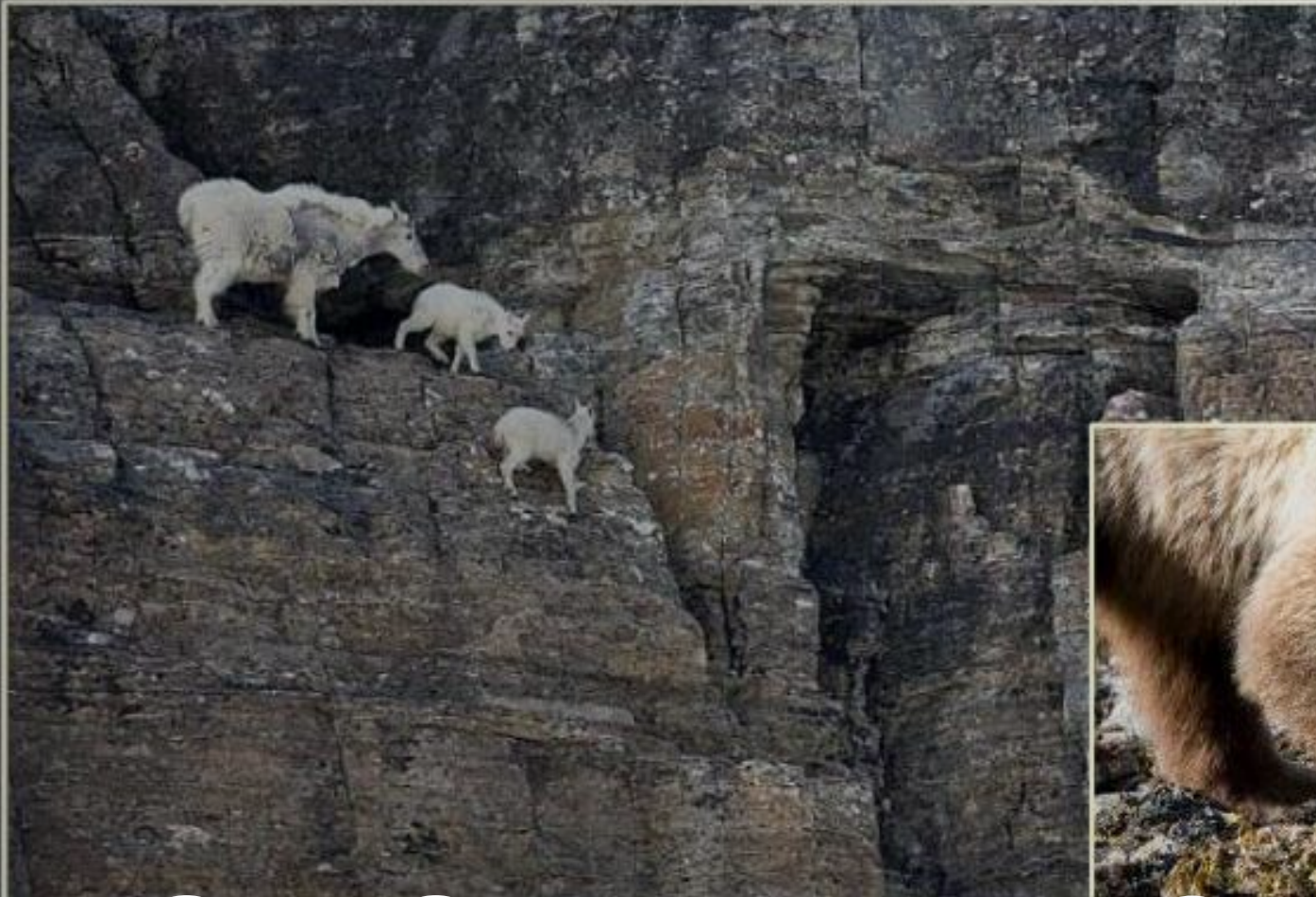
- Rock is physically broken down into smaller pieces by processes such as
 - Ice Wedging (freeze-thaw)
 - Release of pressure (exfoliation)
 - Plant Growth
 - Actions of Animals/Humans
 - Abrasion

ICE WEDGING (FREEZE-THAW)

Water expands when
frozen in cracks
and slowly
breaks rocks into
smaller pieces



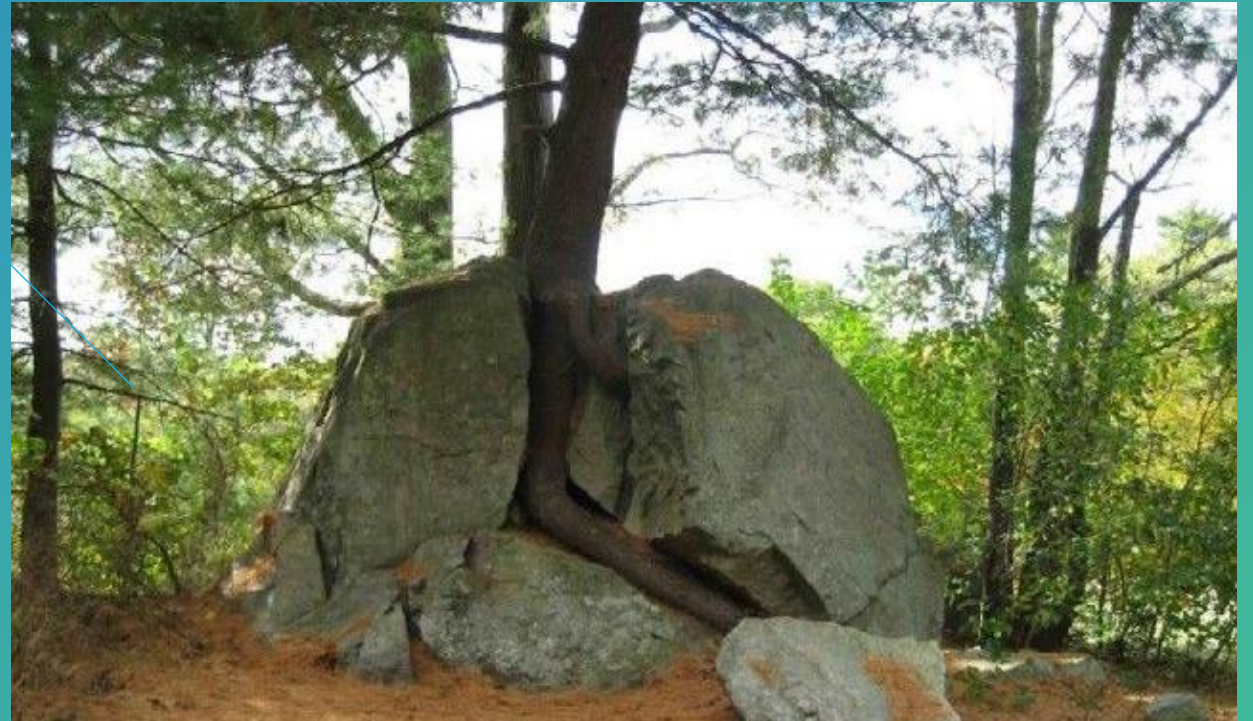
- Animals burrow in the ground, dig for food, and tread on rocks, loosening and breaking apart rocks.



ACTION OF ANIMALS

PLANT GROWTH

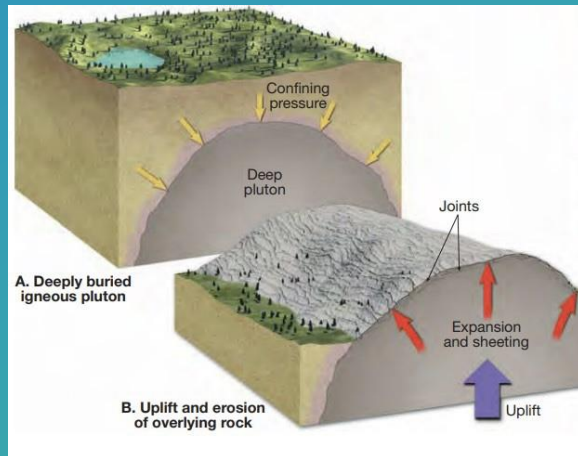
Roots grow into cracks
and pry rocks apart





EXFOLIATION

Rocks crack due to the release of pressure when overlying rocks are eroded away



Abrasion

Weathering:

- Wind picks up small pieces of rock and blows them against larger stones, causing small particles of the larger formations to break off.

Erosion:

- The same wind picks up these particles and transports them away from the rock they broke away from.



+



Chemical Weathering

- The process of breaking down rocks from chemical changes caused by
 - Water
 - Oxygen
 - Carbon Dioxide
 - Acids
 - Living organisms



OXYGEN

Oxidizes iron in rocks to produce rust

A photograph of a cave interior. The walls are covered in numerous stalactites of varying lengths, some thin and some thick. A pool of water in the foreground reflects the cave's features. A blue light beam is visible in the water. The overall scene is dimly lit, with warm tones from the cave walls and cool tones from the water and light beam.

CARBONIC ACID

A weak acid produced when CO_2 dissolves in water, and easily weathers rocks like marble and limestone



ACID RAIN

Unusually acidic rain from the burning fossil fuels
causing rock to wear away



LIVING ORGANISMS

Plants produce weak acids that slowly dissolve rock surrounding the roots (ie: Lichen)

What Determines How Fast Weathering Occurs?

Rate of Weathering

- **Climate**

- Average weather conditions in an area
 - **Dry vs. Wet Climates**
 - **Hotter vs. Colder Climates**

- **Type of Rock**

- Some materials dissolve faster than others





Wind

Rain

Weathering

Freeze

Wind, rain, and freezing break up rock

Erosion

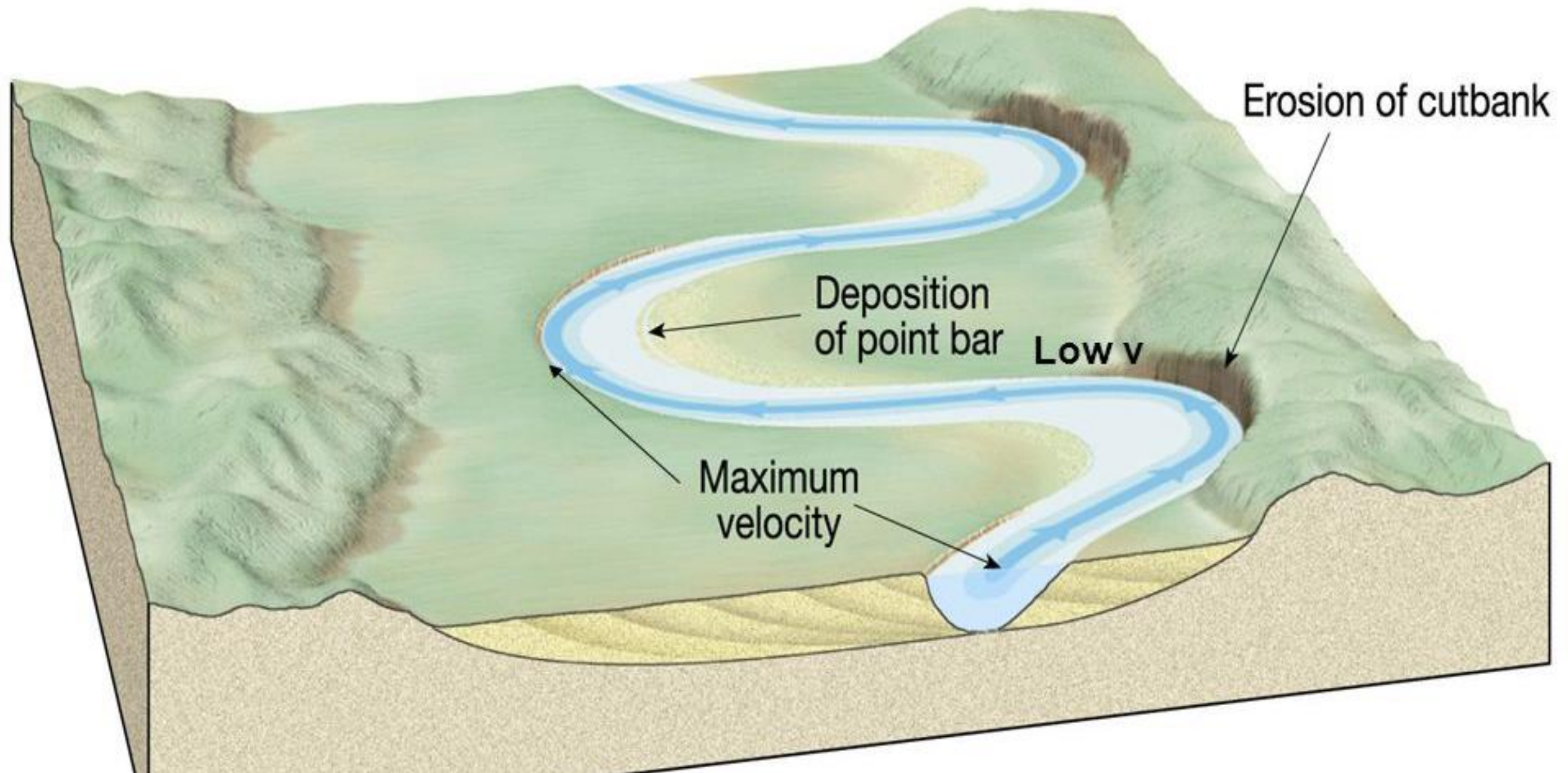
Moving broken material

Deposition

Material deposited in a new spot



a meandering stream





Stream Table

A stream table can be used to model how weathering, erosion and deposition can change land-forms.

<https://www.youtube.com/watch?v=5GVEPIKkor0>

Join.nearpod.com

- **Nearpod Weathering Practice Game**

- Enter code **4CUV5**
- For **Name** AND **Optional Name**: **period first lastinitial**
 - **6FirstL**
- Match the definition or picture with the word