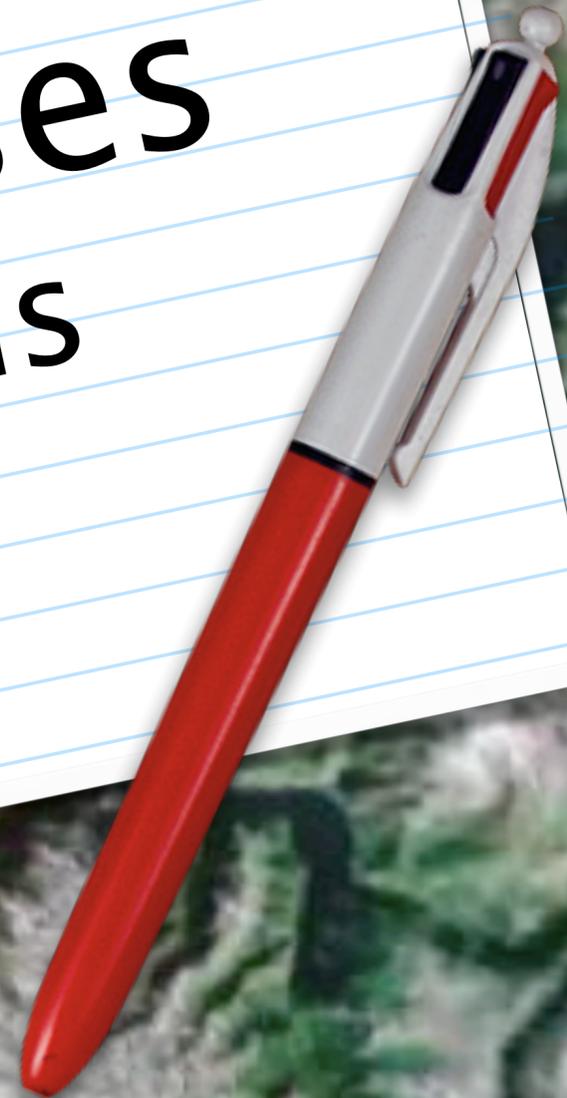




Surface Processes
Review Note Cards



Surface Processes

Water Cycle

Evaporation

Transpiration

Condensation

Precipitation

Infiltration

Runoff

Surface Processes

Runoff

The moving of water along the Earth's surface (the ground).

Surface Processes

Infiltration

Water seeping into the ground.

Surface Processes

Permeable

“The ability to allow water to move through a substance.”

↑ particle size, ↓ permeability

Surface Processes

Impermeable

“Material that does not allow water to pass through.”
Increases runoff.

Surface Processes

Soil Profile

O Horizon-(Organic, Humus)

A Horizon

B-Horizon

C-Horizon-(Impermeable Rock)

Surface Processes

Topsoil

Top layer of regolith containing the most organic material, the most weathered rock & the most biological activity.

Surface Processes

Subsoil

The layer of soil below topsoil, rich in clay sized sediments and minerals but little organics. Just below is partly weathered bedrock.

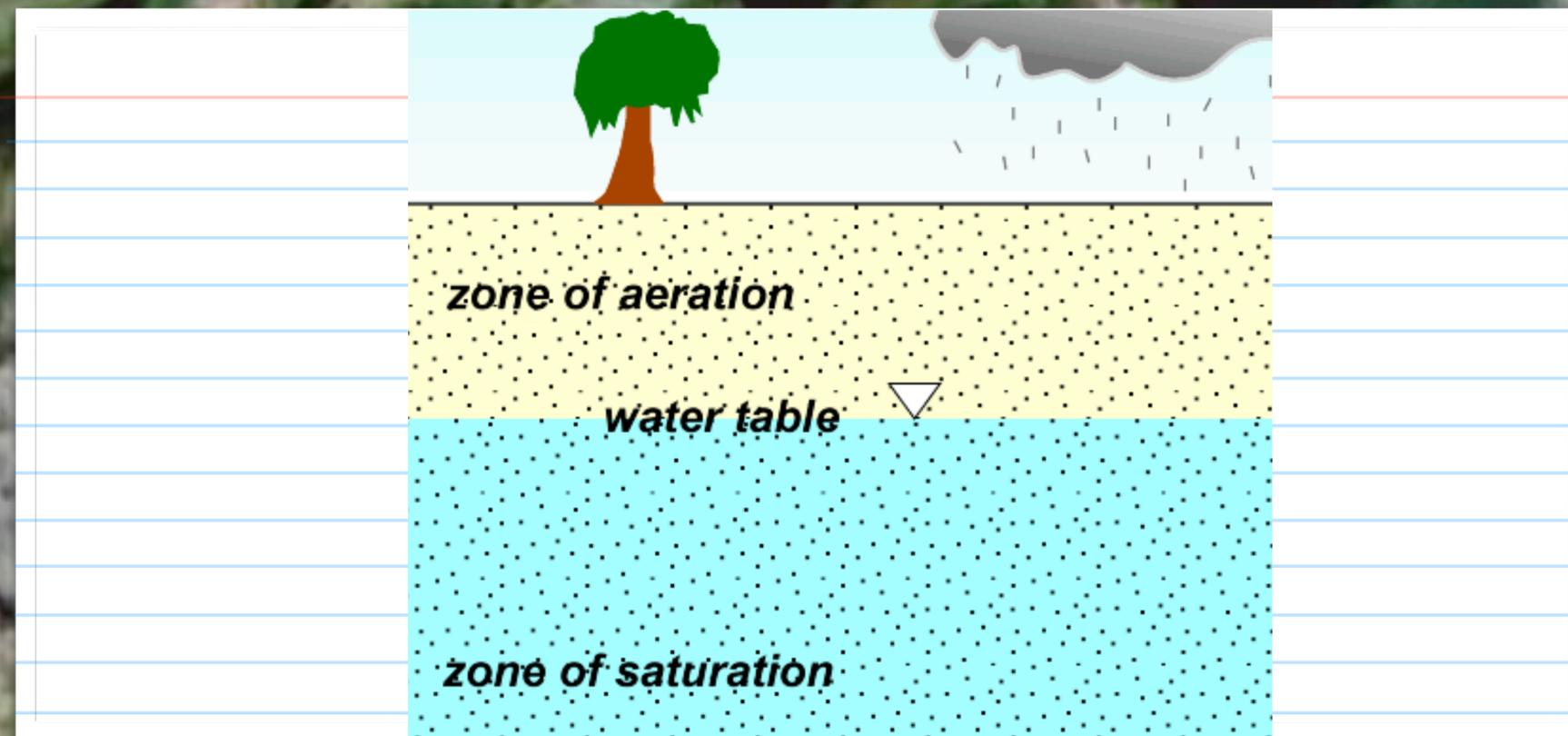
Surface Processes

Bedrock

Impermeable, solid, unweathered rock layer, generally below the Earth's surface.

Surface Processes

Groundwater Zones



Surface Processes

Zone of Aeration

Zone above the water table that has air in its pore (empty) spaces.

Surface Processes

Water Table

The interface (boundary) between the Zone of Aeration and the Zone of Saturation.

Surface Processes

Zone of Saturation

Zone below the water table that has water in its pore spaces (the groundwater).

Surface Processes

Porosity

“The amount of open space between particles.”

↑ Rounded Particles, ↑ Porosity

↑ Tightly packed, ↓ Porosity

↑ Sorted, ↑ Porosity

Particle Size is NOT a factor

Surface Processes

Permeability

“The ability for water to pass through.”

↑ Rounded Particles, ↓ Permeability

↑ Tightly packed, ↓ Permeability

↑ Sorted, ↑ Permeability

Surface Processes

Capillarity

“The ability of water to rise upward against gravity.”

↑ Particle Size, ↓ Capillarity

Surface Processes

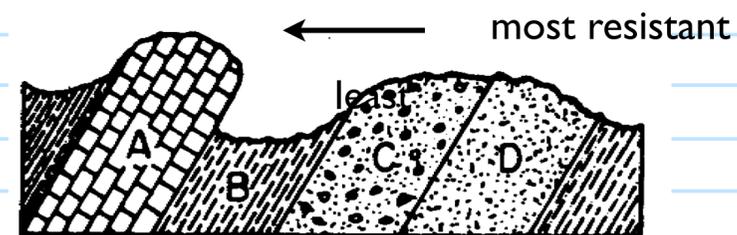
Weathering

“The chemical & physical breaking of rock into smaller pieces.”

Physical (cool climates) & Chemical (warm + humid)

Resistance to Weathering

Some minerals are more resistant to weathering than others resulting in different amounts of loss of rock material.



Surface Processes

Physical Weathering

“The breaking of rock into smaller pieces without changing anything but its size.”

Surface Processes

Frost Action or Ice Wedging

Physical weathering caused by freezing (expanding)/thawing (& adding more liquid) of water.

Surface Processes

Abrasion

Physical weathering caused by rocks rubbing, bouncing or hitting each other .

Can be either Wind or Water

Surface Processes

Exfoliation

Physical weathering of large sheets of rock due to heating (expanding) and cooling (contracting) by Sunlight.

Surface Processes

Other Physical Weathering

- Plant Roots – expand openings and push rock apart.
- Gravity – falling cause breakage.

Surface Processes

Chemical Weathering

“The breaking of rock by changing the substances that make up the rock.”

Heat increases the rate of chemical weathering

Surface Processes

Oxidation

Chemical weathering when oxygen reacts with a material (ex. iron rusting)

Surface Processes

Hydration

Chemical weathering where water causes changing the the substances that make up the rock.

Surface Processes

Carbonation

Chemical weathering where carbon dioxide (carbonic acid) causes changing the substances that make up the rock (especially limestone).