

Weathering, Erosion, Deposition, and Soil Notes

- Weathering is the breaking down of rocks
- There are two types of weathering, Mechanical and Chemical.
- Mechanical- breaks rock without changing the make-up of the rock.
- Chemical- breaks rock and does change the make-up of a rock by changing the minerals.
- Examples of mechanical weathering:
 - plant/tree roots breaking through rock
 - ice wedging (freezing and thawing)
 - abrasion (wind or water carries sediment and hits against rock, breaking rock down)
 - exfoliation/pressure release (rock expands and contracts causing outer layer to crack and fall off)
 - burrowing animals (animals dig up rock and expose it to weathering as well as break up rock with their claws)
- Examples of chemical weathering:
 - acid rain (gases from industrial pollution as well as volcanic eruptions mix with clouds forming a weak acid)
 - water pulling minerals through permeable rock (causes stalactites and stalagmites)
 - oxidation (water oxygen, and metal combine and form rust)
 - acid from plant root decay (plant roots or leaves and mosses deteriorate rocks in this form of chemical weathering).
- The more surface area exposed, the faster weathering happens.
- Erosion- is the movement of rocks, sediment, and/or soil.
- The main **agents** of erosion are wind, water, ice, and gravity.
- Deposition is simply where sediments stop moving, or are **deposited**.
- Weathering and erosion are responsible for beautiful natural sculptures such as the Grand Canyon. This took millions of years to form by the weathering and erosion of the Colorado river.
- Many rocks are **permeable**. This means water can pass through the rock.
- There are many types of soil. Some soil is small and soft to the touch, while others are large grained and coarse to the touch.

- The types of soil are : clay, silt, sand, and gravel. Clay is the softest and holds the most water while gravel is the coarsest, and holds the least water.
- Deposition is responsible for the build up of land such as deltas
- Deposition drops rock and sediment in its final resting space to build up land.
- In rivers, when the water flows more slowly as it approaches the ocean at sea level, it will deposit large amounts of sediment forming land build ups such as deltas
- Erosion has many ways of movement. Movement by wind such as hurricanes, tornadoes, and regular high speed winds; Movement by water such as by rivers, streams, tributaries, waterfalls, and ocean waves; Movement by ice such as glaciers. Glaciers leave U shaped valleys as opposed to rivers forming V shaped valleys. And finally, movement by gravity such as landslides, mudslides, and slumps.
- Soil is made of weathered rock, mineral fragments, decayed organic material, water, and air.
- Soil formation is affected by climate, rock type, vegetation type, slope of land, and time.
- Humus is the very dark and rich part of soil that is made mostly of litter and other organic material. This is what **topsoil** is mostly made of. Topsoil is very fertile.
- Soil is broken down into 3 horizons: A horizon, B Horizon, and C Horizon
- The Horizons form in the following order: C is first, then A, then as A leaches its nutrients into B, B forms. Leaching is when the nutrients leak into the other horizons.
- Underneath all of the soil Horizons is what we call **Bedrock**. This is the rock material that gets weathered to form soil.
- Soil is a valuable resource. We need to make sure it is not wasted, and is taken care of. We call this **soil conservation**.
- Several methods to conserve soil are : Terracing, no till farming or conservation plowing, contour farming/plowing, crop rotation, wind breaks and wind barriers