

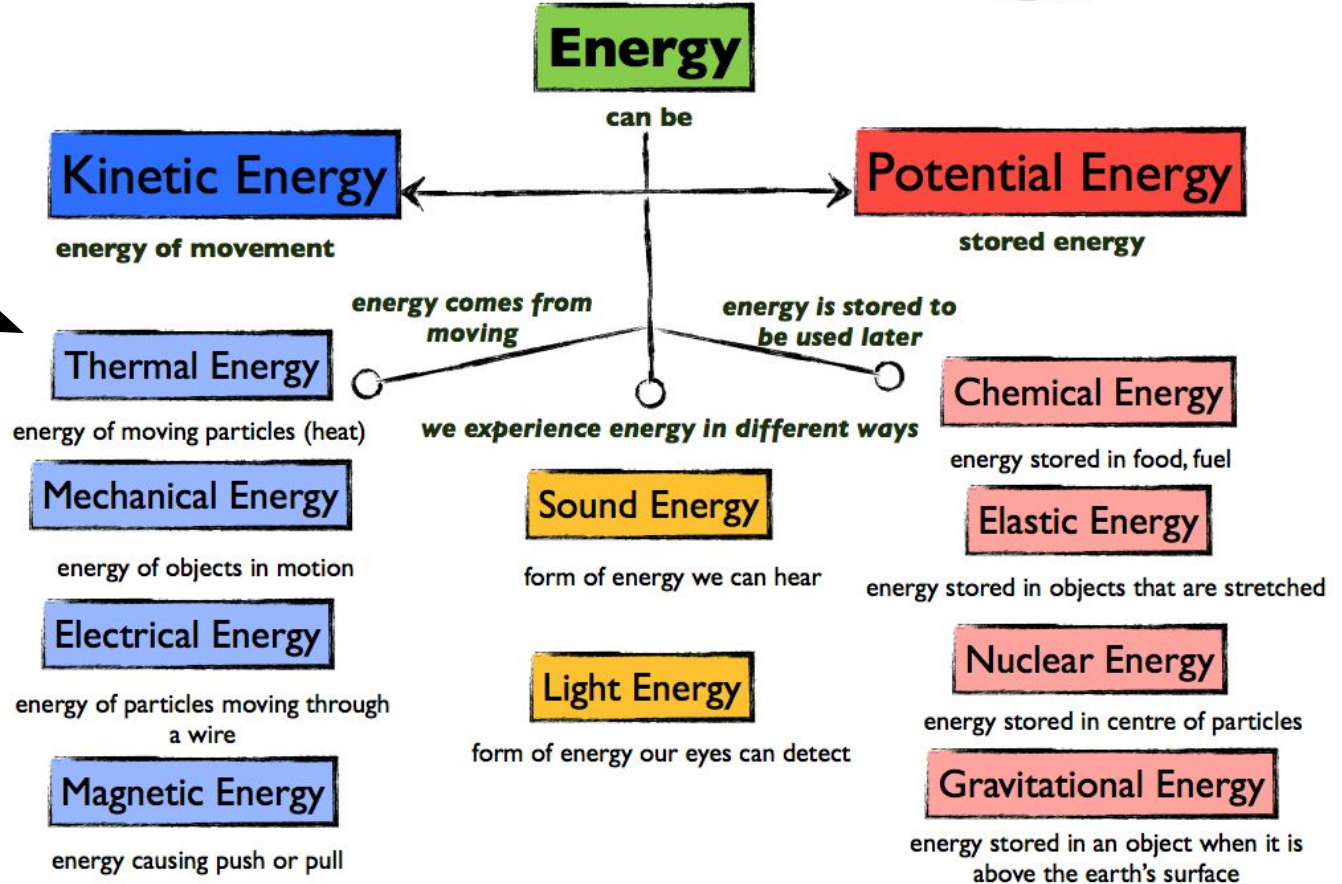
Q1 Review

Ms. Larsh

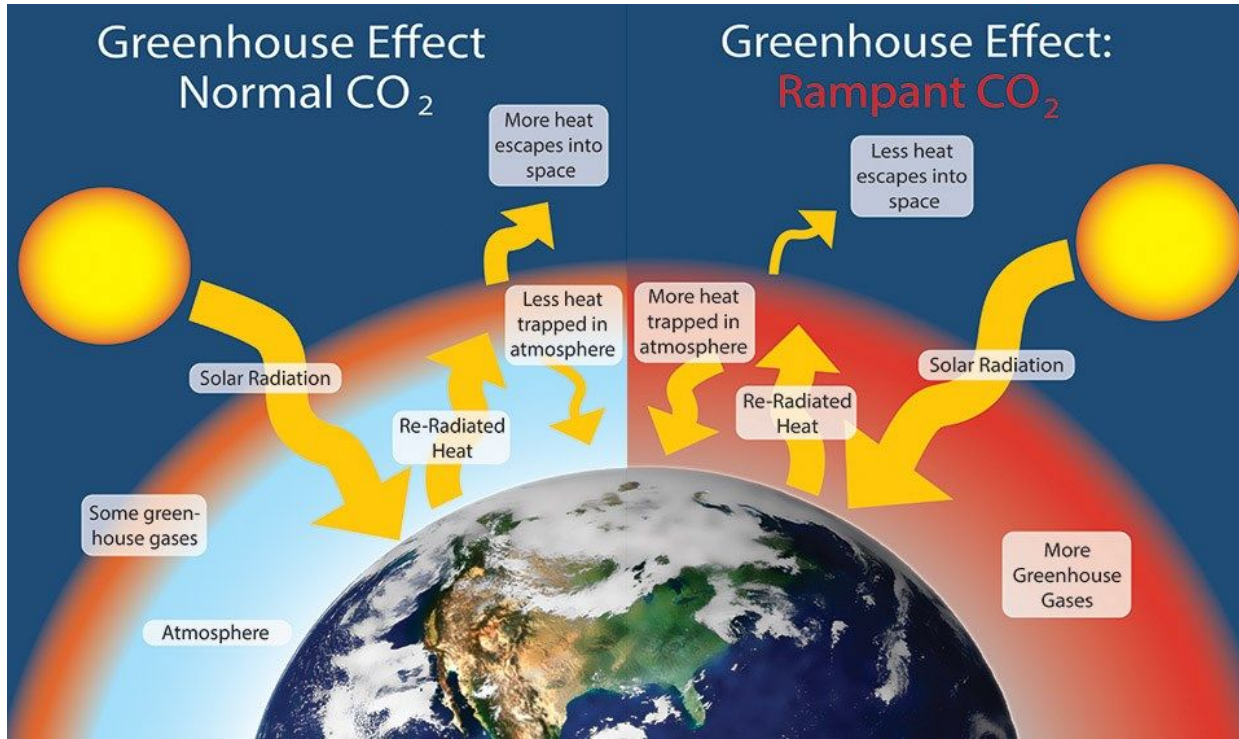
**Model the flow of
energy into and out of
Earth's systems which
result in changes in
climate**

Forms of Energy

Energy from the Sun is Thermal energy



Global Warming is a Natural Phenomenon



Human impact on Earth's natural resources has caused an **increase** in **greenhouse gases**

This is causing the greenhouse effect to **increase** at an **unnatural rate**

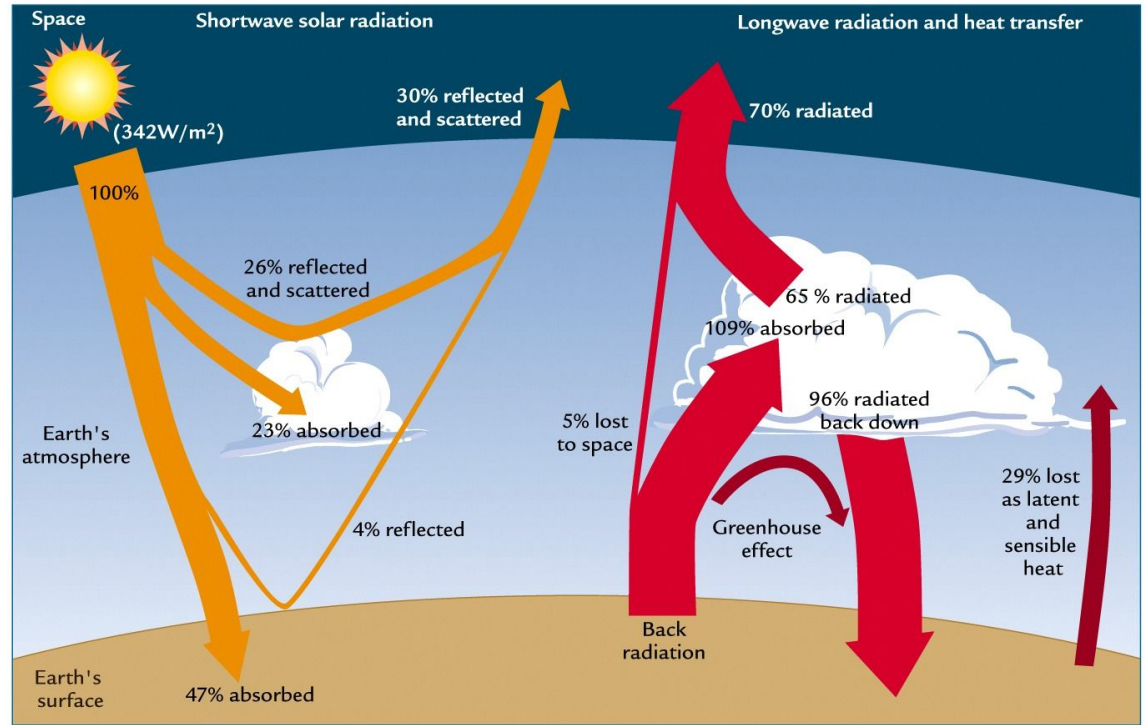
What is Earth's Albedo?

how well a surface reflects
solar energy

The Sun's Energy is . . .

Reflected by various surfaces such as snow, ice, clouds, water, and light colored sand

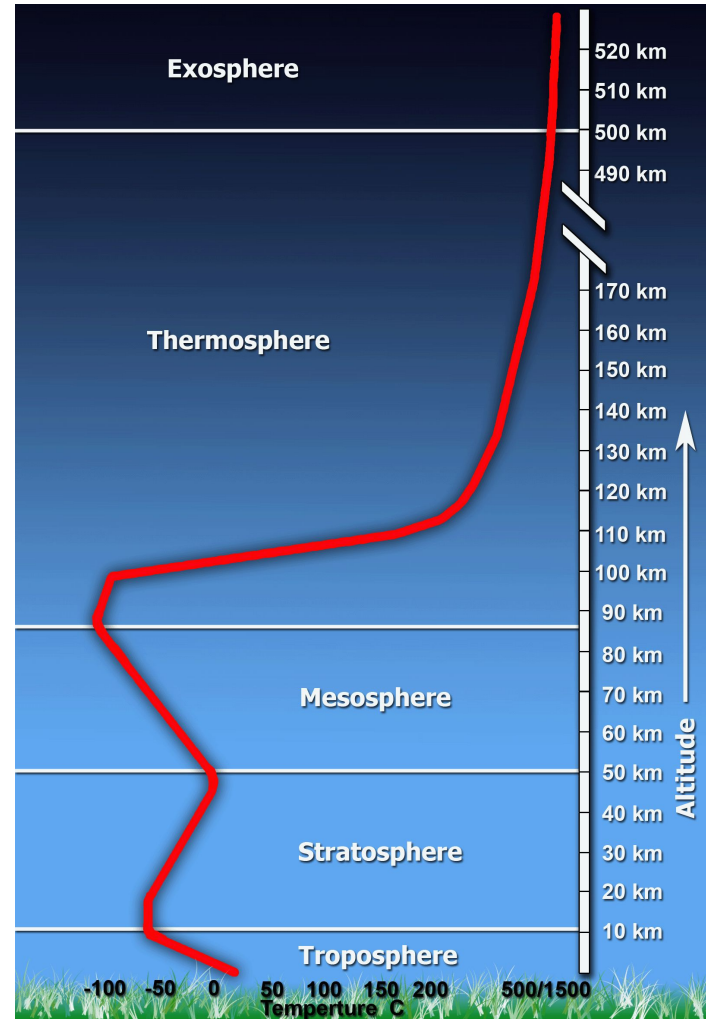
Absorbed by various surfaces such as dark colored clouds, water, and most of the geosphere along with plants in the biosphere



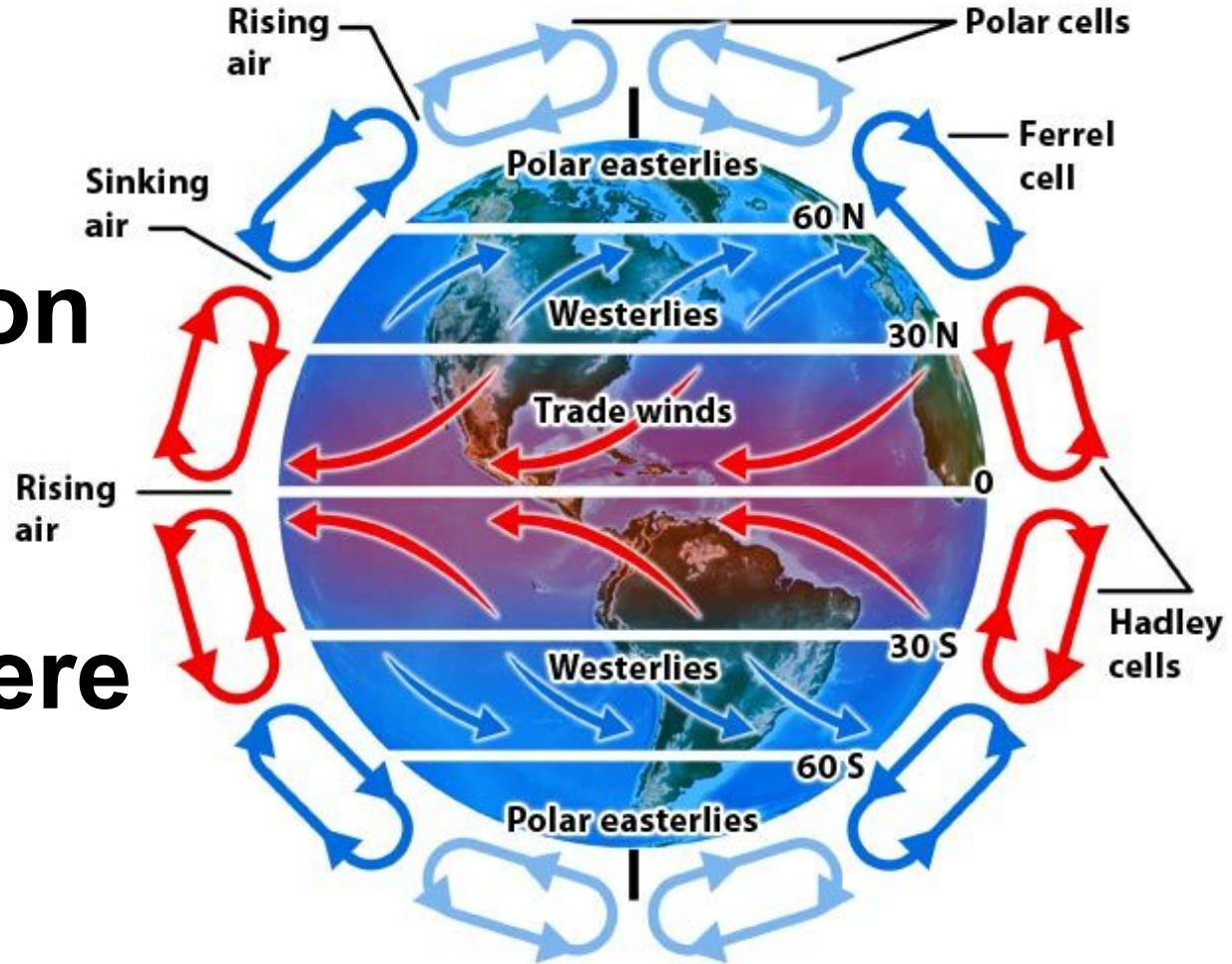
What is Temperature Inversion?

a **reversal** of the normal decrease of air **temperature** with altitude, or of water temperature with depth

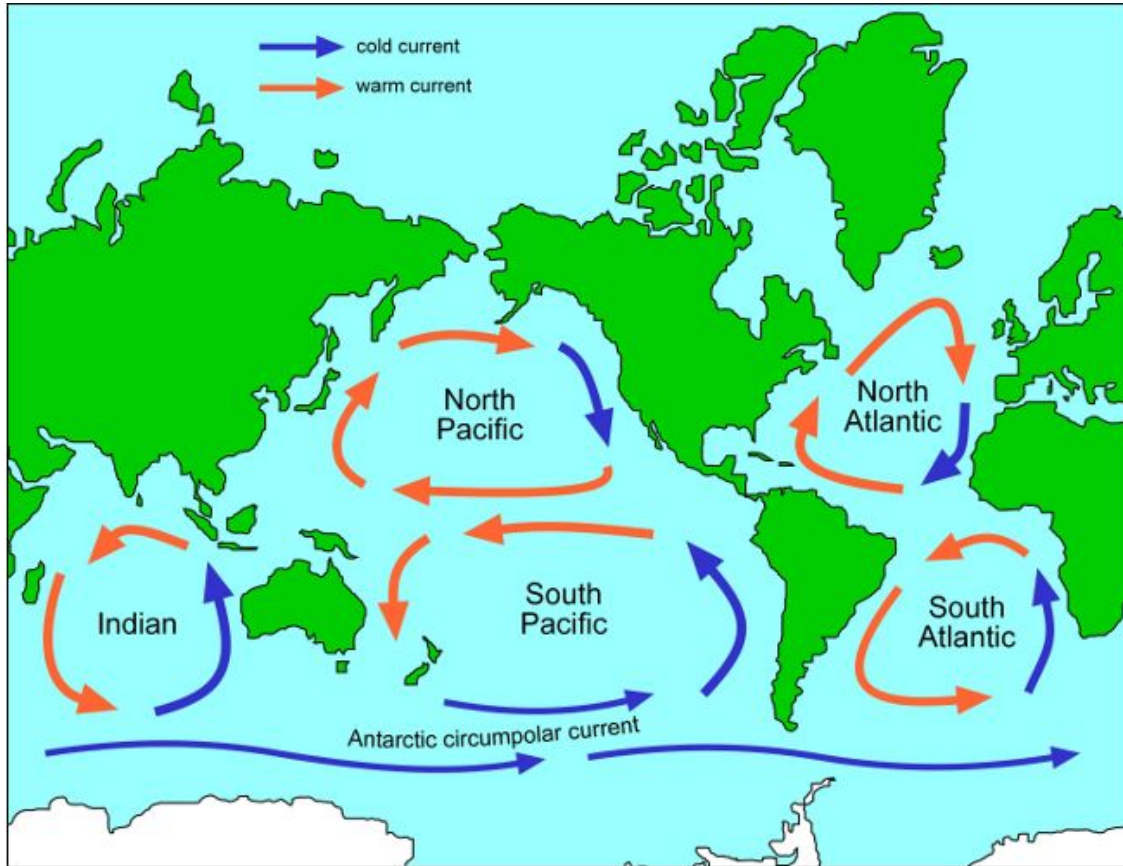
Temperature inversion defines the **boundary** between Earth's **atmospheric layers**



Convection Currents in the Atmosphere



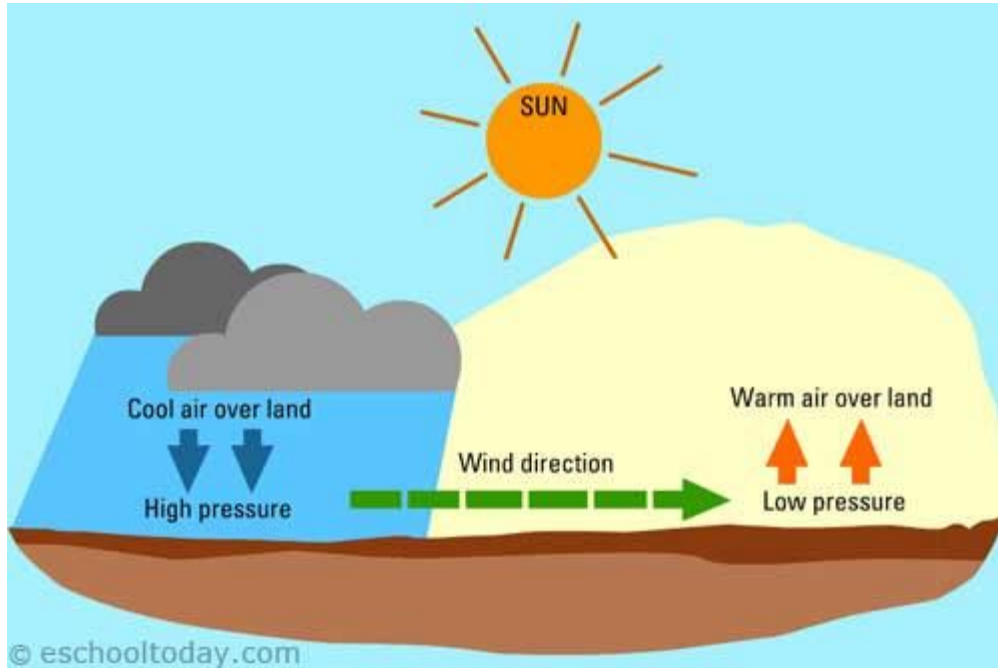
Convection Currents in the Ocean



Remember,
Convection Currents
drive every major
process on Earth

ie: Weather, Plate
Tectonics, Ocean
Circulation, The Water
Cycle, etc.

What is Wind?

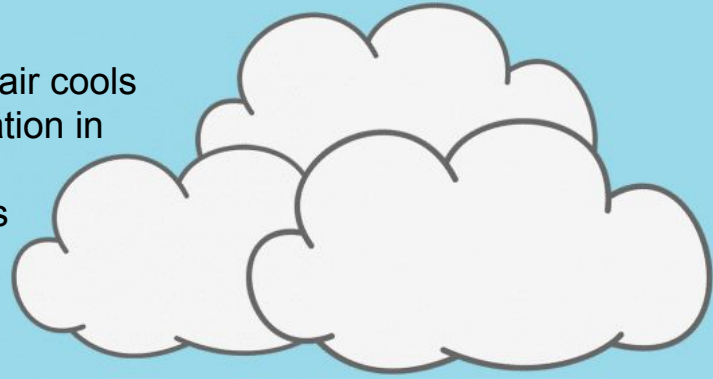


Wind is the movement of air from an area of high pressure to an area of low pressure.

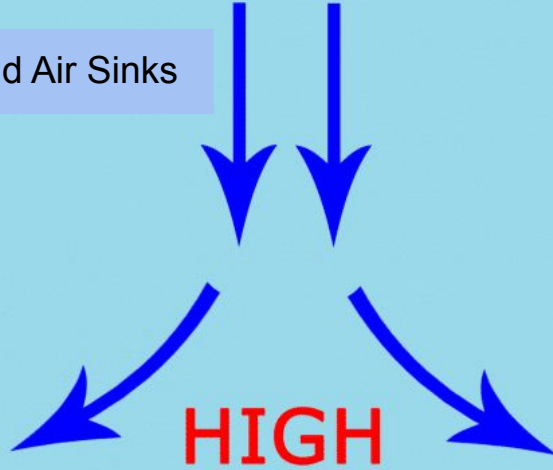
or from a colder area to a warmer area



As water vapor and air cools with increased elevation in the troposphere, condensation occurs

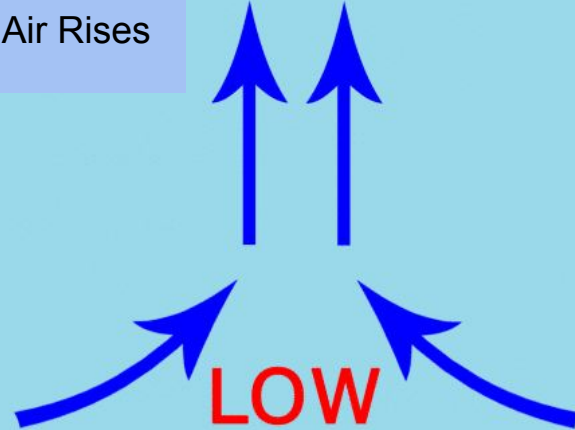


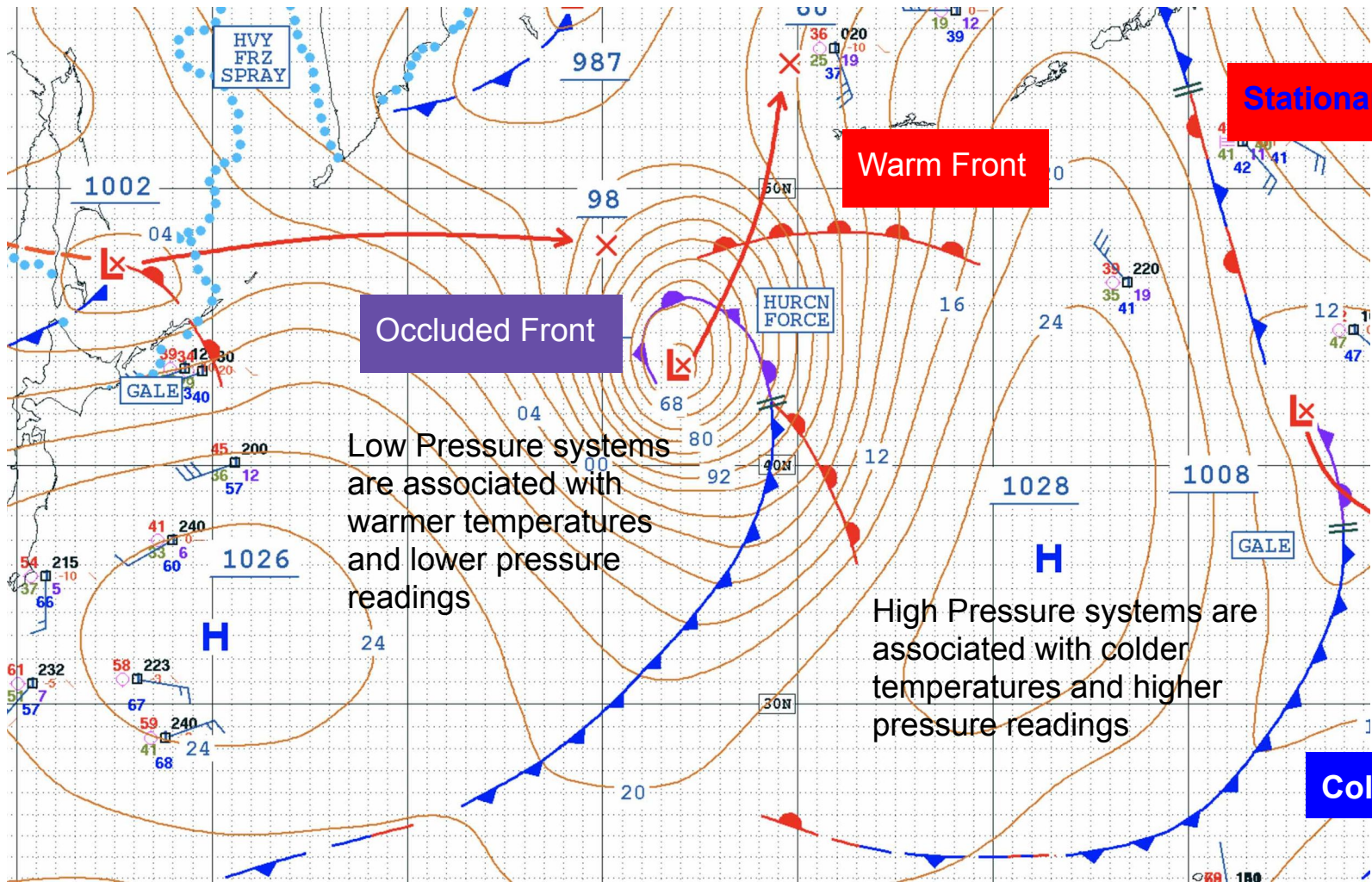
Cold Air Sinks



Warm Air Rises

Because warm air rises, it carries with it water vapor from evaporation, which allows for clouds to form





Stationary Front

Warm Front

Occluded Front

Cold Front

Low Pressure systems are associated with warmer temperatures and lower pressure readings

High Pressure systems are associated with colder temperatures and higher pressure readings

2. Cold Fronts vs. Warm Fronts



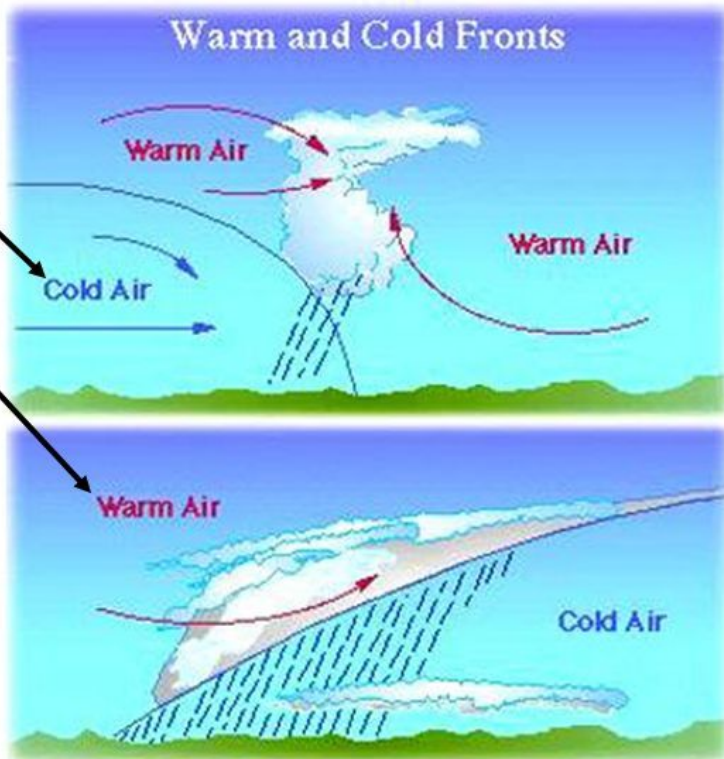
Cold Front



Warm Front

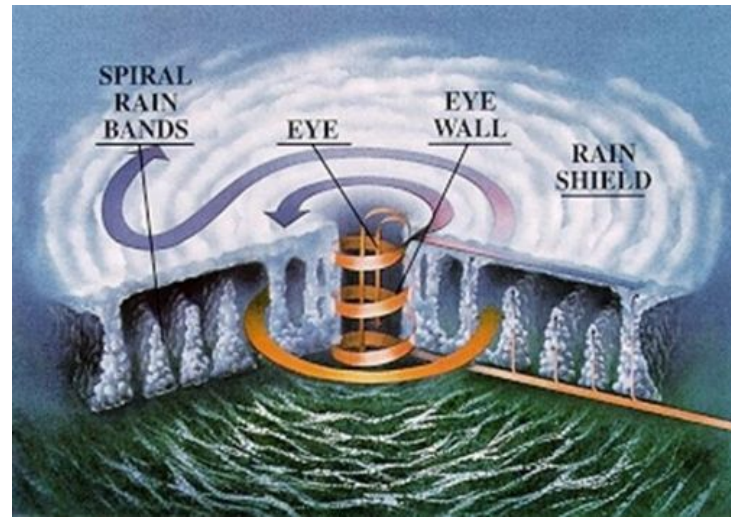
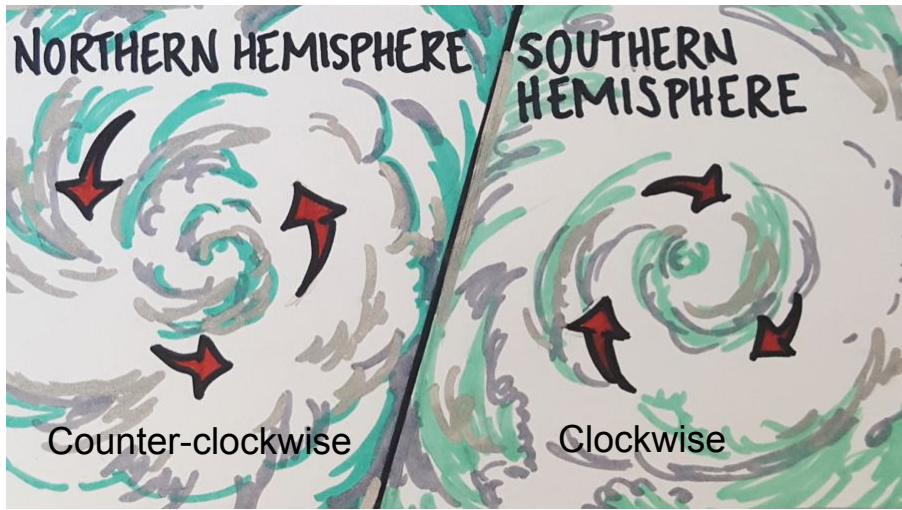
Three Important Notes

- 1. Shape**
bulldozer vs. ramp
- 2. Cloud Types**
cumulonimbus vs. stratus
- 3. Precipitation**
intense vs. steady



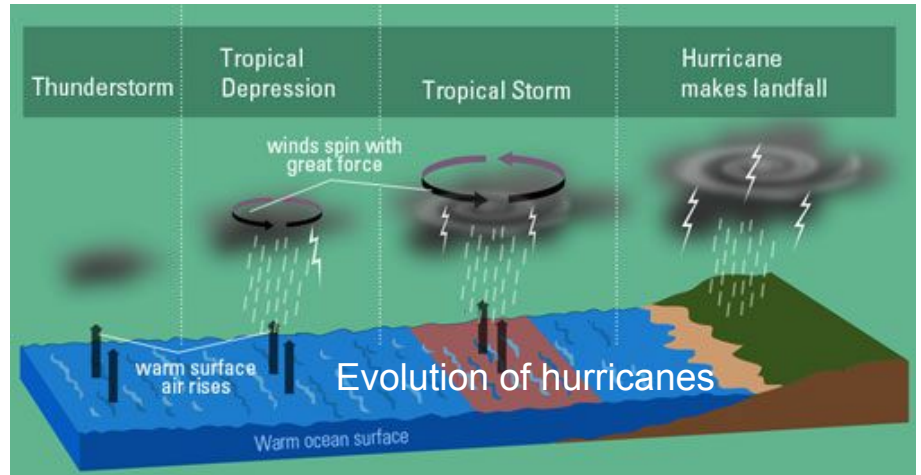
What is the Coriolis Effect?

the result of Earth's rotation on weather patterns and ocean currents. The **Coriolis effect** makes storms swirl clockwise in the Southern hemisphere and counterclockwise in the Northern Hemisphere. **force** that explains the paths of objects on rotating bodies.



Saffir-Simpson Scale

Category	Wind Speed	Storm Surge
1	74 - 95 mph	4 - 5 ft
2	96 - 110 mph	6 - 8 ft
3	111 - 129 mph	9 - 12 ft
4	130 - 156 mph	13 - 18 ft
5	157+ mph	19+ ft



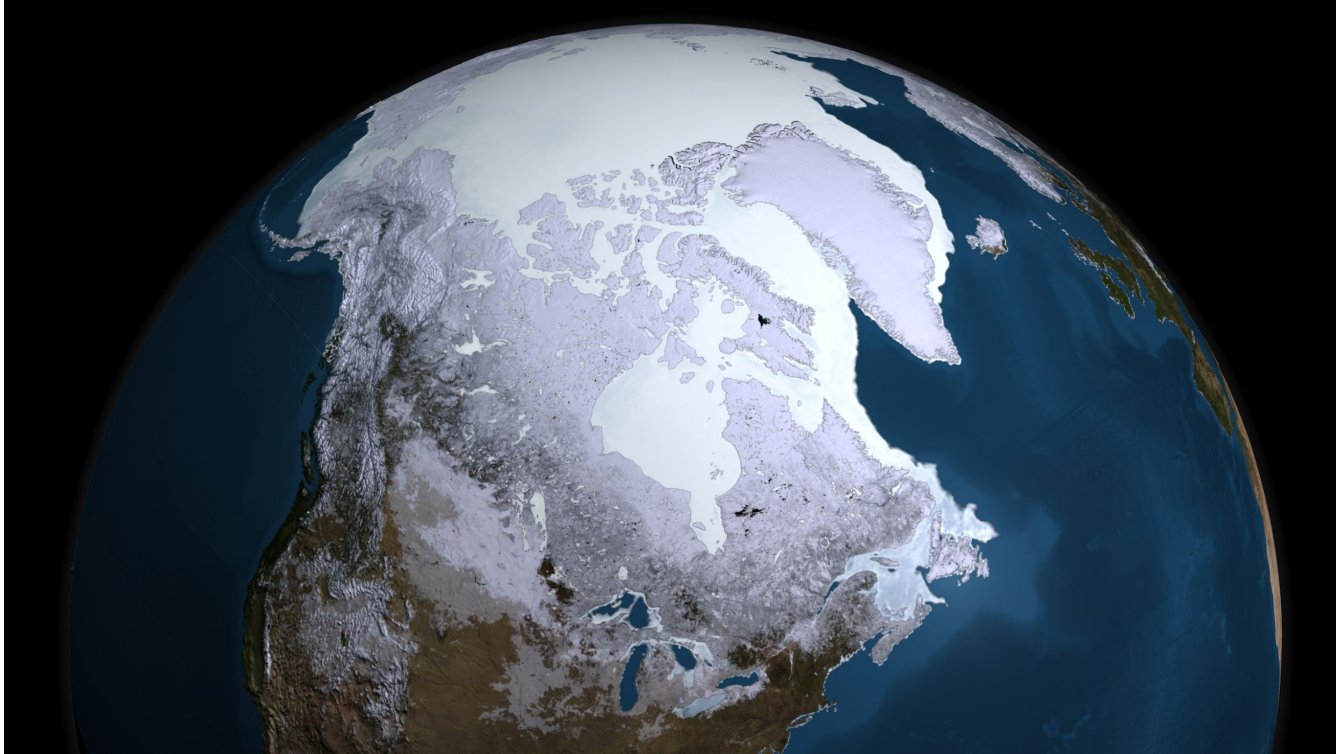
Natural Causes of Climate Change?

Before humans showed up the Earth went through variations of warmer temperatures associated with the natural phenomenon of global warming, and cooler temperatures associated with the expansion of ice sheets across the Earth.

What are two types of natural events that contribute to global warming?

What do we call the reduction in the temperature of the Earth's surface and atmosphere, resulting in the presence or expansion of continental and polar ice sheets and alpine glaciers?

Ice Ages



What do we call the Earth when it was completely covered in ice?

Snowball Earth

Volcanic Eruptions

What is the deadliest part of volcanic eruptions?

The pyroclastic flow, a hot and toxic cloud of gas that moves incredibly fast, and was responsible for the destruction of Pompeii

Volcanoes release the greenhouse gas carbon dioxide, contributing to warming of the atmosphere.

Volcanic ash and sulfur contribute to decreasing temperatures as ash and sulfuric clouds reflect solar radiation



Forest Fires

Wildfires hasten ecosystem changes and release large amounts of carbon dioxide into the atmosphere—contributing to further climate change.



Unnatural Causes of Climate Change?

Burning coal via coal energy plants



Burning refined oil to power motorized vehicles



The burning of **Fossil Fuels** continues to unnaturally speed up the rate of global warming. Burning coal, oil, and natural gas release stored carbon into the atmosphere increasing the total amount of carbon dioxide, a greenhouse gas, in the atmosphere.

So why are natural disasters increasing/ larger in scale?

Warmer temperatures = more low mass systems like hurricanes and tornadoes

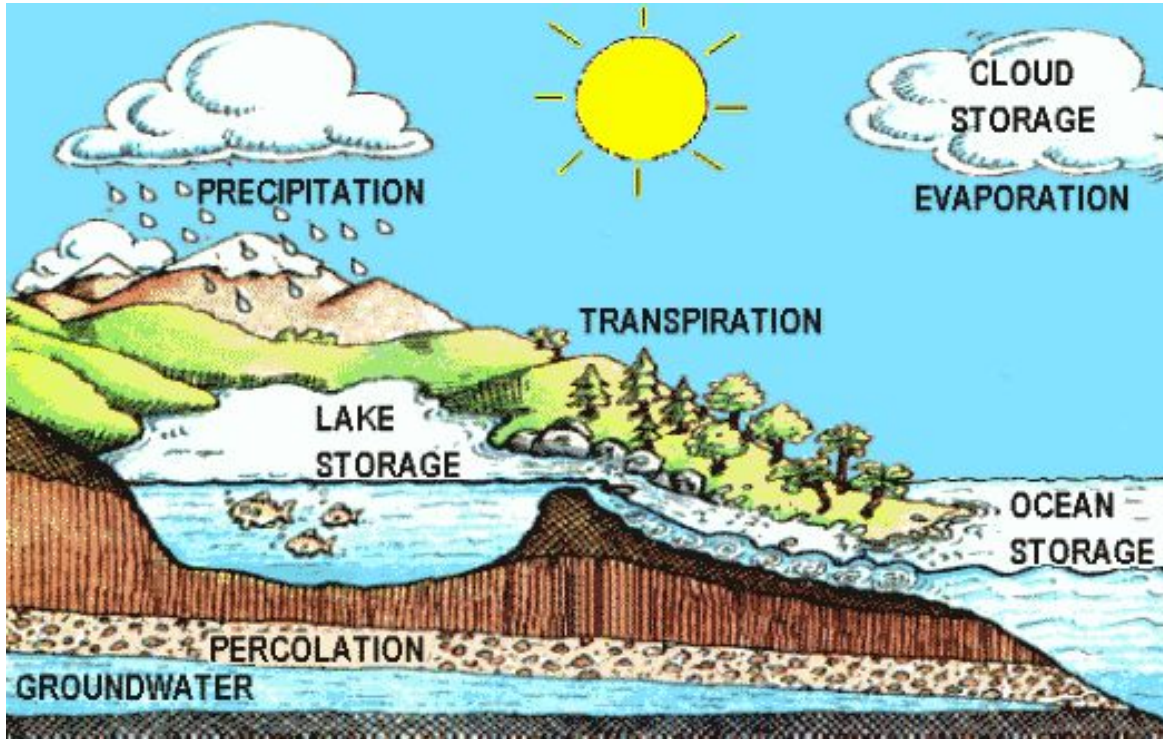
Warmer temperatures = less ice, which is more water in the oceans and therefore, larger tsunamis when earthquakes occur out in the ocean

Climate change also contributes to . . .



**Model the
interconnections
between the hydrologic
cycle and the recycling
of Earth's materials**

The hydrologic or WATER cycle



- Evaporation
- Condensation
- Precipitation

- Surface Runoff
- Surface Water

- Percolation
- Ground Water

- Stored in Aquifers
- Stored in Glaciers



Wind



Rain

Weathering

Freeze

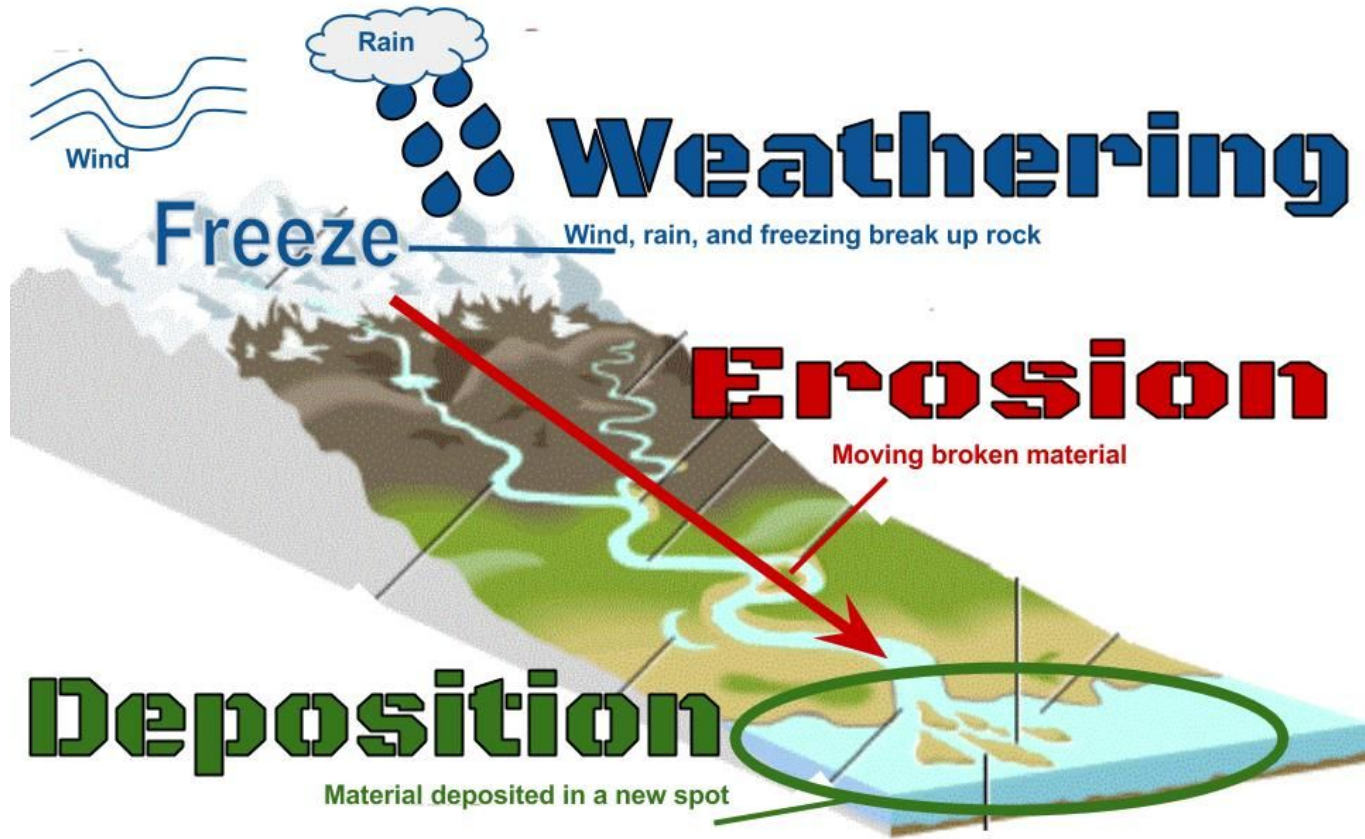
Wind, rain, and freezing break up rock

Erosion

Moving broken material

Deposition

Material deposited in a new spot



What is Weathering?

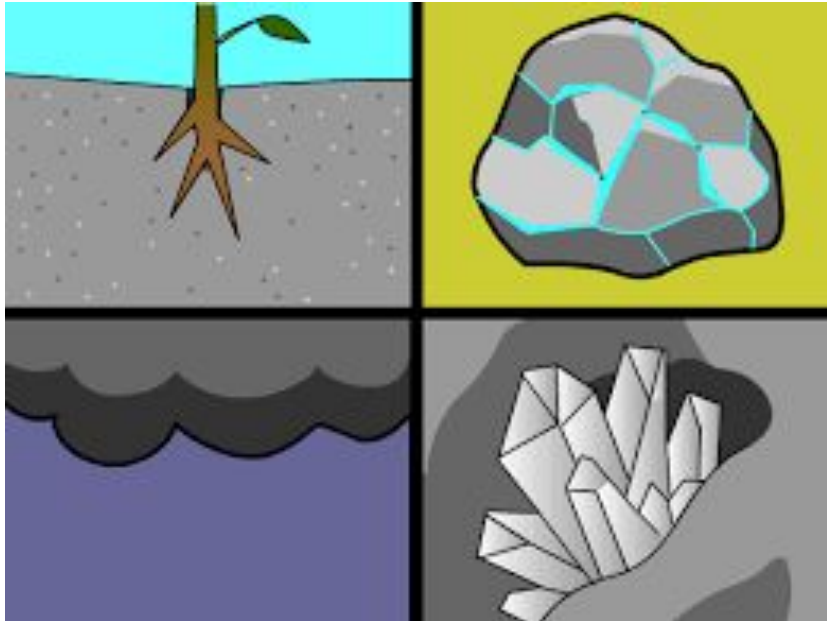


Weathering is the breaking down of rocks, soil, and minerals as well as wood and artificial materials through contact with the Earth's atmosphere, water, and biological organisms.



Besides wind & water contributing to weathering, other causes include plant roots, ice, crystallization, and animals

Mining = Mechanical Weathering

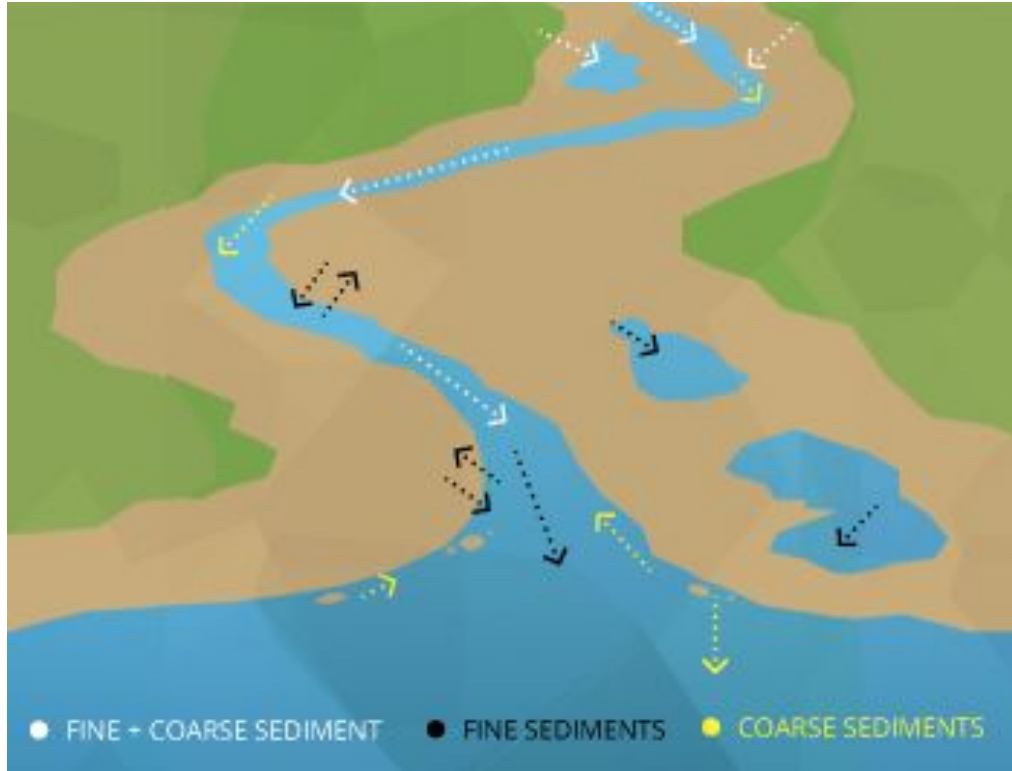


What is Erosion?



Erosion is the action of surface processes that removes soil, rock, or dissolved material from one location on the Earth's crust, and then transports it to another location.

What is Deposition?



Deposition is the geological process in which sediments, soil and rocks are added to a landform or land mass.

Materials settle into a new location.

Alluvial Fan

Alluvial fans are triangular-shaped deposits of water-transported material, often referred to as alluvium. They are an example of an unconsolidated sedimentary deposit and tend to be larger and more prominent in arid to semi-arid regions.



Delta

A river delta is a landform created by deposition of sediment that is carried by a river as the flow leaves its mouth and enters slower-moving or stagnant water. Often located where a river or stream meets the ocean

