

Unit 2 - Seasons and Atmosphere

Rotation & Revolution

Rotation - with Earth's tilt of 23.5° , one rotation is equivalent to day and night (one full day)

Revolution - the path Earth takes as it orbits around the sun, this is equivalent to a calendar year

Seasons

- The combination of rotation and revolution is the reason for the seasons
- Focusing on the Northern Hemisphere:
 - When the hemisphere is tilted **towards** the sun that determines a **warmer** climate
 - When the hemisphere is tilted **away** the sun that determines a **colder** climate
- Equator: this imaginary line denotes the warmest weather because it is directly hit by the sun due to the tilt

Atmosphere

Purpose: provides a suitable living environment for organisms as it absorbs only small amounts of UV rays

Four Main Layers:

1. Troposphere (coldest) - closest to Earth, contains the 'bad' ozone due to air pollution -**WEATHER**
2. Stratosphere - contains 'good' ozone
3. Mesosphere - temperature decreases with height
4. Thermosphere (hottest) - farthest from Earth

Greenhouse Gases: nitrogen (most abundant), oxygen, carbon dioxide

Without them: our environment would be too cold for humans and animals

Air Mass (Water Cycle)

1. Precipitation - form of water that falls from the clouds: rain, snow, sleet
2. Condensation - gas to liquid
3. Evaporation - liquid to gas

Heat Transfer

Land - Absorbs heat faster and Releases heat slower

Water

- Absorbs heat slower
- Releases heat faster

Ways Heat can be Transferred

1. Conduction: objects touching
2. Convection: air moving around the object
3. Radiation: through rays of heat

Isotherms - a line on a map connecting points having the same temperature at a given time or on average over a given period

Cloudy nights are usually warmer than clear nights due to the clouds holding in the heat

Humidity

1. Definition: amount of water vapor in the air
2. Water Vapor - leads to precipitation
3. Relative humidity: ratio of the air's actual water-vapor content compared with the amount of water vapor air can hold at that temperature and pressure
 - a. Lowering air temperature causes an increase in relative humidity
 - b. Raising air temperature causes a decrease in relative humidity