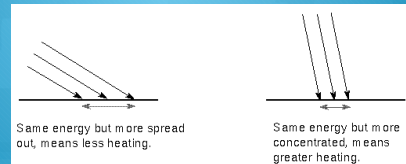
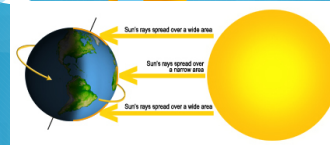
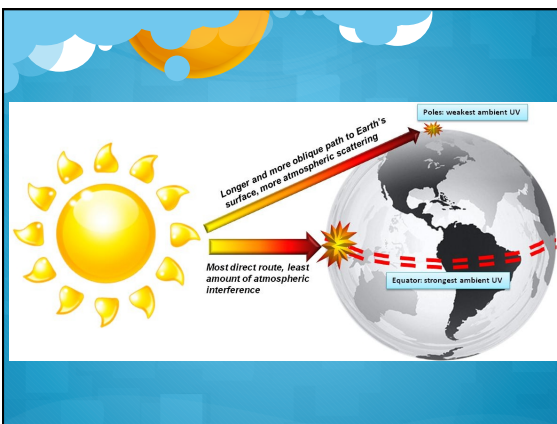
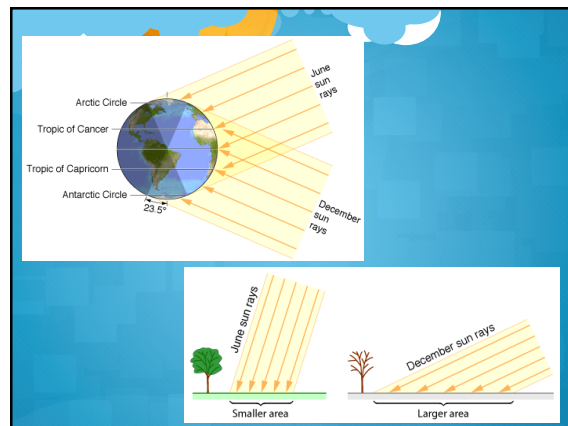


## Solar Radiation

- What is the warmest time of the day?
- More direct rays in the afternoon
- Sun's rays are more spread out at lower angles
- Same energy over a larger area



When the sun is low in the sky, there is more atmosphere for light to pass through



## Weather

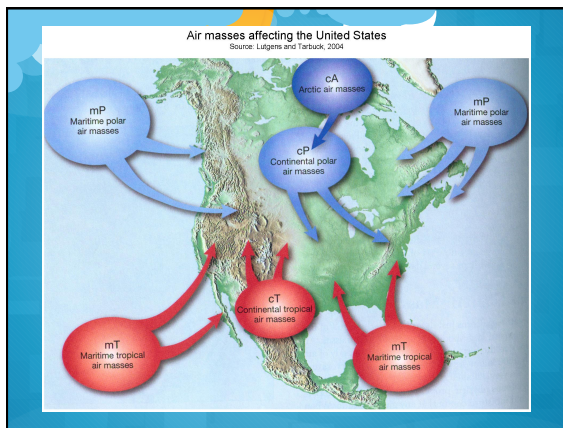
- The heat from the solar radiation is redistributed throughout the globe
- Air and water movement
- Earth's surface, oceans, and atmosphere
- This redistribution is what we call **weather**.

## Air Masses

- What is an air mass?
- Air Mass:** Large body of air that takes on the characteristics of the area over which it forms.
- The area over which the air mass forms is called the source region.

## Air Masses

- Classification
  - Continental Tropical (cT): warm and dry
  - Maritime Tropical (mT): warm and humid
  - Continental Polar (cP): cold and dry
  - Maritime Polar (mP): cold and humid
  - Arctic (A or cA): colder than cP



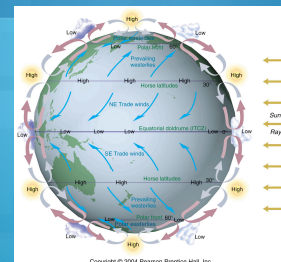
## Coriolis Effect

Path Without Coriolis Effect



Path With Coriolis Effect

## Global Wind Systems



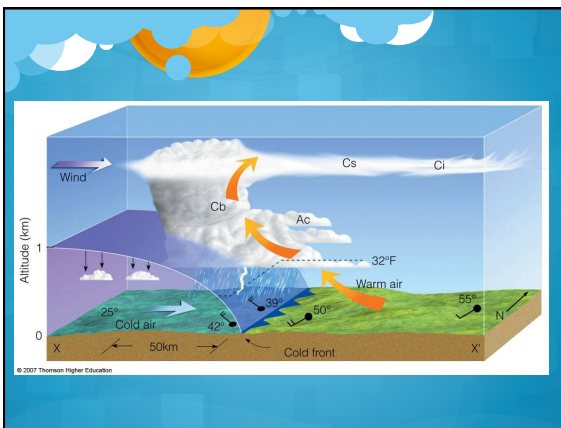


## Fronts

- What is a front?
- Region separating two air masses of different densities.
- Differences caused by temp, pressure, and humidity
- Thousands of kilometers long
- Interactions cause changes in weather

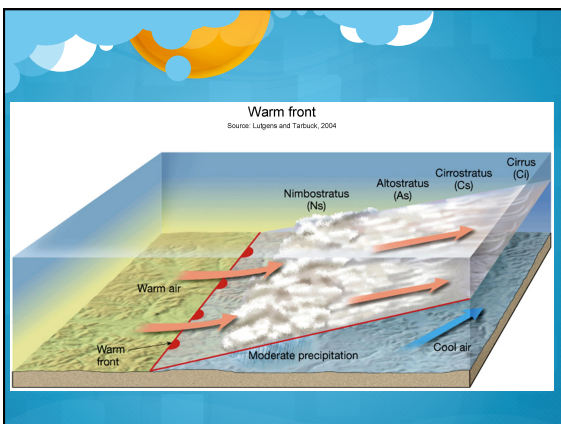
## Cold Front

- Cold, dense air displaces warm air, forcing it up along a steep front
- Clouds, showers, thunderstorms



## Warm Front

- Warm air displaces cold air
- Slower than cold front
- Cloudy, precipitation



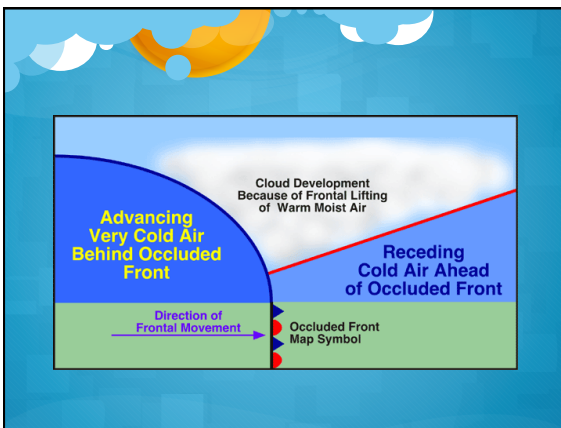
## Stationary Front

- Two air masses meet, but neither advances
- Boundary stalls
- Temperature/Pressure difference between air masses is small
- Patterns reflect a warm front



## Occluded Front

- Cold air moves so fast that it overtakes a warm front, wedging the warm air upward.
- Precipitation



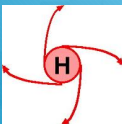
## High/Low Pressure

- Rising air is associated with low pressure
- Sinking air is associated with high pressure
- Coriolis effect causes rotation

## Pressure Systems

### High Pressure

- Air sinks, so it spreads away from center at surface



### Low Pressure

- Air rises, so air moves inward towards center to replace the rising air



## Factors that Influence Climate

- Air masses
- Proximity to water (think specific heat)
- Latitude (differential heating)
- Elevation/Altitude
- Albedo and Vegetation
- Ocean currents
- Topography