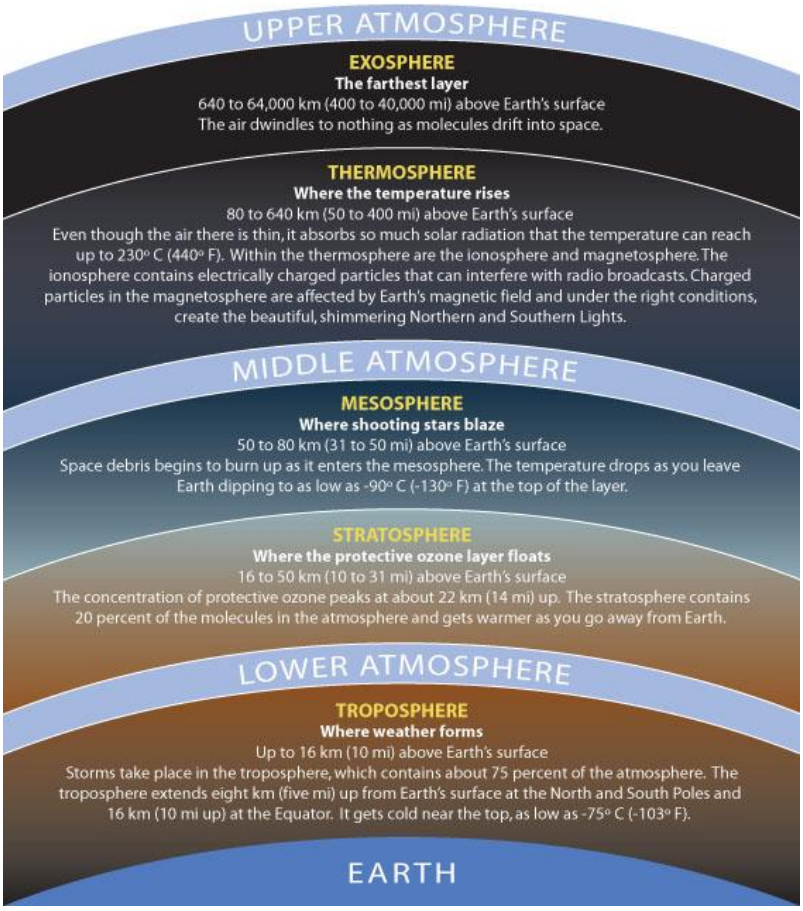
The Atmosphere and Climate

1. Atmosphere
    a. An envelope of gases that surrounds the Earth
    b. Consists mainly of 78% nitrogen and 21% oxygen
    c. It absorbs solar radiation, moderates temperatures, and distributes water



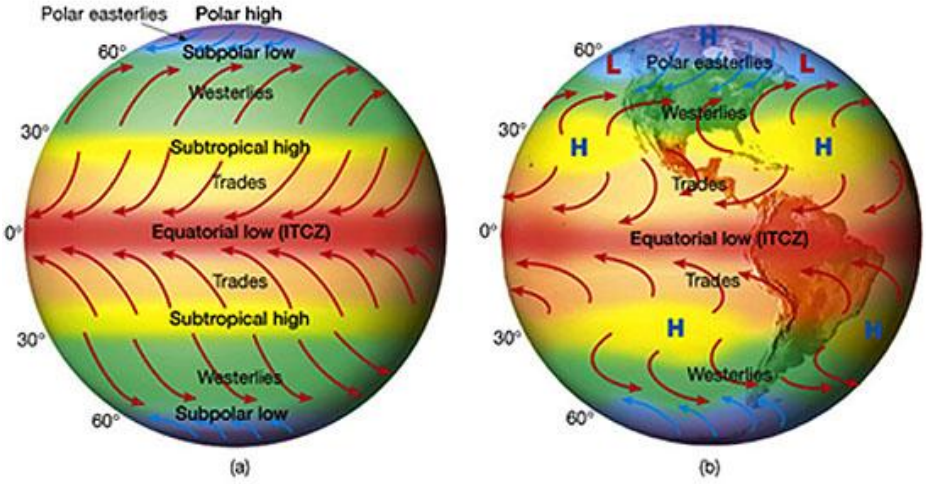
2. Weather
    a. Refers to conditions in the atmosphere closest to earth, including humidity, winds and precipitation.
    b. Daily/temporary
3. Climate
    a. Due to different processes in the atmosphere
    b. Average weather conditions over a long period of time
4. Geography of Weather
    a. Weather is affected by:
        i. Latitude
        ii. Elevation

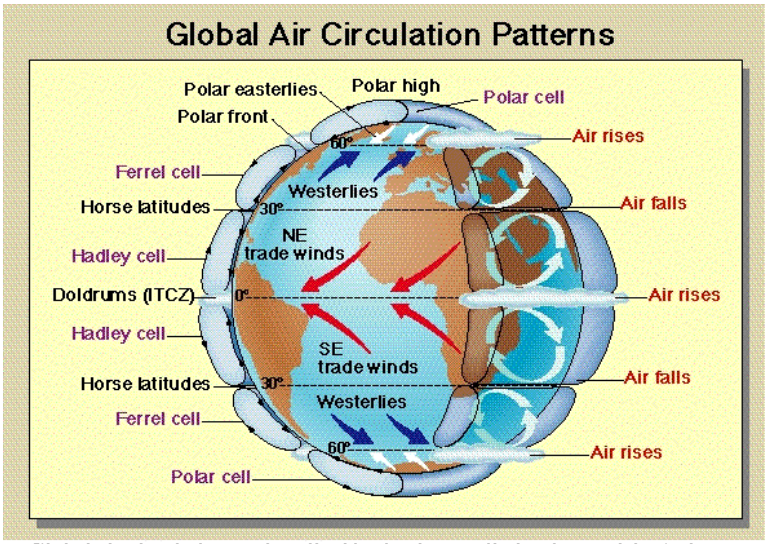
iii. Wind patterns
iv. Ocean currents
v. Mountain barriers

b. Temperatures tend to:
   i. Decrease as you move away from the equator to higher latitudes
   ii. Decrease in higher elevations

c. Vertical Climate
   i. Different climates at different altitudes in the same area

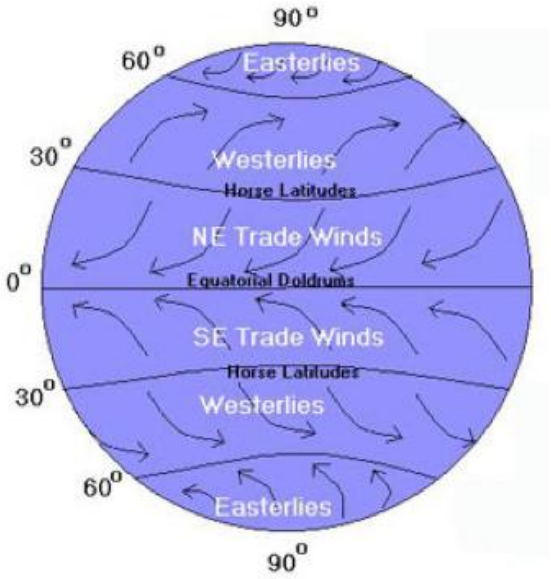
d. Prevailing Winds
   i. winds that blow predominantly from a single general direction over a particular point on Earth's surface

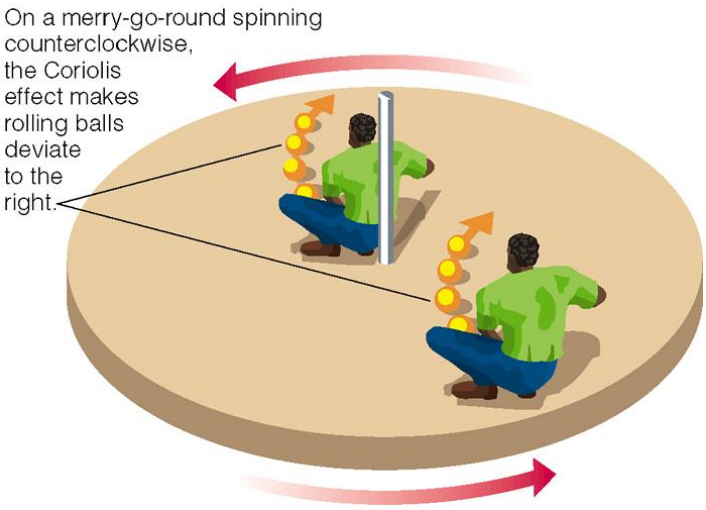




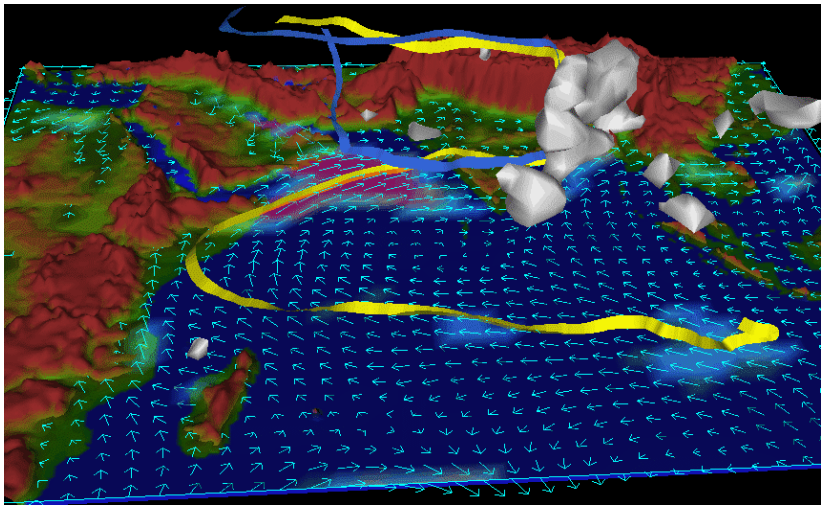
Global air circulation as described in the three-cell circular model. As in simpler circulation models, air rises at the equator and falls at the poles. But instead of one great circuit in each hemisphere from equator to pole, there are three. Note the influence of the Coriolis effect on wind direction.

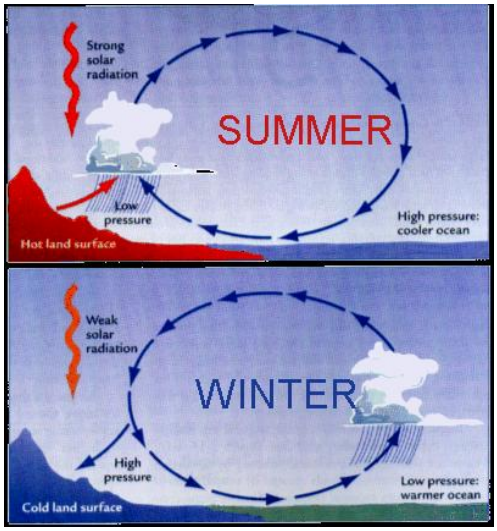
e. Coriolis Effect
    i. a deflection of moving objects when they are viewed in a <u>rotating reference frame</u>. In a reference frame with clockwise rotation, the deflection is to the left of the motion of the object; in one with counter-clockwise rotation, the deflection is to the right.



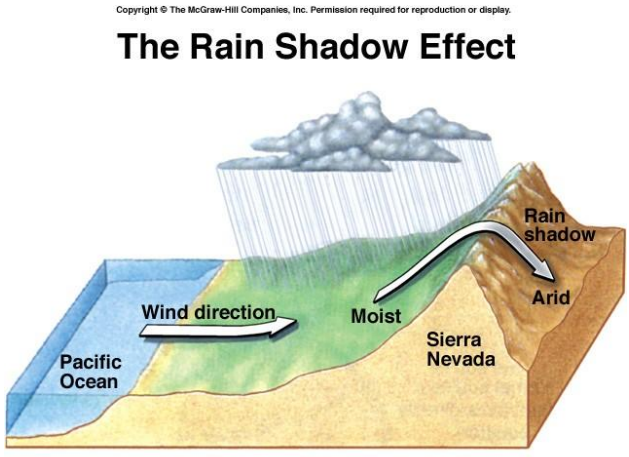


f. Monsoons
    i. Seasonal winds that bring moist air and rain

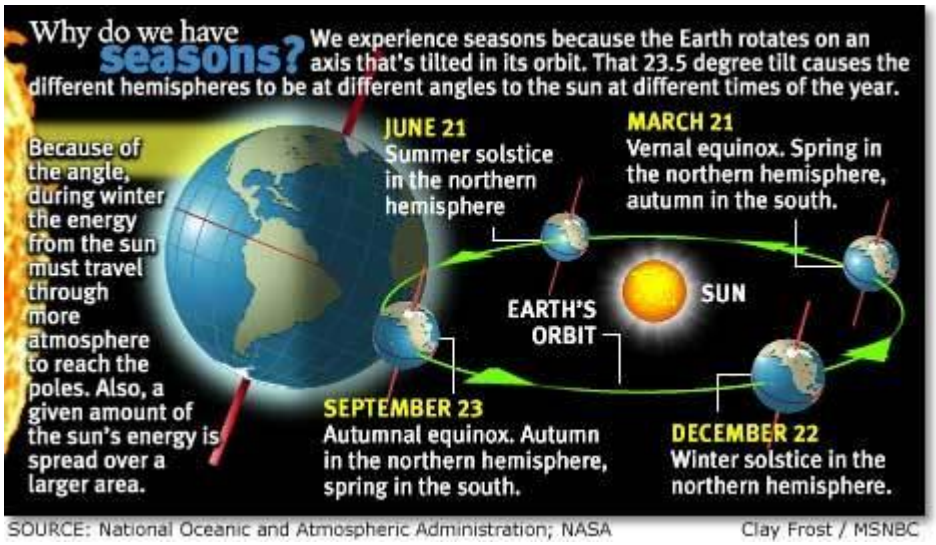


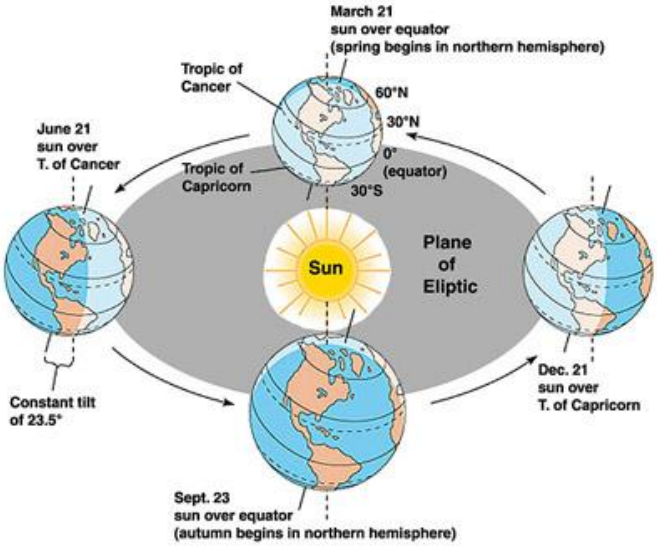


g. Oragraphic Effect



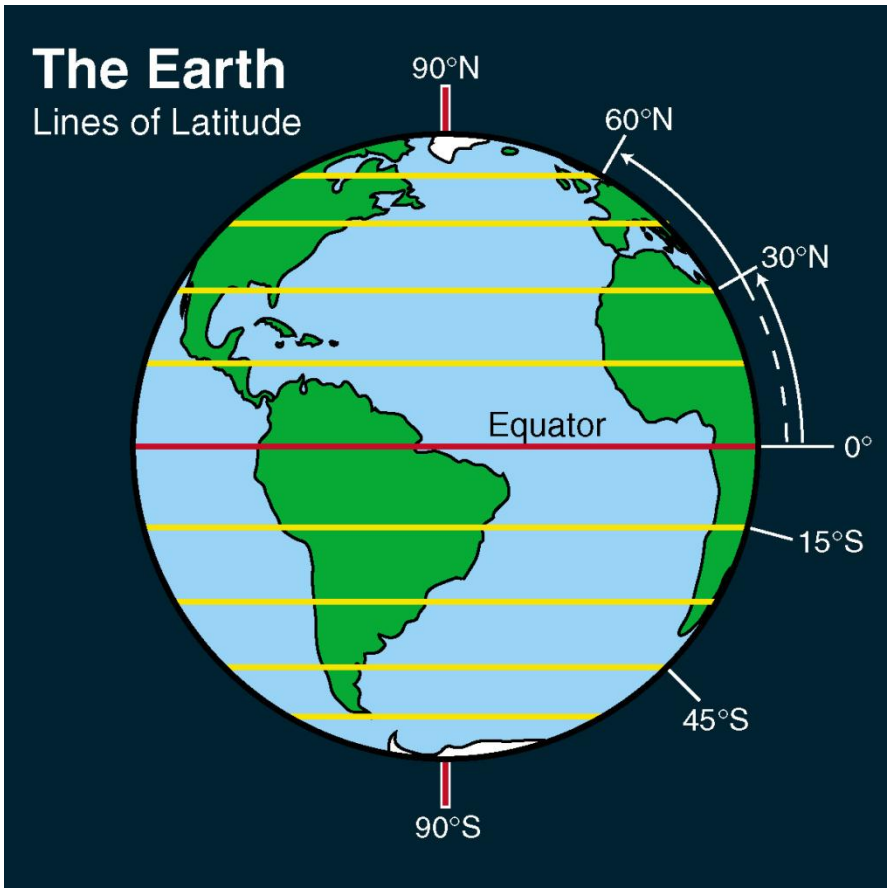
h. The Earth's seasons
    i. Because of the earth's tilt, the sun's rays hit the Northern Hemisphere longer and more directly in summer than in winter
        1. The sun appears to rise higher in the sky
        2. Temperatures are warmer
        3. Days are longer
    ii. When it's summer in the Northern Hemisphere its winter in the Southern Hemisphere.
        1. This is because the Southern Hemisphere is tilting away from the sun and receives less direct solar rays.

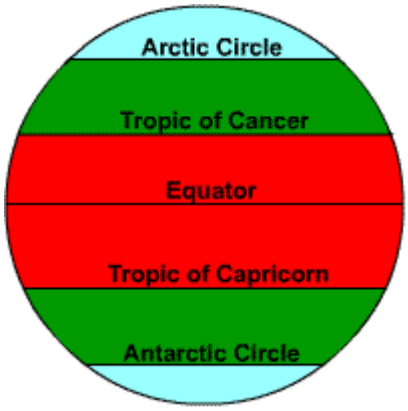




iii. Seasonal distances are greatest at the poles and least at the equator
iv. Area around the equator is not affected by the tilt of the Earth
    1. Always warm because they constantly receive directly sunlight
v. Areas near the poles vary greatly throughout the year
    1. In the summer, each pole receives 24 hours of sunlight
    2. In the winter, the sun never rises around the North or South Pole

5. Distribution of Climate Regions
    a. Climate zones are most affected by latitude and elevation
        i. High Latitude Climates
            1. The North and South Pole have similar "polar climates" with very cold winter temperatures
        ii. Mid-latitude Climates
            1. Places with low elevation
                a. Warm winters and cool summers
                b. Known as temperate climates
        iii. Low Latitude Climates
            1. Central Africa, Central America, Northern South America, South Asia and Southeast Asia
                a. Tropical, moist climates





Notes created by Audrey Alamo, PreAP World Geography based on excerpts from “Mastering the TEKS in World Geography,” Jarrett Publishing.