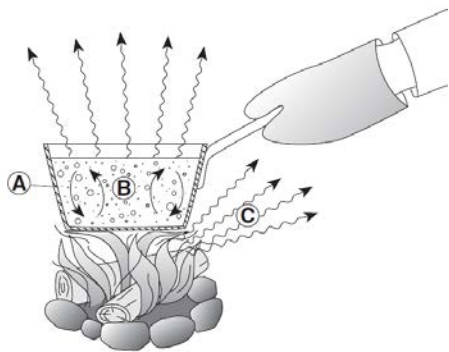


# CLIMATE AND SEASONS REVIEW

## Energy Transfer

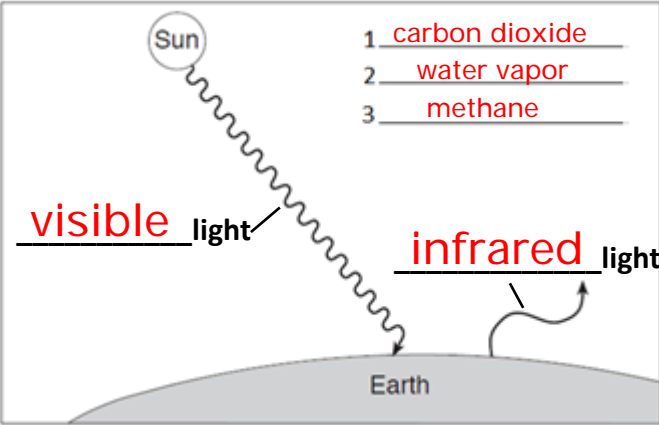
Identify the types of energy transfer represented by A, B, and C in the diagram to the right.

- A. Conduction
- B. Convection
- C. Radiation

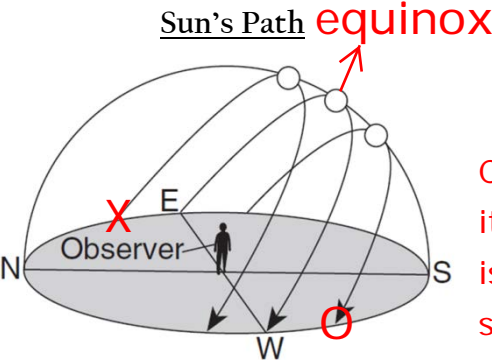


## Greenhouse Effect

Label the two different wavelengths of light that are involved with the Greenhouse Effect. Then write the 3 main greenhouse gases that trap outgoing radiation on lines 1, 2, and 3.

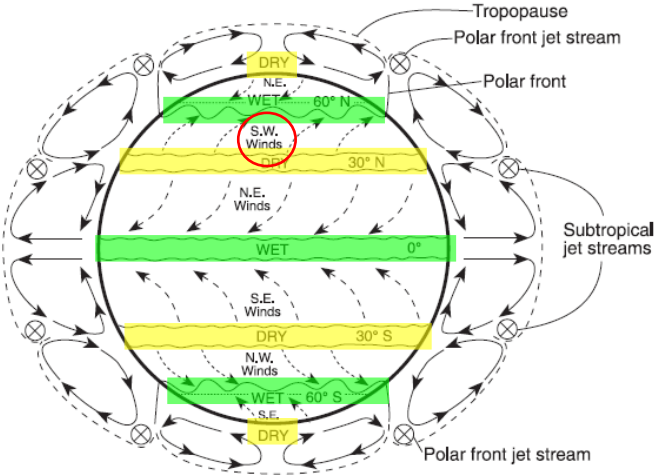


- On the diagram to the right, place an "X" at the location of sunrise on June 21<sup>st</sup>.
- Place an "O" at the location of sunset on December 21<sup>st</sup>.
- Label the position of the Sun "Equinox" where it represents its position at Solar Noon on September 23<sup>rd</sup> or March 21<sup>st</sup>.



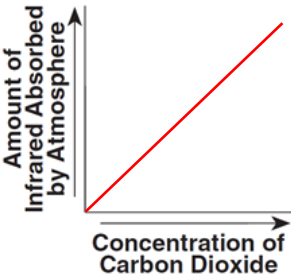
## Global Climate Belts

- Color all of the DRY climate belts on the map YELLOW.
- Color all of the WET climate belts on the map GREEN.
- Circle the wind belt that affects the air over NYS.



## Greenhouse Gases

Complete the graph to the right by drawing a line that shows the relationship between the two variables



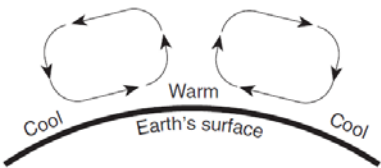
## Climate Patterns

The graph to the right shows the temperature of two different cities located at the same latitude and elevation in North America. What is most likely causing the differences in temperatures for these two cities throughout the year?

City X is most likely inland away from a large body of water because its temperature varies greatly between summer and winter. City Y is most likely on the shore line of a big body of water. Water's high specific heat makes its temperature not change much and this causes land next to the water to take on similar temperature characteristics.

## Energy Transfer

The motion of the air in the diagram to the left represents what type of energy transfer?



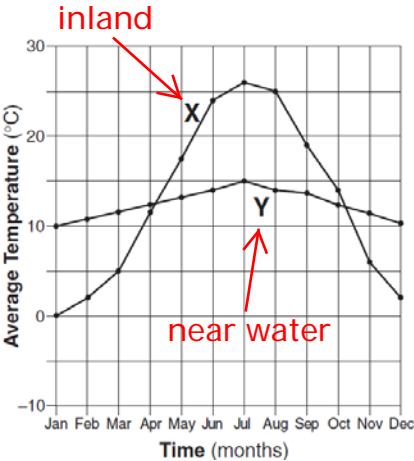
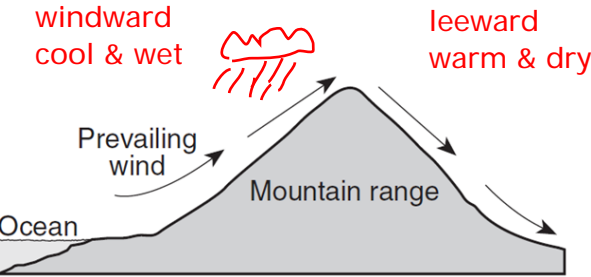
Convection

## Climate and Mountains

On the diagram below, draw clouds with rain on the side of the mountain where there is most likely precipitation occurring.

Also, label the following:

Windward      Leeward      Warm  
Cool      Wet      Dry



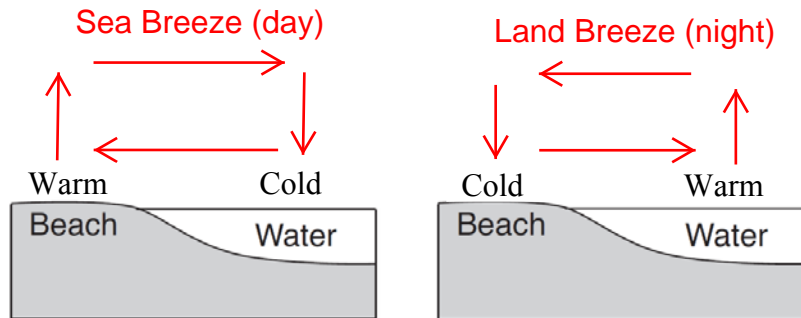
## Land Breeze and Sea Breeze

Label the diagrams below with the following:

DAY or NIGHT

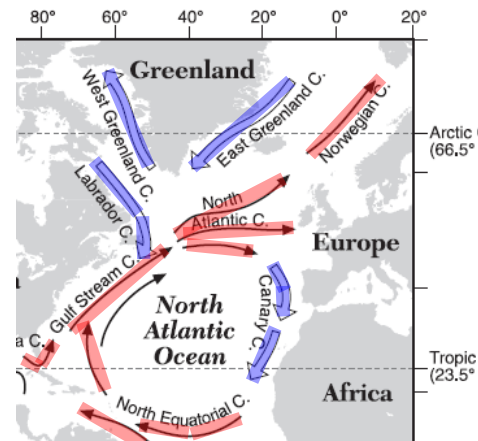
LAND BREEZE or SEA BREEZE

Draw the convection currents in the air that would form over the beach and water on the two diagrams.



## Ocean Currents

On the diagram below, color all of the warm currents RED and all of the cold currents Blue.

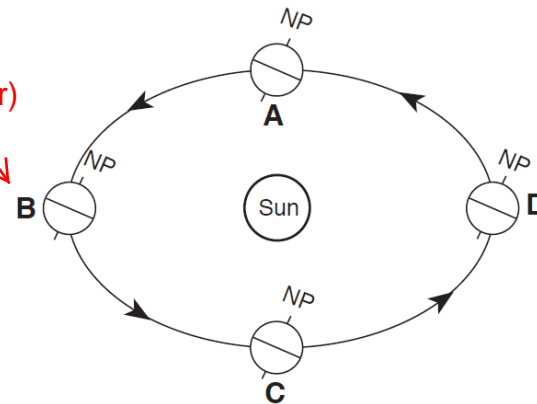


(use ESRT page 4 to help if you need it)

## Seasons

Match the positions of the Earth (A, B, C, D) with the day of the year.

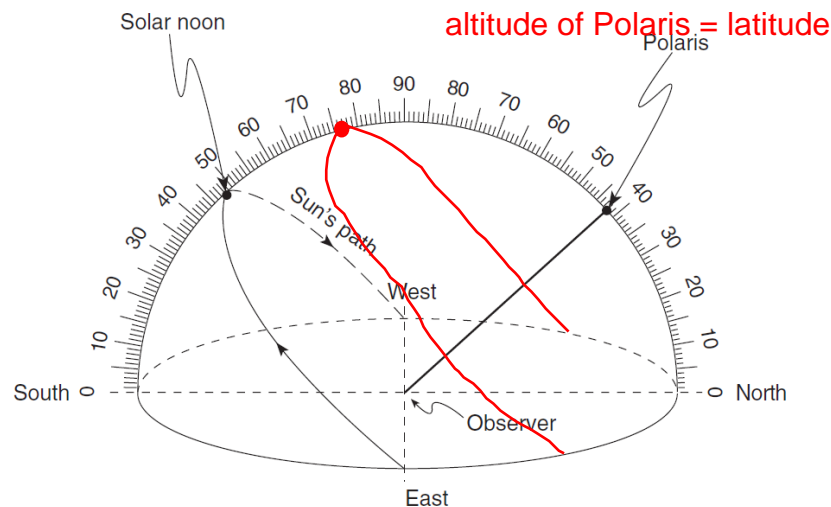
NP tilted towards the sun. (summer)



- B** Summer Solstice
- A** Spring Equinox
- C** Fall Equinox
- D** Winter Solstice

## Sun's Path

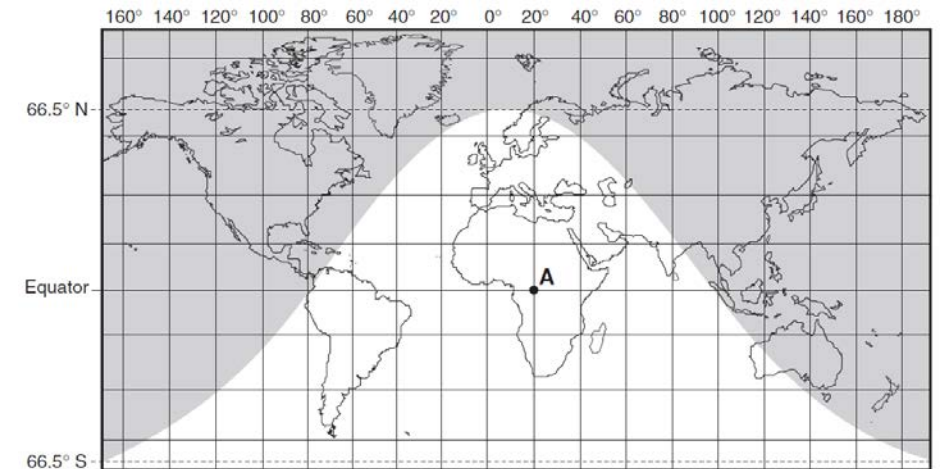
- What is the latitude of the observer in the diagram below? **42°N**
- What day of the year could be represented by the diagram? **March 21st**  
**Sept. 22nd**  
**Equinoxes**
- Draw the path the sun would take on June 21<sup>st</sup>.



## Day and Night

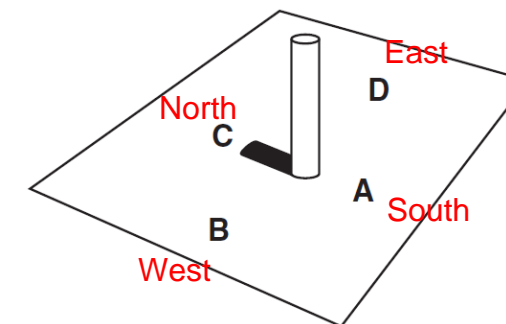
The map to the right shows where the surface of the Earth is experience day (white) and night (gray).

- What day of the year does this map represent?  
**Dec 21st / Winter Solstice**
- How many hours of daylight does the South Pole experience on this day?  
**24 hours**
- Why does the North Pole receive no insolation on this day?  
**The North Pole is tilted away from the sun into darkness.**



## Shadows

The diagram to the right shows the shadow created by a wooden rod in the ground at solar noon in NYS. Use the shadow to label points A, B, C and D with the correct compass direction.



At solar noon the sun is directly south. This means the shadow will face the opposite way to the north!