

Name \_\_\_\_\_

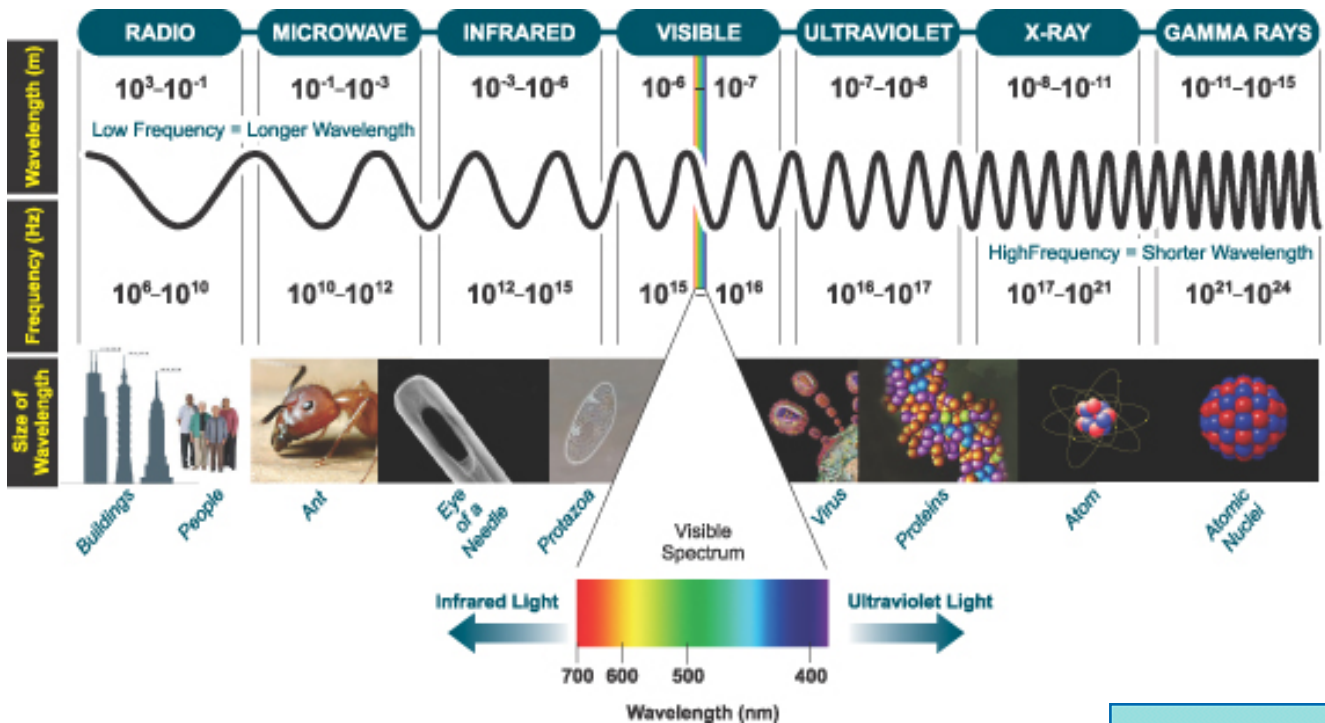
HR \_\_\_\_\_

### Weather Systems Outline

#### Energy in the Atmosphere

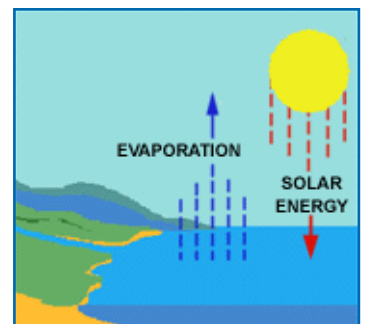
- The \_\_\_\_\_ is the major source of \_\_\_\_\_ for \_\_\_\_\_
- \_\_\_\_\_, including our \_\_\_\_\_, give off \_\_\_\_\_ energy over the wide range of \_\_\_\_\_ that make up the **spectrum**
  - Earth's atmosphere \_\_\_\_\_ out most of the \_\_\_\_\_-wave \_\_\_\_\_
  - Most of the output from the \_\_\_\_\_ that reaches the \_\_\_\_\_ of Earth is in the \_\_\_\_\_ band that we perceive as \_\_\_\_\_ light
- Earth also \_\_\_\_\_ electromagnetic \_\_\_\_\_, mostly in the \_\_\_\_\_ (\_\_\_\_\_) part of the spectrum

#### Electromagnetic Spectrum



#### Evaporation

- Of the \_\_\_\_\_ radiation that reaches \_\_\_\_\_, about \_\_\_\_\_ evaporates \_\_\_\_\_ from the \_\_\_\_\_

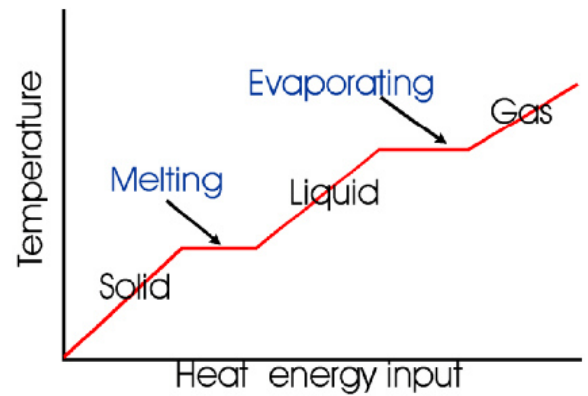


- \_\_\_\_\_ is the change of state from \_\_\_\_\_ to \_\_\_\_\_ or \_\_\_\_\_
- \_\_\_\_\_ adds \_\_\_\_\_ and \_\_\_\_\_ to the \_\_\_\_\_
- \_\_\_\_\_ when water is covered or \_\_\_\_\_
- \_\_\_\_\_ when water is uncovered, \_\_\_\_\_, and when wind \_\_\_\_\_ over it

### Three Stages of Water

- \_\_\_\_\_, \_\_\_\_\_ water, water \_\_\_\_\_
- Energy that is \_\_\_\_\_ or \_\_\_\_\_ during a change in state is called \_\_\_\_\_ (hidden) heat, a form of \_\_\_\_\_ energy

- It is \_\_\_\_\_ energy because it does \_\_\_\_\_ cause a change in \_\_\_\_\_



### Heat of Fusion

- When the \_\_\_\_\_ of the ice reaches \_\_\_\_\_ °C, it begins to \_\_\_\_\_
- As the \_\_\_\_\_ changes to \_\_\_\_\_, it absorbs \_\_\_\_\_ calories per gram
- The \_\_\_\_\_ (the \_\_\_\_\_ needed to melt \_\_\_\_\_ gram of ice is \_\_\_\_\_ cal/g)
- The \_\_\_\_\_ of the ice does not change until \_\_\_\_\_ the ice has \_\_\_\_\_

### Heat of Vaporization

- When the \_\_\_\_\_ of the liquid water reaches \_\_\_\_\_ °C, the \_\_\_\_\_ point of water, \_\_\_\_\_ water \_\_\_\_\_ to water \_\_\_\_\_

➤ The \_\_\_\_\_ necessary to change \_\_\_\_\_ gram of a substance from the liquid to the \_\_\_\_\_ state is called the \_\_\_\_\_

• The heat of \_\_\_\_\_ of water is \_\_\_\_\_ cal/g

• The gram of water absorbs \_\_\_\_\_ calories of \_\_\_\_\_ heat as it changes to \_\_\_\_\_

➤ After \_\_\_\_\_ the liquid water becomes \_\_\_\_\_, the \_\_\_\_\_ begins to \_\_\_\_\_ again

### Latent Heat Energy

➤ The \_\_\_\_\_ of \_\_\_\_\_ vapor is \_\_\_\_\_ cal/g·°C

➤ If the water vapor is cooled to \_\_\_\_\_ °C, it will condense and release the \_\_\_\_\_ calories of latent heat it absorbed

➤ As the cooling continues, the \_\_\_\_\_ will release the \_\_\_\_\_ it absorbed while it was \_\_\_\_\_

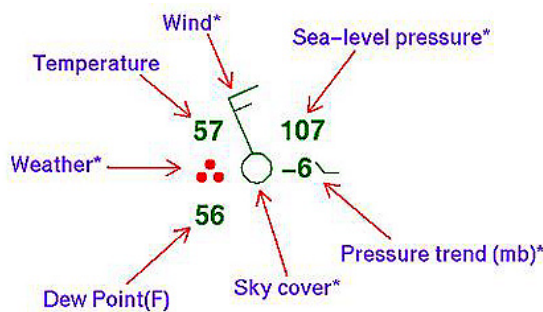
➤ It also releases the \_\_\_\_\_ calories per gram that was needed to \_\_\_\_\_ the original ice

### Synoptic Weather Maps

➤ A \_\_\_\_\_ map that shows a \_\_\_\_\_ of atmospheric field \_\_\_\_\_

➤ May show information about \_\_\_\_\_, air \_\_\_\_\_, \_\_\_\_\_, and other weather conditions at a particular \_\_\_\_\_ and over a large geographic \_\_\_\_\_

### Weather Station Symbols



## Air Masses

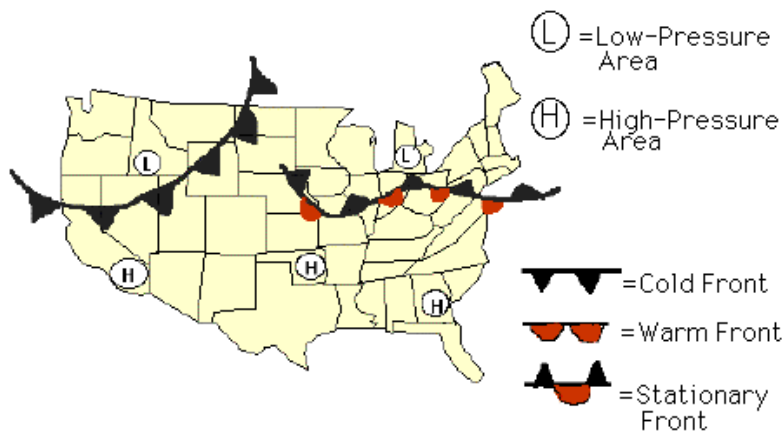
- The leading \_\_\_\_\_ of air masses
- When a \_\_\_\_\_ passes, \_\_\_\_\_ often accompanies the changes in temperature, humidity, and atmospheric pressure
- The \_\_\_\_\_ of an air mass depends on its geographic \_\_\_\_\_



## Weather Fronts

- \_\_\_\_\_ are shown by \_\_\_\_\_ that \_\_\_\_\_ two air \_\_\_\_\_
- \_\_\_\_\_ along the fronts indicate the \_\_\_\_\_ the fronts are \_\_\_\_\_ and what \_\_\_\_\_ of front they are
- \_\_\_\_\_ fronts are \_\_\_\_\_ between air \_\_\_\_\_ that are not \_\_\_\_\_
- \_\_\_\_\_ fronts result from \_\_\_\_\_ air being \_\_\_\_\_ above the surface of Earth by \_\_\_\_\_ air closing in from both sides

## Front Symbols



## Natural

- Most occur in the \_\_\_\_\_ when the air is \_\_\_\_\_ and \_\_\_\_\_

## Hazards

- Thunderstorms

- Advancing \_\_\_\_\_ fronts may push the \_\_\_\_\_ air \_\_\_\_\_, causing the formation of giant \_\_\_\_\_ clouds, and heavy \_\_\_\_\_
- \_\_\_\_\_, damaging \_\_\_\_\_, and \_\_\_\_\_ are possible
- Lightning \_\_\_\_\_, flash \_\_\_\_\_ and \_\_\_\_\_ spawned by thunderstorms cause about \_\_\_\_\_ fatalities per year in the US

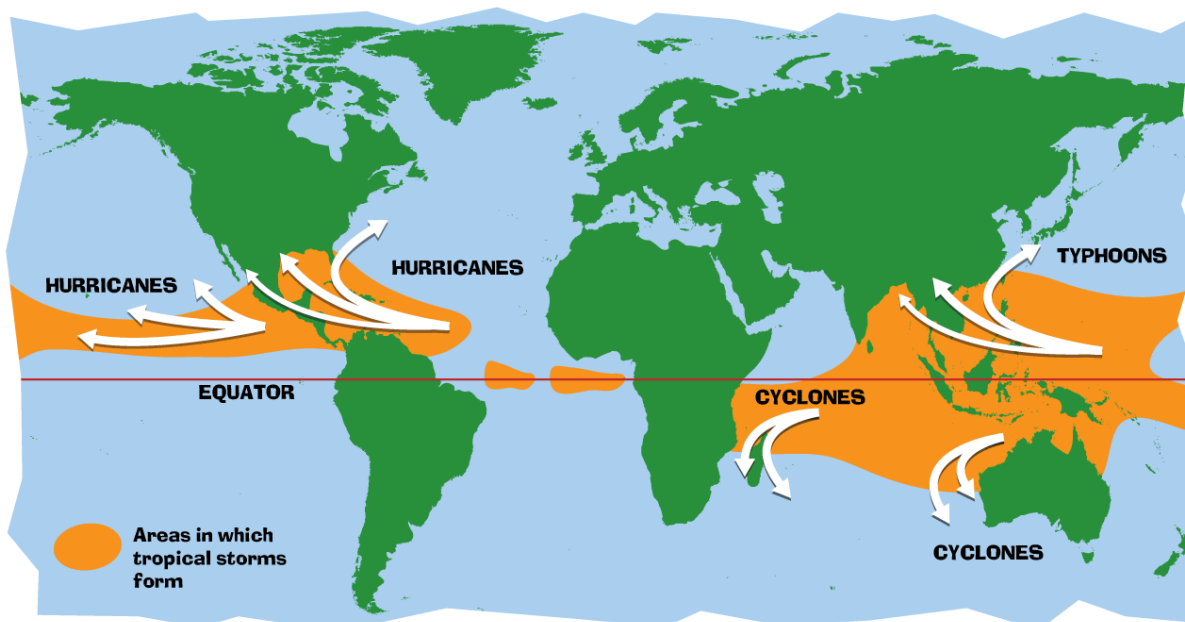
➤ Tornadoes

- Most common in the \_\_\_\_\_ and early \_\_\_\_\_ over the \_\_\_\_\_ US
- Are usually less than \_\_\_\_\_ miles (0.5 km) in \_\_\_\_\_ and usually last for \_\_\_\_\_ min or less
- \_\_\_\_\_ have been measured by \_\_\_\_\_ in excess of \_\_\_\_\_ mi/hr

➤ Hurricanes

- Tropical \_\_\_\_\_, areas of low \_\_\_\_\_ that usually develop in the late \_\_\_\_\_ and early \_\_\_\_\_ in the Atlantic \_\_\_\_\_ between South America and Africa
- When winds exceed \_\_\_\_\_ mi/hr the designation is changed from \_\_\_\_\_ to a \_\_\_\_\_

Tropical Storm Formation



## Tropical Storm Categories

Category	Wind Speed (mph)	Damage at Landfall	Storm Surge (feet)
1		Minimal	4-5
2		Moderate	6-8
3		Extensive	9-12
4		Extreme	13-18
5		Catastrophic	19+