

# weather

## Elements of weather and weather influences

### Why do we study weather?

\_\_\_\_\_ – The condition of Earth's atmosphere at a certain time and place

### Elements of Weather

#### 1. Temperature

- Measure of the average amount of \_\_\_\_\_
  - Fast moving particles = \_\_\_\_\_ temperature
  - Slow moving particles = \_\_\_\_\_ temperature

#### 2. Humidity

- Humidity – the amount of water vapor in air
- Relative humidity – \_\_\_\_\_
- Dew point – temperature at which air is saturated and condensation can occur

#### 3. Precipitation

- Precipitation – any water that falls from the sky
  - Hail, snow, sleet and rain (rain gauge)

#### 4. Air Pressure

- Air pressure – force of air molecules pushing on an area
  - Flows from \_\_\_\_\_ to \_\_\_\_\_
  - High pressure cell
    - Weak winds move clockwise and out
    - \_\_\_\_\_ weather
  - Low pressure cell
    - Strong winds move \_\_\_\_\_ and in
    - Stormy weather

#### 5. Wind

- Created from pressure changes in the air
- Great pressure change = STRONG winds
- Gradual pressure change = WEAK winds

### Influences of Weather

#### 1. Water Cycle – Continuous movement of water between the \_\_\_\_\_, the land, the oceans and \_\_\_\_\_

- Evaporation
- Condensation
- Precipitation
- A change in the amount of \_\_\_\_\_ in the air affects the \_\_\_\_\_!**

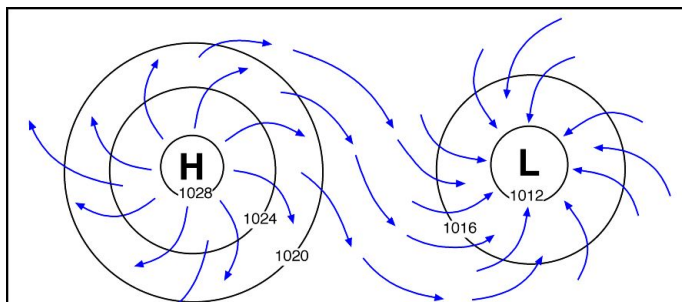
#### 2. Air Masses

- Air masses can change the \_\_\_\_\_ and \_\_\_\_\_ of an area

#### 3. Fronts

- Fronts force air to rise and the weather to change as they pass

#### 4. Pressure Systems



## 5. Global winds

- Westerlies blow pressure systems from West to East in the United States

## 6. Jet streams

- Affect temperature
- \_\_\_\_\_ jet stream brings cold air from Canada
- \_\_\_\_\_ jet stream brings warm air from Mexico and the southern U.S.

## 7. Ocean Currents

- Surface currents are caused by winds
- Currents distribute energy across Earth's surface
- Changes local \_\_\_\_\_
- Changes local \_\_\_\_\_

## **Clouds**

Definition: Tiny droplets of \_\_\_\_\_ or \_\_\_\_\_ suspended in the air

### Cloud Formation

- Warm, moist air rises
- Air cools to its \_\_\_\_\_ (temperature at which air is saturated)
- Moist air \_\_\_\_\_ on condensation nuclei
- Billions of water droplets are need to form a cloud

### Cloud Classification

- Clouds are classified by shape and \_\_\_\_\_

## **Three Main Cloud Types**

### 1. Cirrus

- Made of \_\_\_\_\_
- Thin and wispy clouds
- Never** produce precipitation – but predict it's coming!
- Prefix in naming: "cirro"**

### 2. Stratus

- Sheet-like or blanket the sky
- Cover most of the sky
- Prefix in naming: "strato"**

### 3. Cumulus

- \_\_\_\_\_, cotton ball shaped clouds
- Prefix in naming: "cumulo"**

### Naming Clouds

- We use prefixes/suffixes to name clouds
  - "Alto" means middle altitude clouds
  - "Nimbo" means cloud produces precipitation

### Cloud Families

- High Clouds** - All have "cirrus" in their names; Examples: Cirrus, cirrostratus, cirrocumulus
- Middle Clouds** - All have "alto" in their names; Examples: Altocumulus and altostratus
- Low Clouds** - All are forms of stratus clouds; Examples: Stratus, stratocumulus, nimbostratus
- Clouds of Vertical Development**
  - Clouds that form from rising air at a cold front
  - Very tall, thick clouds
  - Examples: Cumulus and cumulonimbus