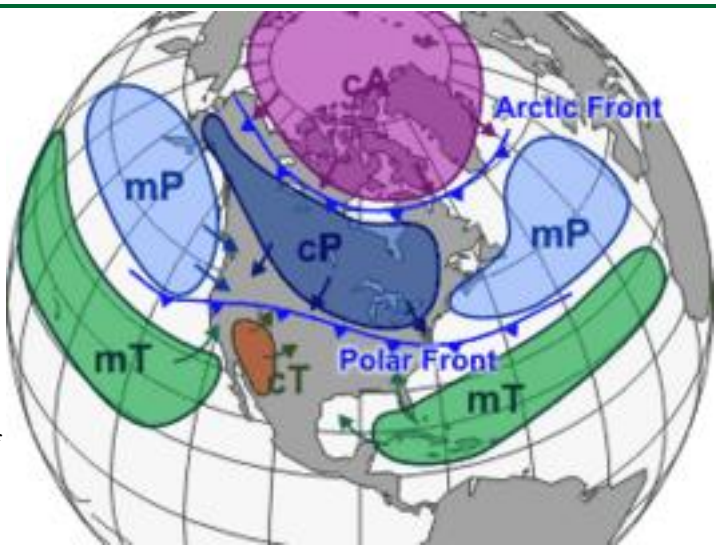
Weather Fronts

By Cindy Grigg

[1] Air masses are very large "pockets" of air. Often these huge air masses cover ten thousand or more square miles. No air mass stays still for more than a few days at a time. They are always on the move. Their movements bring us changes in the weather.



[2] Air masses are named for where they form. They are usually called polar, arctic, tropical, or equatorial. Maritime air masses form over oceans. They usually carry a lot of moisture. Continental air masses form over land. They usually have drier air.

[3] Air masses are different in many ways. They have different temperatures. They have different atmospheric pressures and different moisture contents. Their patterns of movement are different.

[4] An air mass that forms over land near the arctic would be called a continental arctic air mass. It would have cold, dry air. It would have high pressure. A maritime polar air mass would have cold, moist air. It would probably bring fog and drizzle as it moved into an area.

[5] Maritime tropical air masses form over warm ocean waters in the tropics and the Gulf of Mexico. They bring warm, moist air northward into the United States. These would have low pressure. They may bring rain.

[6] Low pressure air masses are called cyclones. In a cyclone, the air moves in a counterclockwise way towards the center of the mass.

[7] High pressure air masses are called anticyclones. In them, the air moves in a clockwise direction out from the center.

[8] When two air masses meet, the weather changes. The edge between the two is called a front. Each different kind of front causes a different kind of weather.

[9] A cold front is when a cold air mass pushes into a warm air mass. The heavier cold air sinks and slides in under the warm air. The cold air forces the warm air steeply upward along the front. This causes cumulus and cumulonimbus clouds to form. Rainstorms or thunderstorms usually develop. After the cold air mass passes, the rain stops. Dry, clear cool or cold weather follows.

[10] A warm front is when a warm air mass pushes into a cold air mass. Warm air is less dense than cold air. The lighter warm air slides up and over the cold air. High cirrus clouds form first as rising water vapor condenses. Later, nimbostratus clouds may form and cause rain or snow.

[11] A stationary front happens when a cold front or a warm front stays in place for several days without invading another front. Clouds, light winds, and precipitation often form at the boundary. The precipitation may last for several days.

[12] An occluded front develops when two masses of cold air meet. The cold air forces warmer air caught between the two fronts upwards. Cumulonimbus and stratocumulus clouds usually form. Strong winds and heavy rain or snow may result.

[13] Why do you think precipitation usually happens along a front? In most fronts, warm air meets cooler air. As warmer air cools, it can hold less water. That's why some form of precipitation usually occurs.

Name _____ Date _____

Weather Fronts

1. What are air masses?

_____

_____

2. Air masses are named for _____.
   - (A) People
   - (B) Where they form
   - (C) Animals
   - (D) The type of air they contain

3. Low pressure air masses are called _____.
   - (A) Anticyclones
   - (B) Stationary front
   - (C) Cyclones
   - (D) Occluded front

4. A cold front usually brings what kind of weather?
   - (A) Cool and dry
   - (B) Snow
   - (C) Rain and/or thunderstorms
   - (D) Sunny and fair

5. When a cold front or a warm front stays in place for several days without invading another front, it is called a _____.
   - (A) Warm front
   - (B) Stationary front
   - (C) Occluded front
   - (D) Cold front

6. When two air masses meet, what happens?

_____

_____

7. Warm air is _____.
   - (A) Less dense than cold air
   - (B) Lighter than cold air
   - (C) Thinner than cold air
   - (D) All of the above

8. When a warm and a cold air mass meet, what happens?
   - (A) The warm air would slide up and over the cold air.
   - (B) The heavier cold air would sink and slide in under the warm air.
   - (C) Some form of precipitation would occur.
   - (D) All of the above

9. Cooler air can hold less water than warm air.
   - (A) False
   - (B) True

10. Air masses are different in many ways. Which of these is **not** different?
    - (A) Temperature
    - (B) Atmospheric pressure
    - (C) Ratio of oxygen/nitrogen
    - (D) Moisture contents