

Clouds, Air Masses, Fronts, Station Models and Weather Maps

Name: KEY KEY KEY KEY KEY KEY

Some helpful words...

Condensation – *Water turning from gas to liquid.*

Air Mass – *A large mass of air that has similar humidity and temperature conditions throughout.*

Source Region – *The area of land or water that air mass gets its characteristics from.*

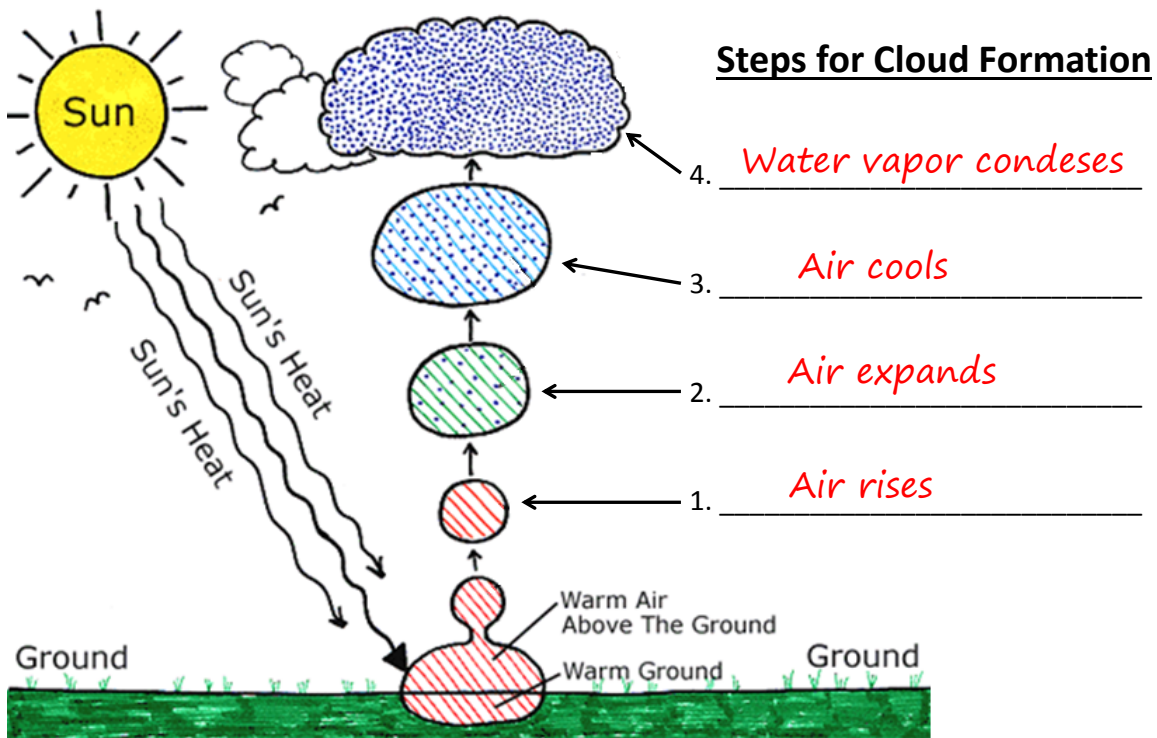
Front – *Boundary between air masses often where precipitation takes place.*

Warm Front – *Line drawn on a weather map showing the front of a warm air mass.*

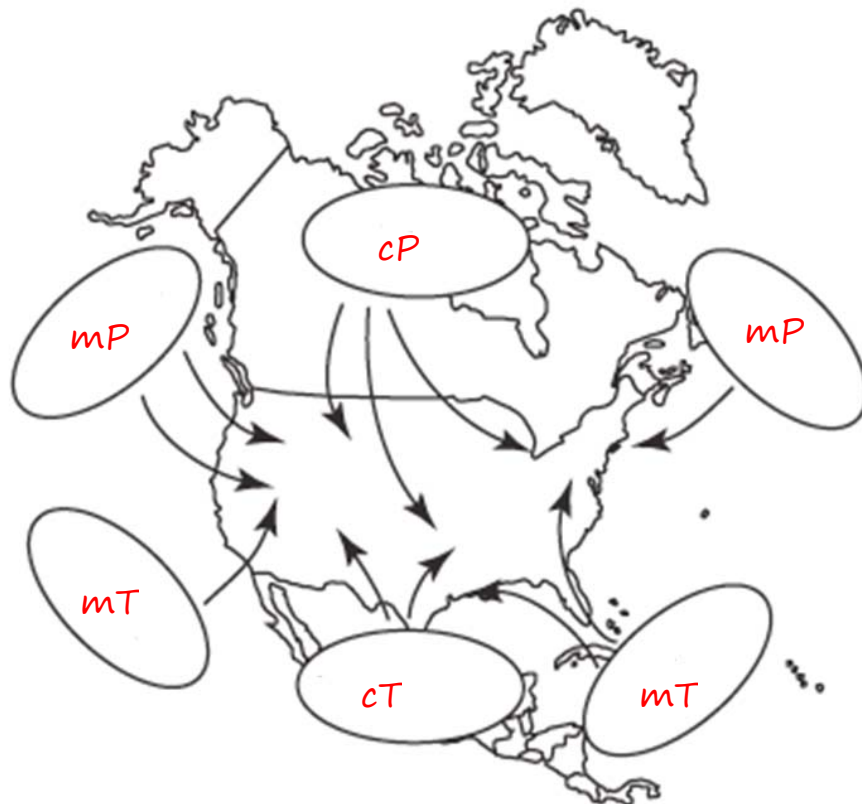
Cold Front – *Line drawn on a weather map showing the front of a cold air mass.*

Station Model – *An abbreviated representation of the weather station's data.*

Cloud Formation

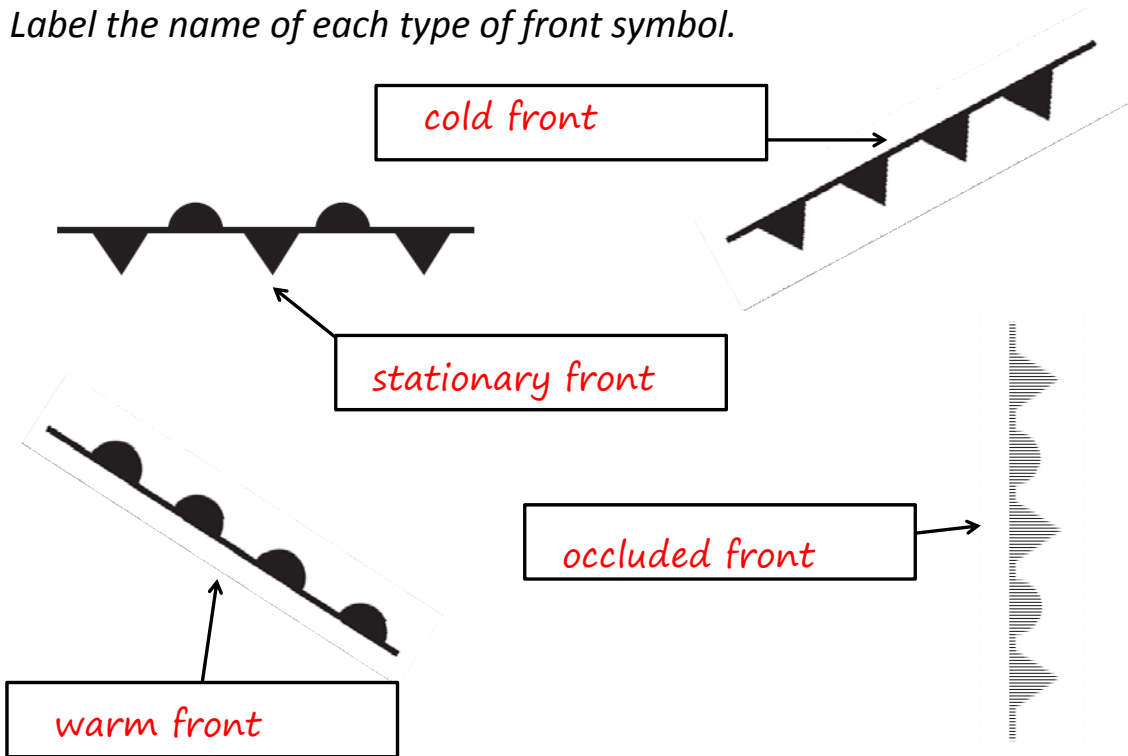


Air Masses and Source Regions

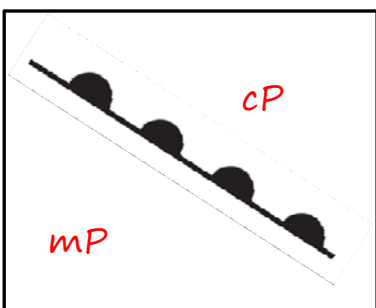
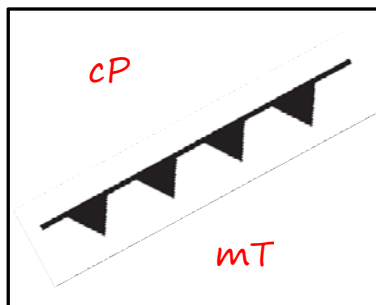


Fronts

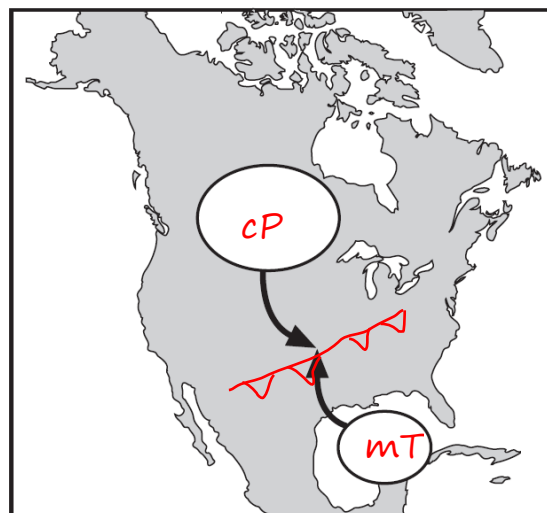
Label the name of each type of front symbol.



Air Masses and Fronts

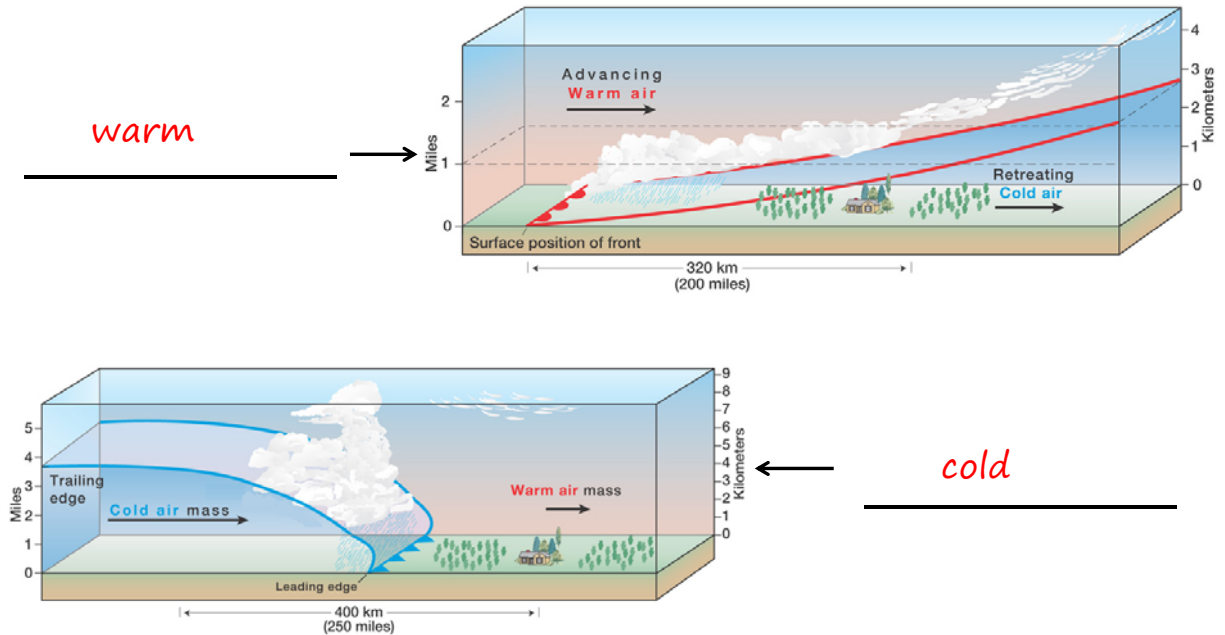


1. In the boxes to the left, label each side of the fronts with the correct 2 letter air mass symbol.
2. The map below shows 2 air masses. Based on their source regions, label them with the correct 2 letter symbols.
3. Where the 2 arrows meet in the map below, correctly draw the front that would exist there.



Which Type of Front?

Label each type of front below.

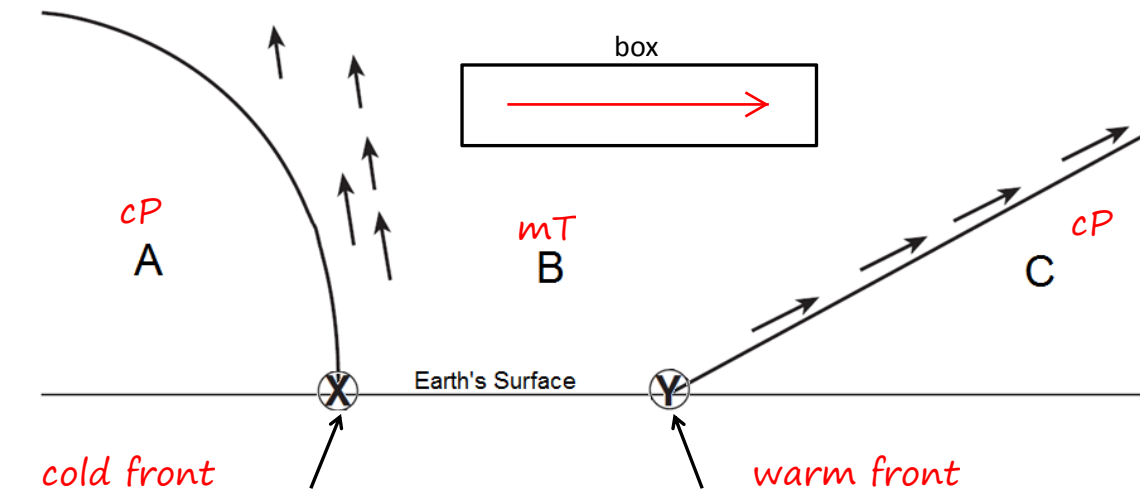


Front Cross Sections

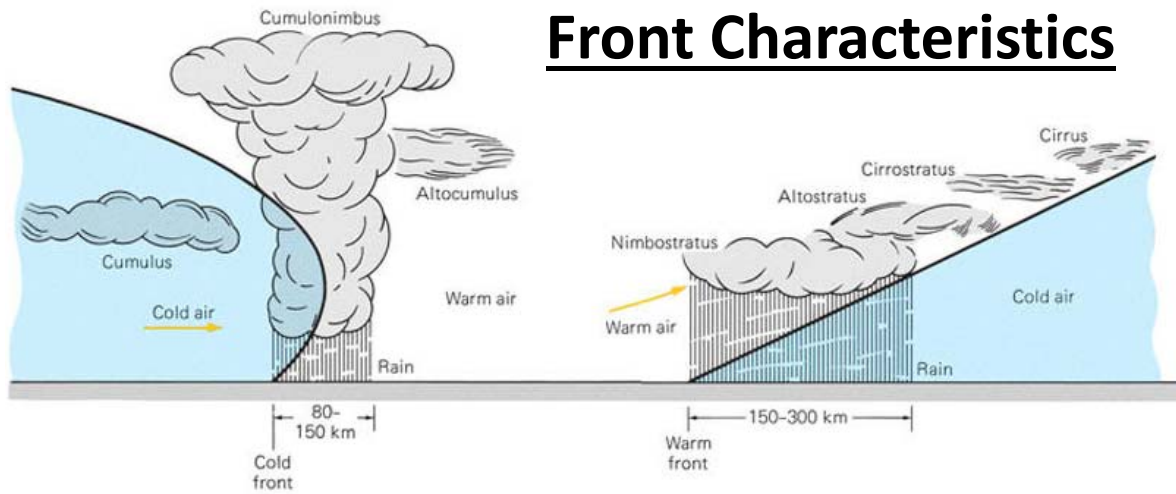
The diagram below shows 2 fronts from the side (a cross section).

Complete the diagram:

1. Label areas A, B, and C with the correct air mass symbols.
2. Label fronts X and Y with the correct names.
3. Draw an arrow in the box showing the direction the fronts are moving.



Front Characteristics



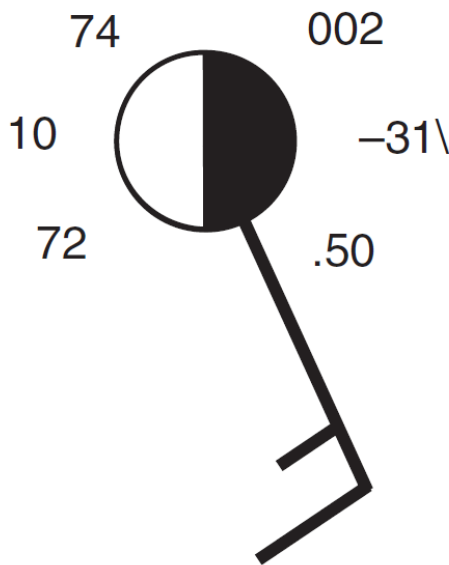
Identify the front each statement describes:

- | | |
|--|---------------------------------------|
| 1. Thunderstorms - <u>cold</u> | 6. Replaces cold air - <u>warm</u> |
| 2. Warm air behind - <u>warm</u> | 7. Cold air behind - <u>cold</u> |
| 3. Rain ahead - <u>warm</u> | 8. Rain along - <u>cold</u> |
| 4. Moves faster - <u>cold</u> | 9. Longer precipitation - <u>warm</u> |
| 5. Shorter precipitation - <u>cold</u> | 10. Replaces warm air - <u>cold</u> |

Station Models and Weather Maps

Weather Station Models

Identify the information shown by the station model, making sure to label the correct units.

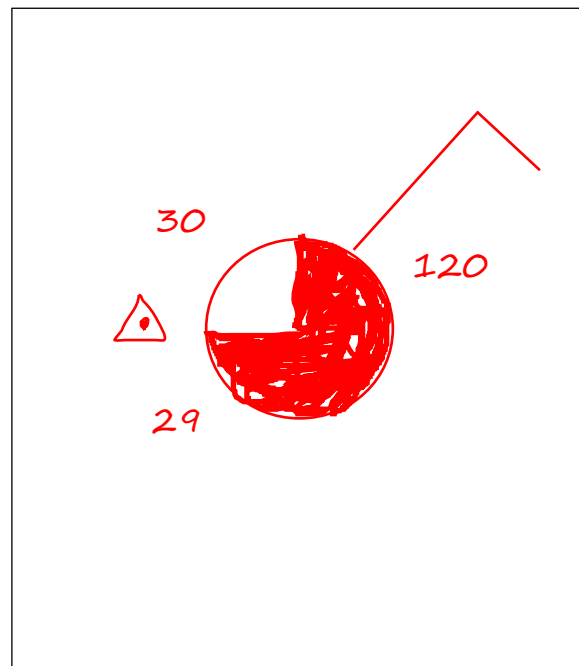


Temperature: 74°F
Dew Point: 72°F
Pressure: 1000.2 mb
Barometric Change: -3.1mb/3hrs
Wind Direction: Southeast
Wind Speed: 15knots
Cloud Cover: 50%
Visibility: 10 miles
Precipitation: .50 inches/6hrs

Drawing Station Models

Use the data to correctly draw a station model in the box.

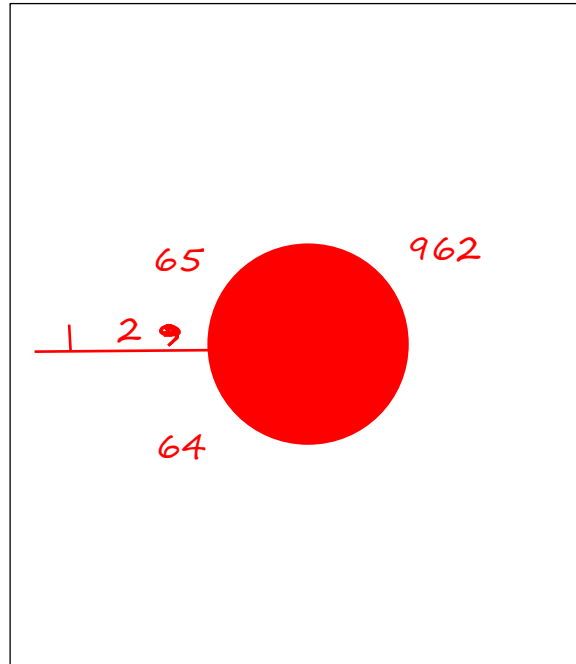
- temperature - 30°F
- present weather - sleet
- dew point - 29°F
- wind speed - 10 knots
- wind direction - NE
- pressure - 1012.0mb
- cloud cover - 75%



Drawing Station Models

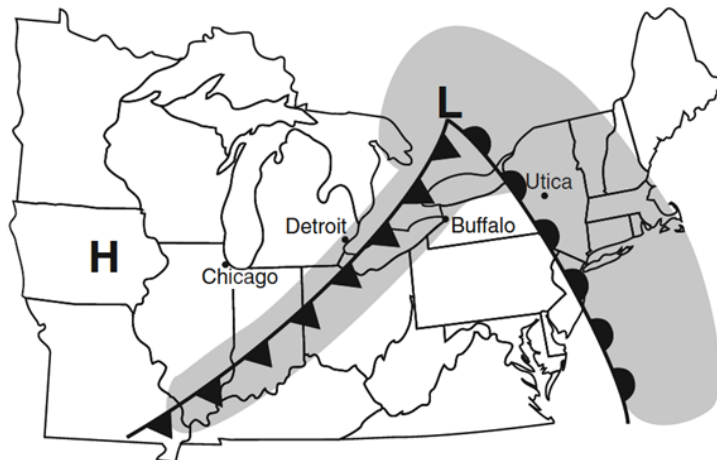
Use the data to correctly draw a station model in the box.

Air temperature	65°F
Dewpoint	64°F
Visibility	2 miles
Present weather	drizzle
Wind direction	from the west
Wind speed	5 knots
Amount of cloud cover	100%
Barometric pressure	996.2 millibars



Fronts on a Map

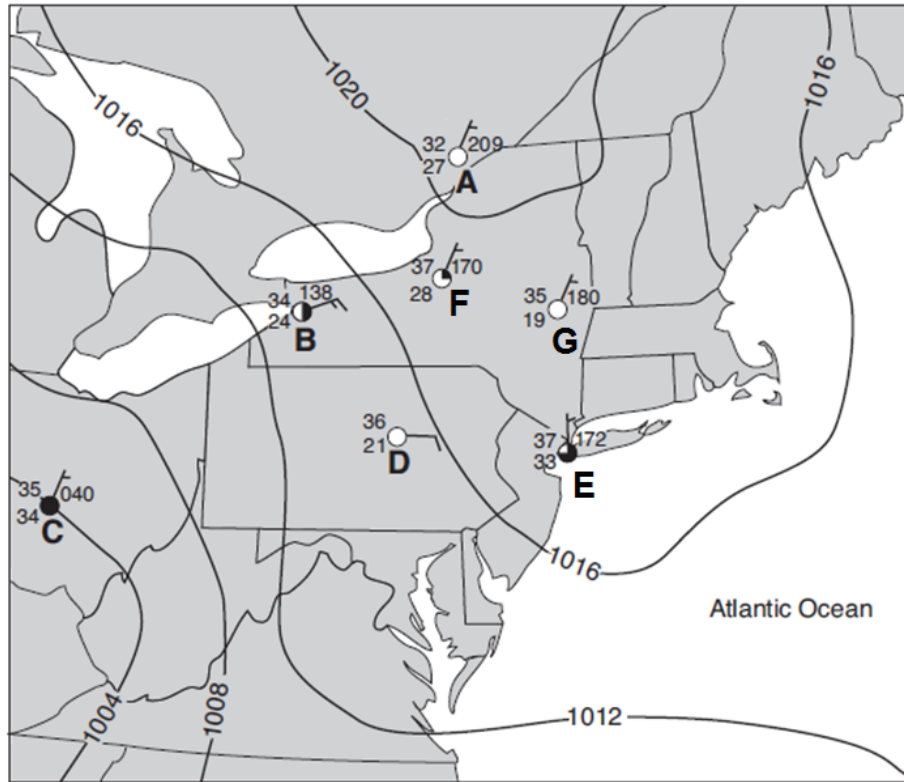
The map to the right shows weather symbols over a portion of the United States. The shaded regions represent where precipitation can occur.



TRUE or FALSE?

- The cold front will pass by Buffalo next.
true
- Utica will get colder when the warm front passes by.
false
- The cold front is moving southwest.
false
- Chicago has the highest air pressure.
true
- Cold and warm fronts only connect to low pressure on the map.
true
- The warm front is moving to the northeast.
true
- Buffalo is the warmest city.
true
- It rained longer in Detroit than Utica.
false
- There is a greater chance of precipitation near the high pressure center.
false
- Air is moving counterclockwise and inwards around the low pressure center.
true

Station Models on a Map



QUESTIONS

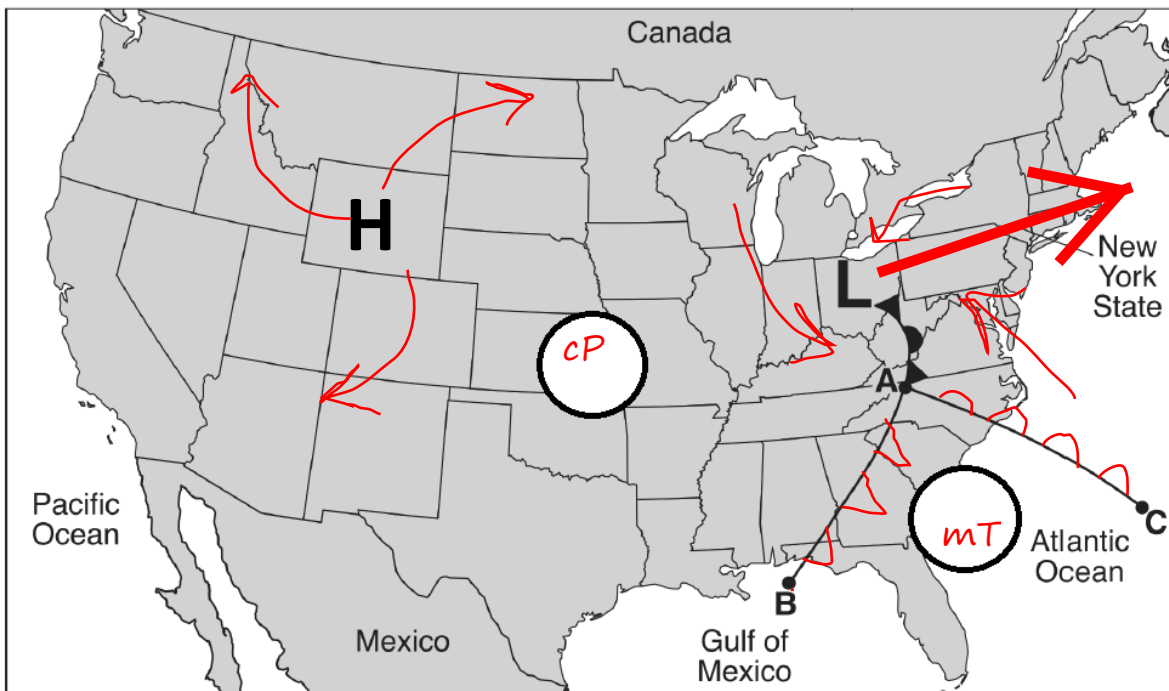
Use the map above to answer the next set of questions.

1. What do the isolines on the map measure? *air pressure*
2. Which station model has the highest relative humidity? *C*
3. Which station model has an easterly wind? *D*
4. What is the cloud cover at station E? *75%*
5. What is the wind speed at station B? *15 knots*
6. What is the air pressure in millibars at station A? *1020.9mb*
7. Compare stations F and G.... Which location has less water vapor in the air?
G, the dewpoint is lower

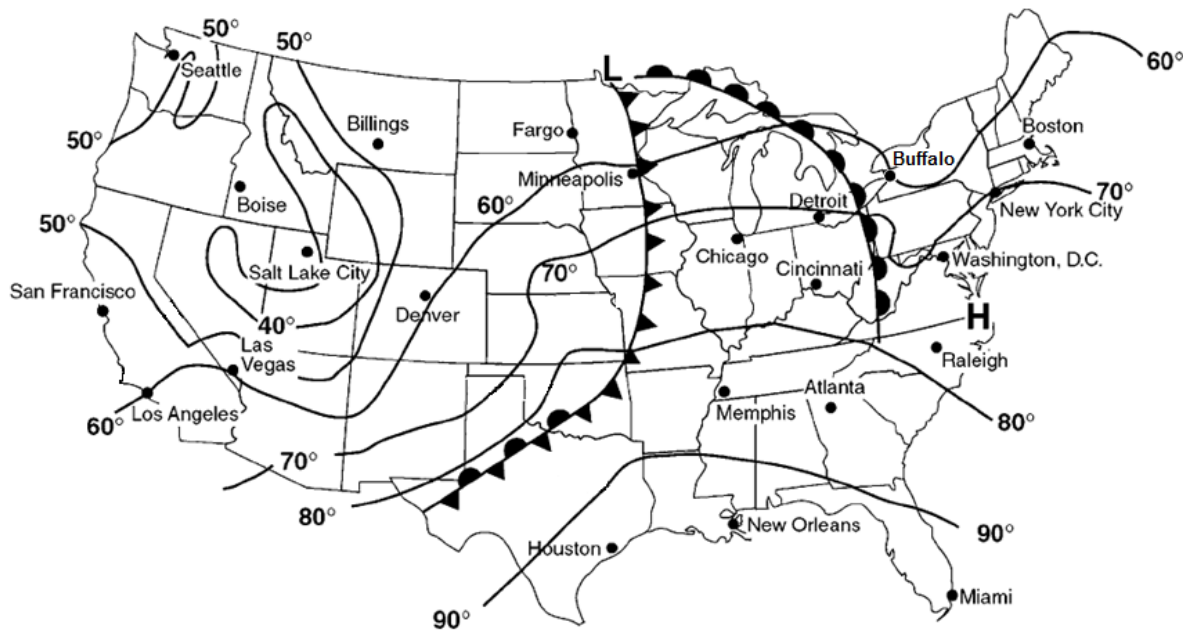
Weather Maps

Complete the map below:

1. Correctly draw the front symbols on lines A-B and A-C.
2. Label the circles with the correct air mass symbols that represent the air conditions in those areas.
3. Draw 3 arrows around the low pressure center to show the surface wind pattern in that area.
4. Draw 3 arrows around the high pressure center to show the surface wind pattern in that area.
5. Draw a large arrow starting at the “L” to show the direction the low pressure system will move over the next few days.



Weather Maps



Questions

Use the map above to answer the next set of questions.

1. Which city's temperature is closest to 40°F?

Salt Lake City

2. What are the names of the 3 fronts on the map?

Warm, Cold, and Stationary

3. Which cities could be experiencing precipitation?

Probs: Buffalo, Minneapolis, Fargo

4. Which city could be experiencing a thunderstorm?

Minneapolis

5. Name the wind that Fargo is most likely experiencing.

West

6. In which direction will the low pressure system move over the next few days?

To the northeast