

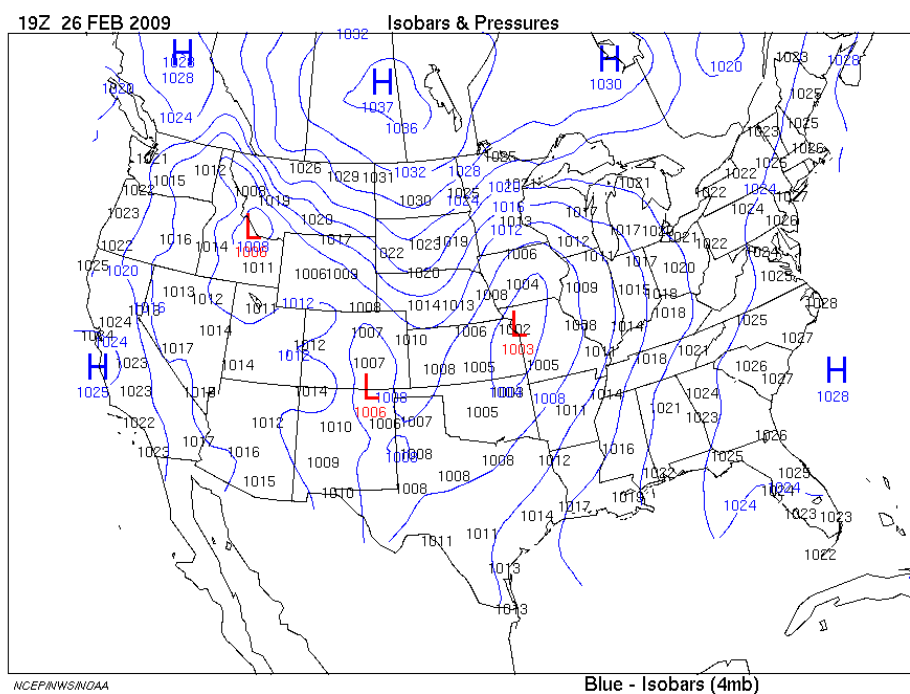
Name _____
Hour _____ Score _____

Air Pressure & Isobars

Air pressure is the force of the air pushing down on the Earth's surface. Even though you can't see air, it is made up of matter and anything that is made up of matter has weight.

Air pressure at any point is equal to the weight of the air directly above that point. Even though you are not aware of it, right now air is pressing on every inch of your body at a pressure of 14.7 pounds! Why don't you get squished? Remember, you have air inside of you that balances the air pressure outside.

Some weather maps show High and Low pressure areas by labeling the pressure at different areas. Areas that have the same pressure are connected by a smooth line called an ISOBAR. Isobar lines form closed loops or curves that go off the edge of the map. The center of a loop that has greater pressure than the surrounding air is a "HIGH".



The pressure in a "HIGH" is above the pressure of the surrounding air. High pressure regions are usually associated with dry weather because as the air sinks it warms and the moisture evaporates. As the cool air sinks and spreads out it creates wind that blows outward and clockwise around the center of the high.

The pressure in a "LOW" is below the pressure of the surrounding air. Low pressure regions usually bring precipitation because when the air rises it cools causing moisture in

the air to condense. As the warm air rises, cooler air moves in to take its place creating an inward and counterclockwise wind around the center of the low.

Procedure

1. Begin by drawing a closed loop around the four 1008 pressure labels south of Michigan.
2. Continue drawing closed loops or smooth lines to connect pressures at four millibar intervals (1012,1016.....) NOTE: Isobars do not cross each other.
3. Find a closed circle that has a pressure higher than the surrounding pressures. Label this loop with a red "H".
4. Find the closed loop that has a pressure lower than the surrounding pressures. Label this loop with a blue "L"

Questions

1. Over which states would you expect to see rain or snow ?

- _____
- _____
- _____

2. Over which states would you expect to see clear skies ?

- _____
- _____
- _____

Remember: Wind is named for the direction it COMES FROM.

3. Draw arrows around the HIGH to show the wind direction.
4. Draw arrows around the LOW to show the wind direction.
5. Imagine that you live in SE Wyoming
 - a. What is the wind direction in your location _____
 - b. How does the pressure for your location change as the air mass approaches from the WEST? (increasing / decreasing)
6. Imagine that you live in Nevada
 - a. What is the wind direction in your location _____
 - b. How does the pressure for your location change as the air mass travels away to the EAST? (increasing / decreasing)

7. Imagine that you live in West Virginia
 - a. What is the wind direction in your location _____
 - b. How does the pressure for your location change as the air mass approaches from the WEST? (increasing / decreasing)
8. Imagine that you live in SE Illinois
 - a. What is the wind direction in your location _____
 - b. How does the pressure for your location change as the air mass travels away to the EAST? (increasing / decreasing)

The strength of the wind is determined by the changes in pressure. A large change in pressure over a short distance would indicate strong winds. On a weather map, isobars that are close together show the location of strong winds.

9. Examine the map on page #1. Where on the weather map would you expect to see the strongest winds?
