Air Pressure and Isobars

Name: _____

FILL IN THE BLANK: Fill in the blank spaces with the appropriate term that best completes the statement.

1. _____ is exerted in all directions – up, down, and sideways.
2. Closely spaced isobars indicate a steep _____ and _____ winds.
3. Widely spaced isobars indicate a weak _____ and _____ winds.
4. A _____ is a device used for measuring air pressure.
5. In _____ (centers of low pressure), the pressure _____ (increases/decreases) from the other isobars toward the center.
6. In _____ (centers of high pressure), the values of the isobars _____ (increase, decrease) from the inner isobars and move outward.
7. During warm months, areas such as India experience a flow of warm, water-laden air from the Indian Ocean, which produces the rainy summer _____.
8. The interaction of warm and cool air masses produces the stormy belt known as the _____.
9. _____ are two belts of winds that blow almost constantly from easterly directions.
10. The _____ make up the dominant west-to-east motion of the atmosphere that characterizes the regions on the poleward side of the subtropical highs.

COMPLETION: Use the terms below to complete the passage.

Intertropical convergent zone	**rotation**	**North America**	**jet streams**
Trade winds	**southwest**	**polar jet streams**	**Coriolis Effect**
Low pressure	**prevailing westerlies**	**polar easterlies**	**northeast**

The **(11)** _____ deflects moving air to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. The cause of this is Earth's **(12)** _____.

Each hemisphere has three basic wind belt systems. The first, at 30° north and south latitude, is known as the **(13)** _____. Here, air sinks, warms, and moves toward the equator from northeast to southwest in the Northern Hemisphere and from southeast to northwest in the Southern Hemisphere. When the air reaches the equator, it rises, then moves back toward 30° to start the cycle again. These winds from both hemispheres converge at the equator. They are forced upward, creating an area of **(14)** _____. This area near the equator is called the **(15)** _____.

The second wind belt system, the **(16)** _____, flows between 30° and 60° north and south latitude of the equator. Its circulation pattern is opposite of that of the wind system discussed above. These winds are responsible for the movement of many weather systems across much of **(17)** _____.

The third wind belt system, the **(18)** _____, lies between the poles and 60° latitude. In the Northern Hemisphere, these winds flow from **(19)** _____ to **(20)** _____. They flow in the opposite direction in the Southern Hemisphere.

Narrow bands of fast, high-altitude, westerly winds called **(21)** _____ flow at the boundaries between wind zones in the middle latitudes. These bands of wind steer weather patterns in the middle latitudes. The most important one, the **(22)** _____, separates the polar easterlies from the prevailing westerlies.

COMPLETION: Complete the table by checking the correct pressure system that applies for each statement.

STATEMENT	HIGH PRESSURE SYSTEM	LOW PRESSURE SYSTEM
23. Characterized by sinking air		
24. Characterized by rising air		
25. Air flows toward the center		
26. Air flows away from center		
27. Air moves clockwise in the Northern Hemisphere		
28. Air moves counterclockwise in the Northern Hemisphere		
29. Associated with fair weather		
30. Associated with clouds and precipitation		

SHORT ANSWER: Answer the following questions so that your responses answer the question thoroughly.

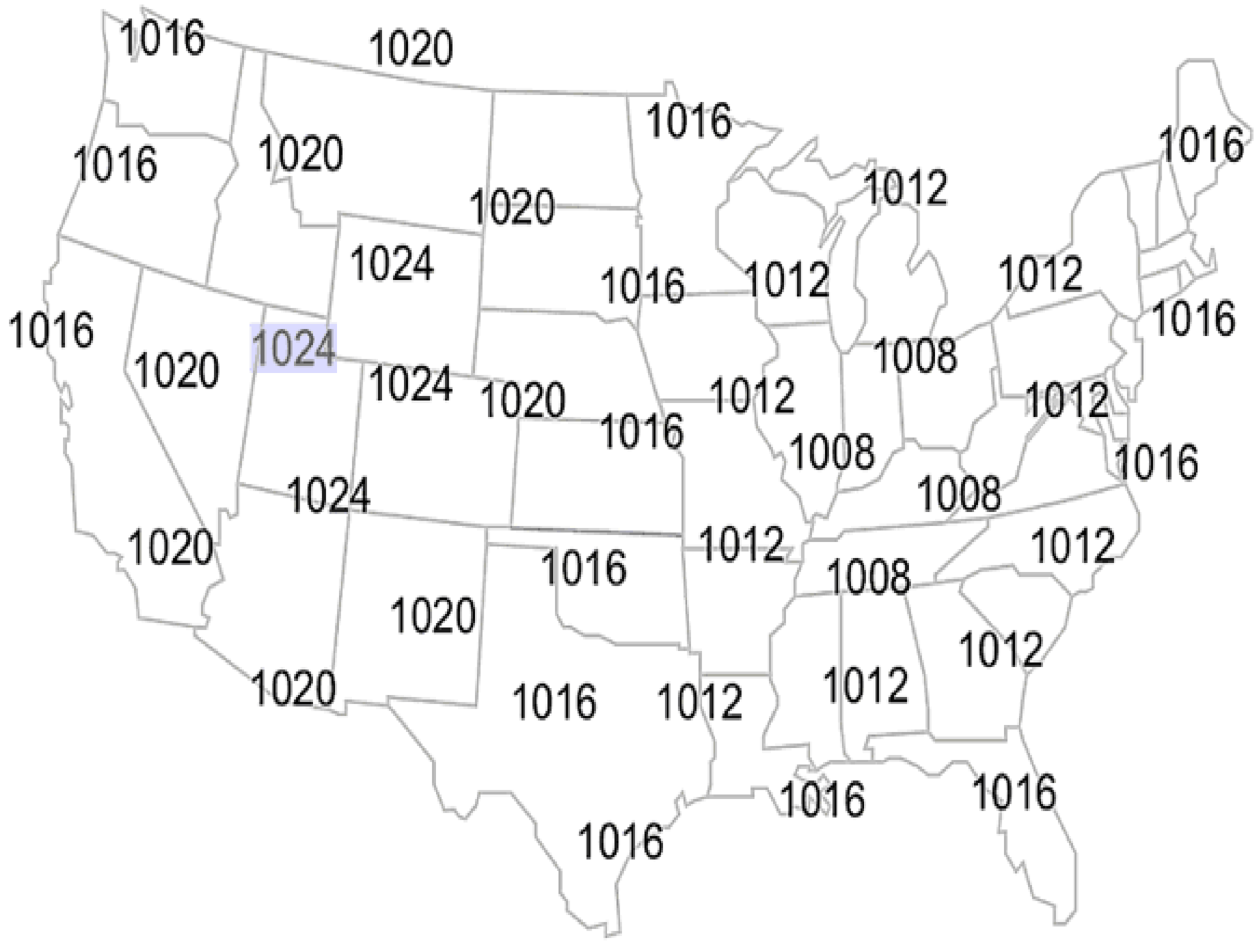
31. How does the atmosphere attempt to balance the unequal heating of Earth's surface?

32. How does air move? What creates this force?

33. How does the direction that air is moving affect the weather?

34. How does air pressure affect wind speed?

35. How does friction among gas particles in the air affect wind?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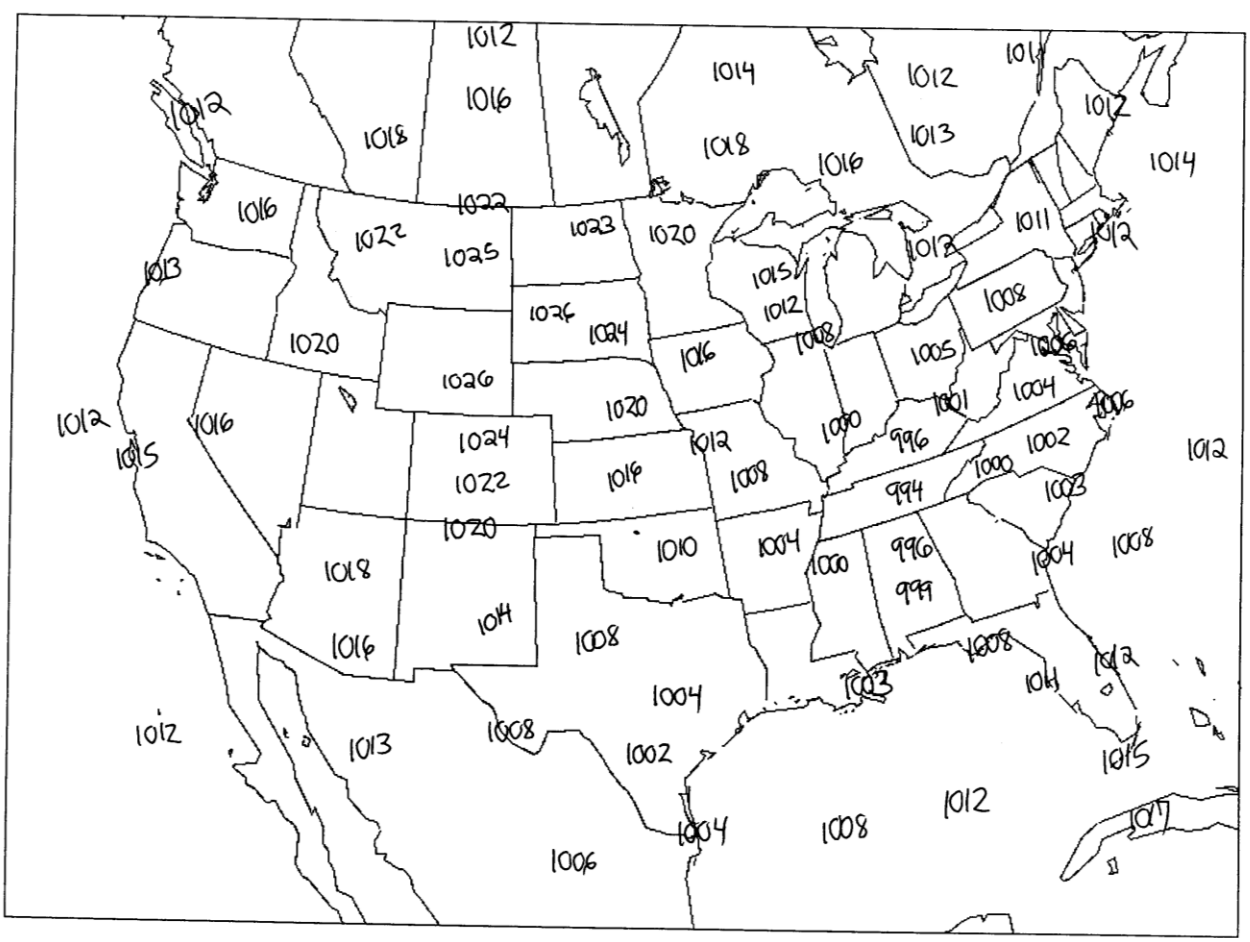
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