

# 19.1 ACTIVITIES

NAME \_\_\_\_\_ HR \_\_\_\_\_

1. Read the second paragraph on p 532 about air pressure. If the air above a desk puts a pressure of over 5000 kilograms, why doesn't the desk break?

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2. Look at the device on p 533 in box A. What is it and how does it work? Read the paragraphs if you do not know. (2pts)

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## P 534

3. What direction does wind always blow? \_\_\_\_\_

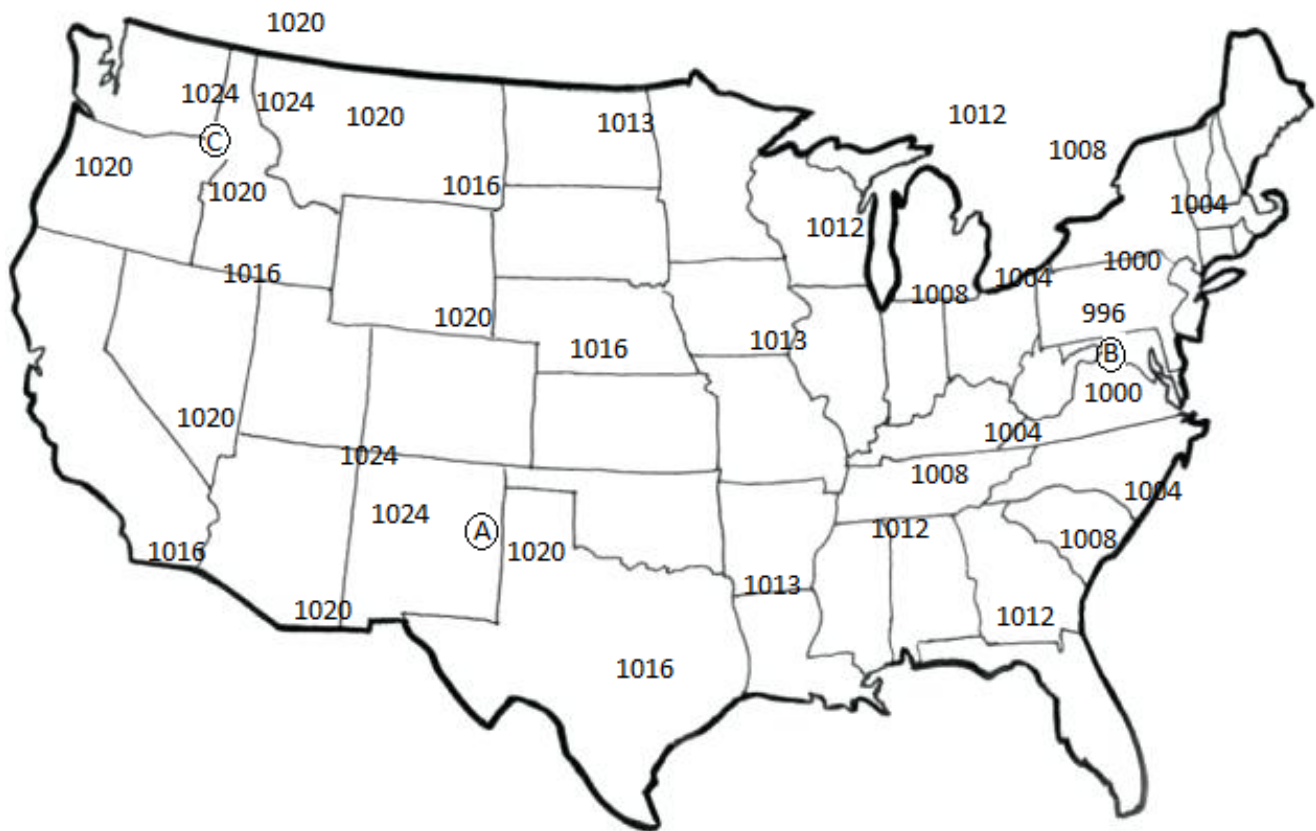
4. What creates pressure differences on Earth? \_\_\_\_\_

## ISOBARS

**Watch the animation:** <https://www.youtube.com/watch?v=Cm0LkI7dmuE>

**Watch the instruction:** <https://www.youtube.com/watch?v=eG3yxnC0hxU>

Draw in the isobars on the picture below. Remember—Isobars never cross, each line is a single value, isobars are circular/oval. The pressure 1013 is neither high pressure nor low pressure.



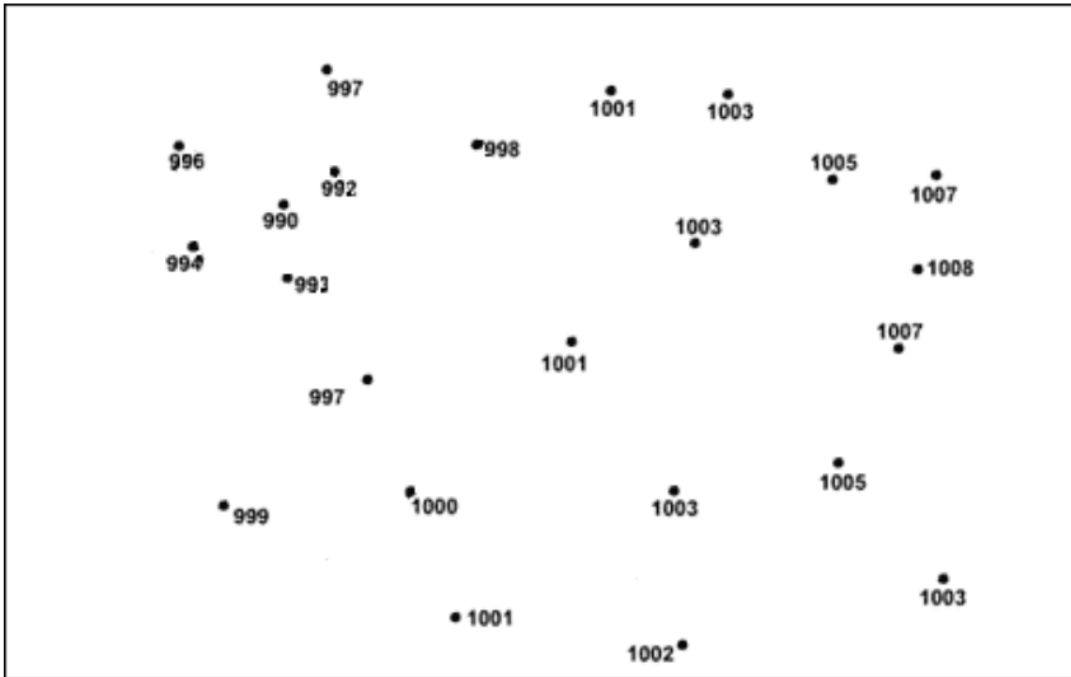
5. Put an H on the high pressure (there are 2) and an L on the low pressure. (2pts)

6. How does air move? (from high to low pressure, or from low to high pressure?)

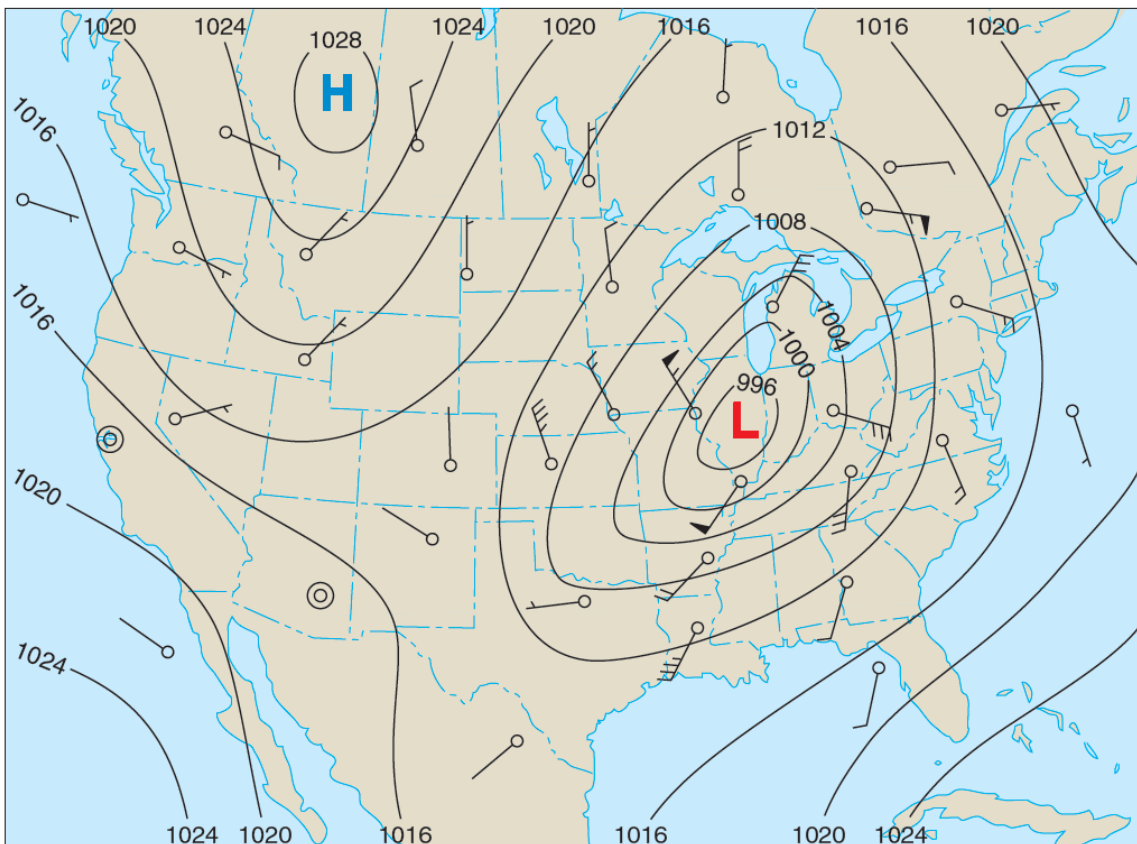
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7. In which direction is the wind blowing in city A? \_\_\_\_\_ B? \_\_\_\_\_ C? \_\_\_\_\_

The diagram below shows a series of plotted pressure values. Complete the diagram by drawing on the appropriate isobars. Draw your isobars at intervals of 4 millibars, including 992, 996, 1000, 1004 and 1008.



8. Put an H on the high pressure and an L on the low pressure. (2pts)
9. How does air move? (from high to low pressure, or from low to high pressure?)
10. In which direction is the wind blowing? \_\_\_\_\_



Symbol for Wind Speed	Miles per hour
☉	Calm
—	1–2
—	3–8
— —	9–14
— — —	15–20
— — — —	21–25
— — — — —	26–31
— — — — — —	32–37
— — — — — — —	38–43
— — — — — — — —	44–49
— — — — — — — — —	50–54
— — — — — — — — — —	55–60
— — — — — — — — — — —	61–66
— — — — — — — — — — — —	67–71
— — — — — — — — — — — — —	72–77
— — — — — — — — — — — — — —	78–83
— — — — — — — — — — — — — — —	84–89
— — — — — — — — — — — — — — — —	119–123

What pressure is Ithaca experiencing?

What pressure are they experiencing in the tip of Florida?

What pressure are they experiencing at the H?

What is air doing at the H? (rising or sinking?)

Are the winds near the high pressure stronger, or are the winds near the low pressure stronger?

How do you know? (there are 2 reasons) Look on p 535 for help. (2pts)

1

2

### **CORIOLIS EFFECT**

The Coriolis effect describes how Earth's rotation affects moving objects. All free-moving objects or fluids, including the wind, are deflected to the right of their path of motion in the Northern Hemisphere. So, an arrow that represents wind that should move straight, actually bends to the right. In the Southern Hemisphere, they are deflected to the left. Below there is a picture showing how the winds move from high pressure to low pressure according to the Hadley, Ferrel, and Polar convection cells. Redraw each line to show how the winds are "bent" due to the spinning of the Earth. (6pts) Label the major wind patterns. (6pts)

