CAN CRUSHING DEMONSTRATION . . . We will do this side together.

1. As the small amount of water in the can began to boil, the air was forced out. What gas forced the air out of the can ?

2. Which takes up more space ? . . . . water as a liquid, or water as a gas

3. Before the can was inverted into the cool water the atmosphere was putting pressure on the outside of the can. Why didn't the atmosphere crush the can at that time ?

4. As the can was inverted into the cool water, what happened to the water gas (vapor) in the can?

5. Why did this cause a sudden decrease of the pressure inside ?

6. The can was not collapsed because of "suction". Instead, it was crushed by the pressure of the atmosphere. Explain how normal atmospheric pressure was able to do this.

7. How are the molecules of a gas able to cause pressure on a surface such as the inside of the can?

8. Did the can explode or implode ?

9. Using arrows, illustrate the pressure situation inside and outside of the can both before it collapsed and during its collapse.

10. A fully inflated basketball taken outside on a cold day will seem less "bouncy". Explain why cooling the gases in the ball will result in lower pressure.

11. The pressure inside tires increases on a hot day. Explain why.

Pressure Worksheet

Name: ________________

Read pages 526-528 first. Use sentences to answer those questions marked with asterisks*.

1. What type of barometer is shown near the bottom of page 527?

2. *Explain why the mercury would rise in this barometer as a high-pressure system moves into the area?

3. What is the height of the mercury in the barometer shown in figure 18.2? (Include units)

4. In figure 18.2, what is in the space above the mercury (called a "vacuum")?

5. At sea level, mercury in a barometer will be about 76 cm high (76 cm Hg). This is the same as: (notebook entry may help)

______ mm of Hg _______ inches of Hg ________ millibars

6. *At Denver's Mile High Stadium the atmospheric pressure might be about 835 millibars, whereas in Seattle it would be closer to 1015 millibars. . . Explain the difference.

7. *What would happen to the height of the mercury if a low pressure system moved into the area?

8. *What type of barometer shown in Fig. 18.4, and what advantage does it have over the shown in 18.2?

9. *What happens to the hollow cans inside this type of barometer when the pressure is low?

10. What do we call the lines shown on the map on page 529?

11. Does wind blow from areas of higher to areas of lower pressure, or vice versa?

12. *It usually windier where isobars are closer together because there is a greater "pressure gradient". Explain what this means.

13. *In the movie "Total Recall", the people outside the buildings on Mars were in obvious pain. Explain what was happening to them in terms of the pressure inside and outside of their bodies.

14. ***The atmospheric pressure in the old Metrodome (home of the Vikings 1982-2015) is greater than the pressure outside the stadium. Use the Internet to find out the reason for this, and then explain it.