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 532-535 first. Use sentences to answer those questions marked with asterisks*.

1. What type of barometer is shown in figure 2-A on page 533?

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

3. What is the height of the mercury in 2-A? (Include units)

4. In figure 2-A on page 533, what is the space above the mercury called?

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. Why does elevation (altitude) cause such a difference in pressure?

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

8. *What type of barometer is shown in 2-B, and what advantage does it have over the shown in 2-A?

9. What happens to the hollow cans inside this type of barometer when the pressure is low? Do they expand or get compressed?

10. What do we call the lines shown on the map on page 534?

11. *Read the caption by figure 3 on p. 534. Does wind blow from areas of higher to areas of lower pressure, or from areas of lower pressure to areas of higher pressure?

12. *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.

**Bonus (3 pts): ***The atmospheric pressure in the Metrodome (home of the Vikings) is greater than the atmospheric pressure outside the stadium. Find out the reason for this (the internet may help), and then explain why.