Can Crush Demo

Name: _____ Date: _____ Period: _____

LT: I can explain how temperature and pressure affect the motion of air and water molecules.

1. What one word can be used to fill in all of the blanks in the explanation below to explain why the empty soda can didn't crush before it was heated?

   a. different b. equal c. distinct d. divergent

   The can didn't crush before it was heated because the temperature inside and outside of the can was _____, this means that the motion of the air molecules inside and outside of the can was _____. The motion of the molecules and the density (number) of molecules was also about _____. This means that the pressure inside the can was _____to the pressure outside of the can. When the pressure inside and outside the can are _____, the can will not crush.

2. Fill in each blank in the following explanation with the proper term (increasing, increased, decreasing or decreased) to explain what was happening to the water molecules inside the can as it was being heated.

   The temperature inside the can was increasing. The motion of the molecules was also increasing. ~~This made the pressure inside the can [illegible]~~. The water in the can began to boil and change state from a liquid to a gas. Some of these molecules from inside the can escaped as water vapor which allowed the pressure inside the can and outside the can to remain equal. The density (number) of molecules inside the can decreased.

3. Use the word bank below to fill in the blanks and explain why the can imploded (crumpled) when it was placed in the cold water.

   Word Bank: less, less, condensed, implode, closer together, decreased, decrease

   The temperature inside the can decreased. This caused the molecular motion to decrease. Some of the molecules that were present as water vapor changed state and condensed becoming a liquid. The molecules in a liquid are packed closer together than in a gas. This means that there were less collisions by molecules inside the can than outside the can. The pressure inside the can was less than outside the can. This caused the can to implode.