Name_____Date_____ Period: _____

Gas Law Station Lab

Station 1: Marshmallow Madness (Mallows under Pressure)

1. Choose 2 marshmallows and draw a face on each. Remove the plunger on the syringe, and place a marshmallow inside.
2. Cover the end of the syringe with your finger and press down on the plunger.

ANSWER: What happens? Use words AND draw the face.

3. Repeat with a new marshmallow, but this time place the marshmallow inside the syringe (DO NOT cover the end) push the plunger in until it is just touching the top, and then cover the end of the syringe with your finger. Pull the plunger out.

ANSWER: What happens this time? Use words AND draw the face.

ANSWER: Explain in detail what happens to the marshmallow as you change the position of the plunger. What does this tell you about the relationship between pressure and volume?

ANSWER: Whose law was observed? _____

Station 2: Pop Your Top

MAKE SURE EVERYONE AROUND YOU IS WEARING GOGGLES! 1.Fill the film canister about half full with water.
2. Crush or crumble an antacid tablet.
3.Quickly put the lid back on, and STAND BACK.

ANSWER: What did you observe?

ANSWER What properties of gas resulted in the popping of the top?

ANSWER Which law was observed? What Type of relationship does this law have?

***Station 3:* Hot and Cold Medicine**

There are 2 containers of water—one cold and one hot.
1)Place the syringe in each container and observe the effects.
ANSWER What did you observe (2 observations, 1 per water temp)?

ANSWER What does this experiment show about the relationship between the volume of a gas and its temperature?

ANSWER Which law was observed?

Station 4: Soda Can Crunch

1. Add about 1 inch of tap water to a soda can
2. Place the soda can on the hot plate until you begin to seem steam escape the can
3. Grab the can with the beaker tongs and immediately flip the can upside down into the ice bath.

ANSWER: What happened to the can when it entered the ice bath?

ANSWER: What was the relationship between pressure and temperature that was observed?

ANSWER: Whose law is this? Draw a graph showing the relationship in the space below.

Graph:

Math Practice!

1. A gas sample occupies 252mL at 23°C and 1.5atm. Determine its volume at 0°C and 760 mmHg

2. The temperature inside my refrigerator is about 4^0C. The temperature in my kitchen is 22°C. If I take a 3.5L balloon that is in my kitchen and put it in the refrigerator, what will its new volume be?

3. A weather balloon has a volume of 35 L at sea level (1.0 atm). After the balloon is released it rises to where the air pressure is 0.75 atm. What will the new volume of the weather balloon be?

4. If the sun heats my car from a temperature of $20.^0$ C to a temperature of 55^0 C, what will the pressure inside my car be? Assume the pressure was initially 570 mmHg.