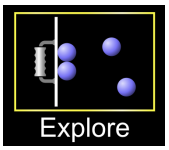
**Chemistry 12**

# Lab Simulation: Gas Properties

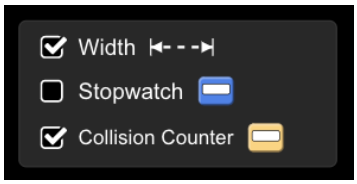
**Name:**

**Block:**

1. Go to: https://phet.colorado.edu/en/simulation/gas-properties.
2. Click "Explore".

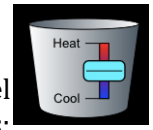



3. In the top right corner, select "Width" and "Collision Counter".




4. Fill the chamber with blue gas particles by pumping the lever attached 5-10 times. **Wait for the particles to fill the whole chamber before counting the number of wall collisions in 10 ps (picoseconds).**
5. Record the original conditions (including proper units!!) of your reaction vessel:

**Temperature: _____ Pressure: _____ # of Wall Collisions: _____**

6. **Increase the temperature** by holding the lever of the heating the vessel 

for about 10 seconds and record the pressure and number of wall collisions:

Temperature: _____ Pressure: _____ # of Wall Collisions: _____

Explain the changes observed using kinetic molecular theory:

7. **Increase the volume** by taking the handle on the left side of the vessel and moving it further to the left. Record the values of the following:

Temperature: _____ Pressure: _____ # of Wall Collisions: _____

Explain the changes observed using kinetic molecular theory:

8. **Slowly decrease the volume** by taking the handle on the left side of the vessel and moving it further to the right. Record the values of the following:

Temperature: _____ Pressure: _____ # of Wall Collisions: _____

☐ The lid popped off and data couldn't be recorded!

Explain the changes observed using kinetic molecular theory:

9. Reset the system.  Add blue gas particles to get to approximately the same temperature, pressure and number of wall collisions as the original settings.

10. Next, add some red gas particles by pumping the lever 5-10 times. Wait for the particles to evenly distribute throughout the vessel before counting the number of wall collisions.

Temperature: _____ Pressure: _____ # of Wall Collisions: _____

Explain the changes observed using kinetic molecular theory:

11. Play around with the settings to try to get the lid to pop off! When the lid does pop off, what happens to the temperature of the system? Explain your answer based on your knowledge of kinetic molecular theory.