**Gas Laws Simulation Lab**

Go to website <https://ch301.cm.utexas.edu/section2.php?target=gases/kmt/gas-simulator.html>

**Part 1: Boyles Law**

**Procedure:**

1. Open the simulator.
2. Read the initial volume and pressure and record in the data table.
3. Decrease the volume and read the new pressure. Record.
4. Continue to decrease the volume and read the pressure and record until the data table below is complete.

**Data:**

|  |  |
| --- | --- |
| **Volume** | **Pressure** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Analysis**

1. Graph volume vs pressure. Volume on the x axis and pressure on the y axis.
2. What happens to the particles of gas as the volume of the container decreases?
3. What is the relationship between volume and pressure?

**Part 2: Charles Law**

**Procedure:**

1. On the simulation set the volume to as close to 300.00 L as you can get.
2. Record the initial volume and temperature in the data table.
3. Press the heat button to raise the temperature. Record the new temperature and volume in the data table.
4. Continue to raise the temperature and read the volume until the data table is complete.

**Data:**

|  |  |
| --- | --- |
| **Temperature** | **Volume** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Analysis**

1. Graph temperature vs volume. Temperature on the x axis and Volume on the y axis.
2. What happens to the particles of gas as the temperature increases?
3. What is the relationship between temperature and volume?

**Part 3: Avagadro’s Law**

**Procedure:**

1. Again decrease the volume of the cylinder to around 300.00 L.
2. Count the number of particles of gas in the container and read the volume. Record in the data table.
3. Press on the pump to add more gas. Count the new number of particles and read the new pressure.
4. Repeat until the data table is full.

**Data:**

|  |  |
| --- | --- |
| **Number of Particles** | **Volume** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Analysis**

1. Graph volume vs number of particles. Number of Particles on the x axis and volume on the y axis.

1. What is the relationship between the number of particles and volume?