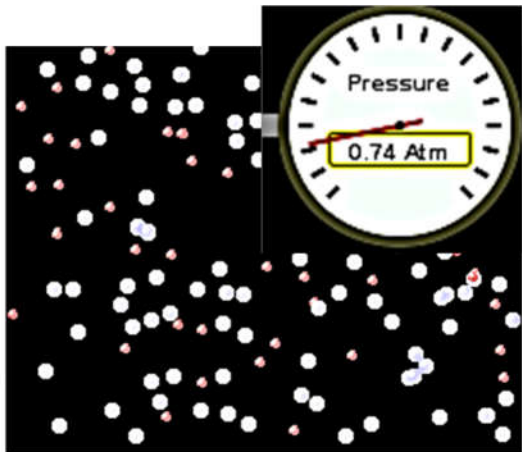


Do Now: Dalton and Graham's Law Practice:

The following diagram contains a mixture of two different gases at 300 K.



1. The pressure gauge in the drawing gives the total pressure inside the container. If the pressure of the bigger particles exert a pressure of 0.54 atm, what is the pressure exerted by the smaller gas particles in the container? Show work.

2. Which gas particle would you expect to have a higher kinetic energy? Justify your answer.

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**Gas Laws**

| Name of Law       | Equation/Definition | Type of Relationship | Constant |
|-------------------|---------------------|----------------------|----------|
| Boyle's Law       |                     |                      | T        |
| *Charles's Law    |                     |                      | P        |
| *Gay-Lussac's Law |                     |                      | V        |

**\*Note: TEMPERATURES MUST BE IN KELVIN!!!**

## Boyle's, Charles' and Gay-Lussac's Law Problems

1. A sample of O<sub>2</sub> has a volume of 150. mL at a pressure of 0.947atm. What will the volume of the gas be at a pressure of 0.987atm if temperature stays constant?

| List all variables.<br>*Convert temp to K | Write the formula of the appropriate Gas Law | Plug & Chug | Final Answer |
|-------------------------------------------|----------------------------------------------|-------------|--------------|
| Known:                                    |                                              |             |              |
| Unknown:                                  |                                              |             |              |

2. A sample of neon gas occupies a volume of 752mL at 25°C. What volume will the gas occupy at 50. °C if the pressure remains constant?

| List all variables.<br>*Convert temp to K | Write the formula of the appropriate Gas Law | Plug & Chug | Final Answer |
|-------------------------------------------|----------------------------------------------|-------------|--------------|
| Known:                                    |                                              |             |              |
| Unknown:                                  |                                              |             |              |

3. A gas has a pressure of 726 mmHg and occupies a volume of 7.40L. If the gas is compressed to a volume of 2.93L, what will the pressure be?

| List all variables.<br>*Convert temp to K | Write the formula of the appropriate Gas Law | Plug & Chug | Final Answer |
|-------------------------------------------|----------------------------------------------|-------------|--------------|
| Known:                                    |                                              |             |              |
| Unknown:                                  |                                              |             |              |

4. A helium filled balloon has a volume of 2.75L at 20.0 °C. The volume of the balloon decreases to 2.46L after it is placed outside on a cold day. What is the outside temperature in K? In °C?

| List all variables.<br>*Convert temp to K | Write the formula of the appropriate Gas Law | Plug & Chug | Final Answer |
|-------------------------------------------|----------------------------------------------|-------------|--------------|
| Known:                                    |                                              |             |              |
| Unknown:                                  |                                              |             |              |

5. The gas in an aerosol can is at a pressure of 3.00 atm at 25°C. Directions on the can warn users not to keep the can in a place where the temperature exceeds 52 °C. What would the gas pressure be at this temperature?

| List all variables.<br>*Convert temp to K | Write the formula of the appropriate Gas Law | Plug & Chug | Final Answer |
|-------------------------------------------|----------------------------------------------|-------------|--------------|
| Known:                                    |                                              |             |              |
| Unknown:                                  |                                              |             |              |

6. Before leaving for a road trip, the pressure of your car tire is 1020 torr at 20 °C. At the end of the trip the pressure gauge reads 1110 torr. What is the new temperature inside the tire?

| List all variables.<br>*Convert temp to K | Write the formula of the appropriate Gas Law | Plug & Chug | Final Answer |
|-------------------------------------------|----------------------------------------------|-------------|--------------|
| Known:                                    |                                              |             |              |
| Unknown:                                  |                                              |             |              |