**CP Chemistry Unit 9 Gas Laws**

**Essential Vocabulary:**

* Ideal gas
* Pressure (atmospheres)
* Volume
* Temperature (Kelvin and Celsius)
* Barometer
* Partial pressure
* Gas constant (R = 0.0821 L \*atm/mol\*K)
* mmHg
* Torr
* Atmosphere
* kilopascals

**Essential Outcomes:**

* Describe the differences between solids, liquids, and gases on the molecular level.
* Know the meaning of vibration, rotation, and translation as modes of molecular motion.
* Interconvert mmHg, torr, atmospheres, kPa
* Interconvert Celsius and Kelvin
* Define absolute zero and describe molecular motion at absolute zero.
* Define the principles of the Kinetic Molecular Theory.
* Perform calculations with gas laws: Boyle's, Charles', Gay-Lussac’s, Avogadro's, Combined, and the ideal gas law.
* Perform calculations with the ideal gas law to find the molar mass of the gas.
* Perform stoichiometry calculations for reactions which produce gases.
* Perform calculations with Dalton's Law of partial pressures.
* Perform calculations for gases collected over water.

**Labs:**

* Butane lighter
* Stoichiometry of Mg reacting with HCl. (Collecting a gas over water.)