Chapter 5 – Gases

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- Gases – Uniformly fill any container; Easily compressed; Mixes completely with other gases; Exert pressure.
- Units: [atm] = 60[mmHg] = 760[torr] = 14.69[psi] = 1.013[bar] = 101325[Pa]
- Boyle's Law – Pressure and volume are inversely related
- Charles's Law – Volume directly proportional to temperature
- Avogadro's Law – Volume directly proportional to moles
- Ideal Gas Law: $PV = nRT$; $R = .0821\left[\frac{\text{L ATM}}{\text{mol K}}\right]$
- Standard Temperature and Pressure (STP) – 273[K] and 1[ATM]
- At STP, one mole of a gas occupies 22.4[L]
- Note: Hydrogen, Nitrogen, Oxygen, and Halogens are diatomics