Success 24/7 Chemistry: Gas Laws Intro

Kinetic Theory of Gases

Why: Gas particles are extremely tiny, so scientists have made some assumptions in order to study gases.

1. A gas is composed of particles, usually molecules or atoms that are hard spheres, immeasurable volume, & far from each other.

2. The particles in a gas move rapidly in constant random motion.

3. All collisions are perfectly elastic (bounce off of each other with no damage).

Kinetic Energy (KE)

The energy an object has because of its motion.

As a gas is heated, the particles begin to move faster which means there is an increase in KE.

Gas Pressure

The force that the gas exerts on the walls of its container.

As more gas is added to a container, more particles collide with the walls and the pressure increases.

If gas was released, the number of collisions would decrease which would lower the pressure.

Atmospheric Pressure

The pressure caused by the weight of the atmosphere.

Pressure decreases as altitude increases because the gas can spread apart causing them to be less dense.

Barometer:

Instrument used to measure atmospheric pressure.

Fun Fact: If you have a barometer, it can give you a general idea of upcoming weather. A rising barometer means sunny and dry conditions, while a falling barometer means stormy and wet conditions.

Units for pressure:

SI Unit- Pascal

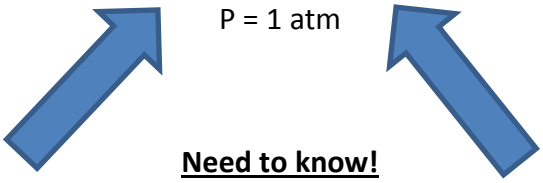
1 atmosphere (atm) = 760 torr = 101.3 kPa = 760 mmHg

Convert 30.20 mmHg to atm:

Standard Temperature and Pressure (STP)

T = 0^{o}C

P = 1 atm



<u>Need to know!</u>