

# Gas Behavior-Chapter 2 Section 3

Picture Representation/Examples

## Measuring Gases

- Why working with a gas, it is helpful to know its volume, temperature, and pressure.
- VOLUME: because gas particles move and fill the space available, the volume of a gas is the same as the volume of its container.
- TEMPERATURE: is a measure of the average energy of random motion of the particles of a substance.
  - \*The faster the particles are moving, the greater their energy and the higher the temperature.
- PRESSURE: the force of its outward push divided by the area of the walls of the container.
  - \*Pressure is measured in units of pascals (Pa) or kilopascals (kPa).

Formula for Pressure:

## Pressure and Volume

- BOYLE'S LAW: Boyle found that when the pressure of a gas at constant temperature is increased, the volume of the gas decreases. When the pressure is decreased, the volume increases.
- The relationship between the pressure and volume of a gas is called Boyle's Law.

## Pressure and Temperature

- When the temperature of a gas at constant volume is increased, the pressure of the gas increases.
- When the temperature is decreased, the pressure of the gas decreases.

## Volume and Temperature

- CHARLES'S LAW: Charles found that when the temperature of a gas is increased at constant pressure, its volume increases. When the temperature of a gas is decreased at constant pressure, its volume decreases.

1. Why does pumping more air into a basketball increase the pressure inside the ball? (Cause and Effect)

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2. Suppose it is the night before a big parade, and you are in charge of inflating the parade balloons. You just learned that the temperature will rise  $15^{\circ}\text{C}$  between early morning and the time the parade starts. How will this information affect the way you inflate the balloons?

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