CONCEPT: KINETIC ENERGY OF GASES

- **Kinetic Energy** is the energy an object possesses due to its motion.

Kinetic Energy

When we have the **mass** and **velocity** of a gas.

Kinetic Energy: Velocity Formula

$$K.E. = \frac{1}{2}mv^2$$

- ☐ **m** = Mass of the gas in _____.
- ☐ **v** = Velocity of the gas in _____.
- ☐ Kinetic Energy is in Joules (J) or _____.

When we have the **moles** and **Temperature** of a gas.

Kinetic Energy: Idea Gas Formula

$$K.E. = \frac{3}{2}nRT$$

- ☐ **n** = Amount of the gas in moles.
- ☐ **R** = Gas constant of the gas in 8.314.
- ☐ **T** = Temperature of the gas in Kelvin.
- ☐ **1 L•atm** = _____ Joules.

EXAMPLE: A 1.56×10^{13} pg gaseous particle travels at 6.21 m/s. Determine its kinetic energy.

PRACTICE: A baseball with a mass of 503 g possesses a kinetic energy of 0.815 kJ. Calculate its velocity in m/s.

PRACTICE: A 10.0 L flask contains a mixture of neon and argon gases at a pressure of 2.38 atm. Calculate the total kinetic energy of the gaseous mixture.