

GUIDED NOTES: Properties of Gases

Name: _____ Pd.: _____

Review: KMT

1. Gas particles are in _____.
2. Gas particles are separated by _____.
3. When gas particles collide, _____.
4. Gas particles have no _____.
5. The kinetic energy of a gas is dependent on the _____.

Properties of Gases:

- Low Density: _____
- Compression: _____
- Expansion: _____
- Diffusion: _____
- Effusion: _____

Temperature Conversions

- Temperature (T) must always be in units of _____ for all gas law calculations.
 1. Kelvin to Celsius formula = _____
 - Example: $25^{\circ}\text{C} = \text{_____ K}$
 2. Celsius to Kelvin formula = _____
 - Example: $305 \text{ K} = \text{_____ }^{\circ}\text{C}$

Gas Pressure

- Pressure: _____
 - _____ causes pressure.
- Barometer: _____
 - _____
 - _____

Pressure Units

- The SI unit for pressure is: _____
- 1 Pascal = _____
- 1,000 Pascal = _____ kPa
- Parts per square inch = _____ (abbreviation)
- Millimeters of Hg = _____ (abbreviation)
 - Where does this unit come from?
- 1 mm Hg = _____ torr
- Atmosphere = _____ (abbreviation)
 - 1 atm = _____ mm Hg
 - 1 atm = _____ kPa

- **Standard Temperature and Pressure** = _____ (abbreviation)
 - Conditions for STP: _____

Practice: Convert the following units of pressure

1. Convert 1.5 atm to kPa:
2. Convert 755 mm Hg to atm:
3. Convert 98.5 kPa to mm Hg:

Dalton's Law of Partial Pressures

- In a _____, each gas exerts pressure _____ of others.
- _____ is the sum of all the parts.
- $P_{\text{total}} = \text{_____}$
- When working with the formula, replace the subscripts (#'s) with the formula for the _____.

Practice:

1. What is the partial pressure of hydrogen gas in a mixture of hydrogen and helium if the total pressure is 600 mm Hg and the partial pressure of helium is 439 mm Hg?
2. Find the total pressure of a mixture that contains 4 gases with partial pressures of 5.00 kPa, 4.56 kPa, 3.02 kPa and 1.20 kPa.

Check for Understanding:

Find the partial pressure of carbon dioxide in a gas mixture with a total pressure of 7.8 atm. The partial pressure of the other gas in the mixture is 2812 mm Hg.