

## MPHS Gases L1 Check for Understanding

**True and False:** If the statement is true, write “true.” If it is false, change the underlined word or words to make the statement true. Write your answer on the line provided.

1. \_\_\_\_ Gasses have low kinetic energy.
2. \_\_\_\_ Gasses can expand and compress when the volume of their container changes.
3. \_\_\_\_ Gasses have weak intermolecular forces AND are made of atoms or molecules that are relatively close together.
4. \_\_\_\_ Gasses have the lowest density of the 3 states of matter.
5. \_\_\_\_ Ideal gasses are imaginary gasses that fit the assumptions of the kinetic molecular theory.
6. \_\_\_\_ If the temperature of a gas decreases from 400 °C to 200 °C, the average kinetic energy cuts in half?
7. \_\_\_\_ If the temperature of a gas increases from 200K to 400K, the average kinetic energy doubles.
8. \_\_\_\_ According to KMT, collisions of ideal gas particles with each other are considered elastic collisions.
9. \_\_\_\_ According to KMT, ideal gas molecules have attractive and repulsive forces with one another.
10. \_\_\_\_ According to KMT, ideal gasses have no volume.
11. \_\_\_\_ Real gasses behave like ideal gasses except at very high temperatures.
12. \_\_\_\_ Real gasses behave like ideal gasses except at very high pressure.
13. \_\_\_\_ When using the KMT you should be thinking of real gasses (like nitrogen) and how they would behave.
14. \_\_\_\_ Diffusion is when a gas moves spontaneously from high to low concentration,
15. \_\_\_\_ Hydrogen gas effuses faster than carbon dioxide gas when they both at the same temperature.
16. \_\_\_\_ Two different gasses at the same temperature have the same average kinetic energy.
17. \_\_\_\_ Two different gasses at the same temperature have the same speed.
18. \_\_\_\_ A heavier gas will move slower than a lighter gas.

## MPHS Gases L2 Check for Understanding

**True and False:** If the statement is true, write “true.” If it is false, change the underlined word or words to make the statement true. Write your answer on the line provided.

1. \_\_\_\_ Pressure is a variable that measures the force that collisions of gas molecules exert on the walls of its container
2. \_\_\_\_ As the number of gas molecules in a sample increases, its pressure decreases, when volume and temperature stay constant.
3. \_\_\_\_ As the volume of a container increases, gas pressure decreases, when moles of gas and temperature remains constant.
4. \_\_\_\_ Temperature is a measure of the average kinetic energy in a sample of matter.
5. \_\_\_\_ As the temperature of a gas sample increases, the molecular motions of the gas sample decreases.
6. \_\_\_\_ As the temperature of gas molecules increase, gas pressure decreases, when moles and volume are held constant.
7. \_\_\_\_ As the temperature of a gas decreases, its volume increases when moles and pressure are held constant.
8. \_\_\_\_ As the number of molecules of gas (moles of gas) increases, the volume of a gas increases as well if pressure and temperature are constant.
9. \_\_\_\_ As you climb in altitude, atmospheric pressure increases.

### Pressure & Temperature Conversions: Show work

$$1 \text{ atm} = 101.3 \text{ kPa} = 760 \text{ mm Hg} = 760 \text{ torr} \quad ^\circ\text{C} + 273 = \text{K}$$

10. Convert 425.5 Kpa to atm
11. Convert 3.00 atm to mmHg
12. Convert 167.4 kpa to mm Hg
13. Convert 120.0  $^\circ\text{C}$  to Kelvin