

LESSON
60
ACTIVITY

Be the Molecule

Molecular View of Pressure

Name _____

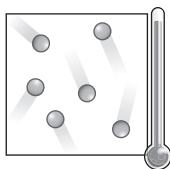
Date _____ Period _____

Purpose

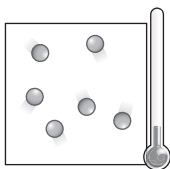
To examine how the motions of gas molecules cause gas pressure.

Part I: Computer Simulations

- For the first simulation, the volume does not change. Focus on what happens to the gas pressure as the temperature changes.

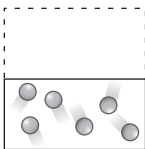


- What happens to the pressure when the temperature is increased? Explain why.

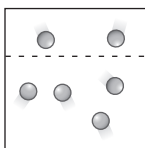


- What happens to the pressure when the temperature is decreased? Explain why.

- For the second simulation, the temperature does not change. Focus on what happens to the pressure as the volume of the container changes.



- What happens to the pressure when the volume is decreased? Explain why.



- What happens to the pressure when the volume is increased? Explain why.

- What conditions result in more collisions of molecules with the walls of the container and with one another?

- Name two ways you could reduce the pressure of a gas sample.

Part 2: Gas Law Review

- Fill in the table.** The first line of the table gives the volume, pressure, and temperature for a container of gas. The gas has an initial volume of 22.4 L. The pressure is 1.0 atm,

and the temperature is 300 K. Each subsequent row represents a new set of conditions for this gas. Fill in the blank spaces.

a.

Volume	Pressure	Temperature	Gas law
$V_1 = 22.4 \text{ L}$	$P_1 = 1.0 \text{ atm}$	$T_1 = 300 \text{ K}$	(initial conditions)
	1.0 atm	150 K	Charles's law
44.8 L	1.0 atm		Charles's law
	1.0 atm	1200 K	

b.

Volume	Pressure	Temperature	Gas law
$V_1 = 22.4 \text{ L}$	$P_1 = 1.0 \text{ atm}$	$T_1 = 300 \text{ K}$	(initial conditions)
	2.0 atm	300 K	
	0.5 atm	300 K	
89.6 L		300 K	

c.

Volume	Pressure	Temperature	Gas law
$V_1 = 22.4 \text{ L}$	$P_1 = 1.0 \text{ atm}$	$T_1 = 300 \text{ K}$	(initial conditions)
22.4 L		150 K	
22.4 L		600 K	
	4.0 atm	1200 K	

- 2. Making Sense** In your own words, explain what gas pressure is and how it can be changed.