CHEMISTRY:
Concepts and Applications

Behavior of Gases

Temperature and Volume-Charles's Law

Mc Graw Hill Education

Defining Gas Pressure

- If the volume of the container and the number of particles of gas are not changed, the pressure of gas increases in direct proportion to the Kelvin temperature increase.

Section Check

If the volume of the container and the number of particles of gas are not changed, the pressure of gas ___ in direct proportion to the Kelvin temperature increase.

A. increases

B. decreases

C. stays the same

New Vocabulary

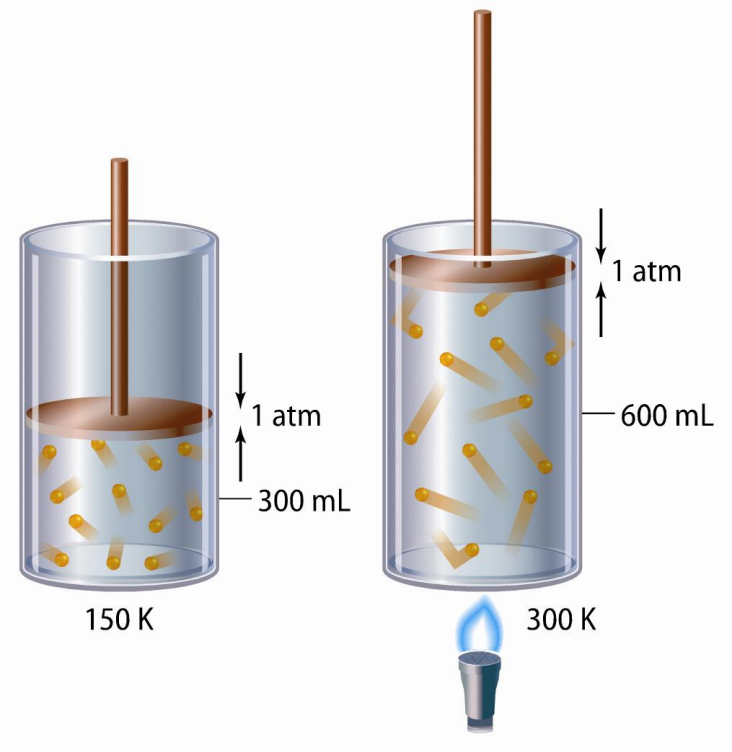
Charles's law

MAIN Idea

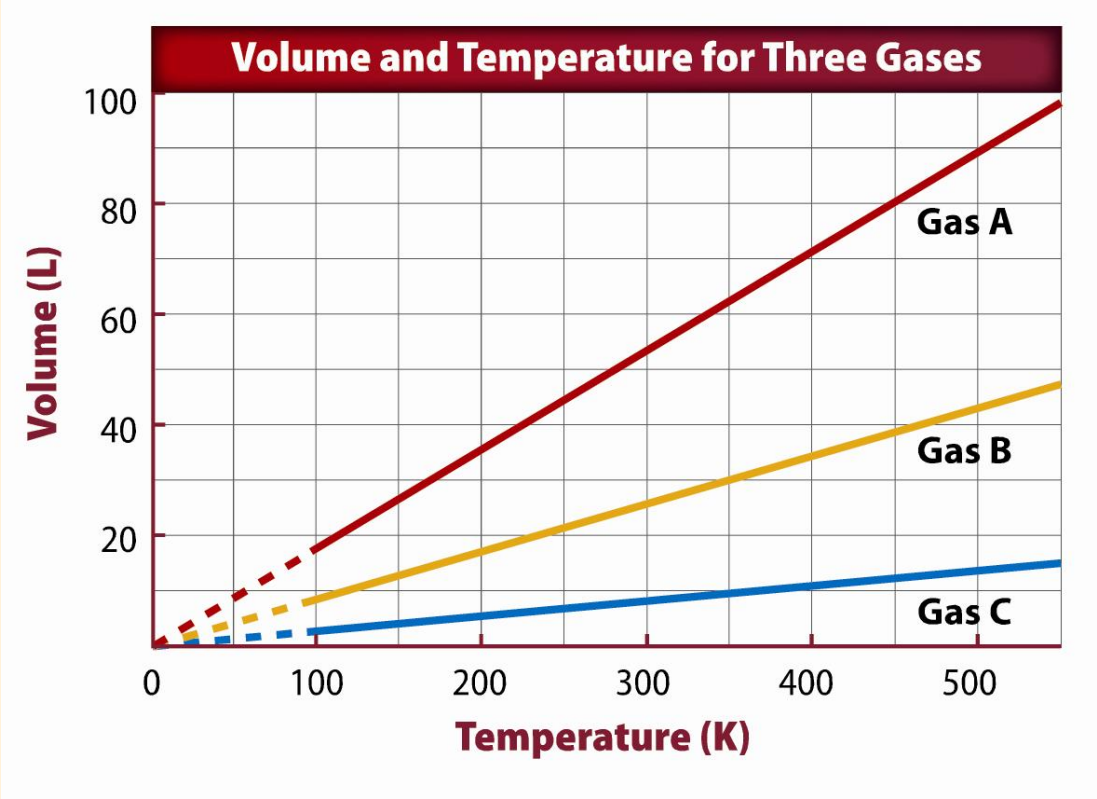
For a fixed amount of gas, a change in one variable—pressure, temperature, or volume—affects the other two.

Charles's Law: Temperature and Volume

- **Charles's law** states that at constant pressure, the volume of a gas is directly proportional to its Kelvin temperature.

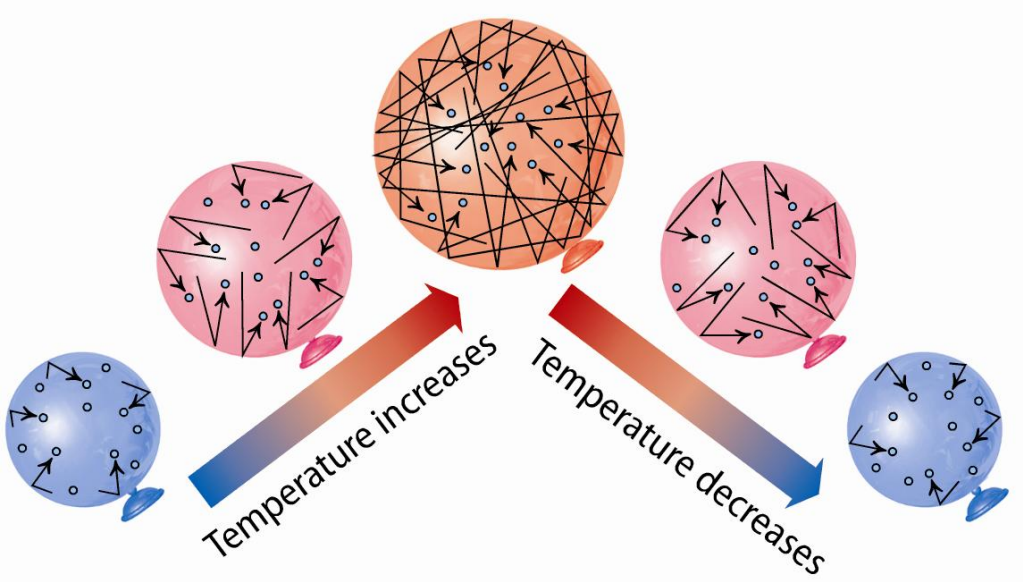


Charles's Law: Temperature and Volume (Cont.)



Charles's Law: Temperature and Volume (Cont.)

- Decreasing the temperature decreases both the number of collisions and the force of the collisions.



Section Check

Which law states that at constant pressure the volume of a gas is directly proportional to its Kelvin temperature?

A. Boyle's law

B. Charles's law

C. combined gas law

D. law of combining gas volumes

Study Guide

Key Concept

- Charles's law states that the volume of any sample of gas at constant pressure is directly proportional to its Kelvin temperature.

Behavior of Gases

Standardized Test Practice

According the Charles's law, if pressure and amount of a gas are fixed, what will happen as volume is increased?

A. Temperature will decrease.

B. Temperature will increase.

C. Mass will increase.

D. Mass will decrease.

The End