CHEMISTRY: Concepts and Applications

Behavior of Gases Temperature and Volume-Charles's Law



Gas Pressure

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.

- **B**.decreases
- C.stays the same



New Vocabulary

Charles's law



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