

Unit 8: Phases and Gases

Objectives

1. Use models to explain different properties of solids, liquids and gases;
2. Explain the properties of the phases of matter in terms of the Kinetic Theory, kinetic energy and attractive forces between particles.
3. Name the phase changes and describe these changes on a particle level.
4. Sketch and interpret a temperature-time graph as matter goes through phase changes.
5. Explain why the temperature remains constant during a phase change.
6. Differentiate between evaporation and boiling.
7. Relate boiling point to atmospheric pressure.
8. Explain why ice occupies a larger volume and is less dense than the water from which it forms.
9. Use the concept of hydrogen bonding to explain the properties of water
10. Interpret a phase diagram for water.
11. Describe the characteristics of water that make it "hard" or "soft".
12. Describe and explain the relationships between temperature, pressure, and volume of a gas
13. State values for standard temperature and pressure, and interconvert among the units for temperature or units for pressure
14. Interconvert between Celsius and Kelvin temperatures.
15. Describe the significance of Absolute Zero.
16. Distinguish between real and ideal gases.
17. State the gas laws in words and mathematically, and apply these laws in calculations.
18. Use the Ideal Gas Equation to solve problems involving gases at nonstandard conditions, including stoichiometric, density, and molar mass calculations.