

Unit 6 Objectives

Chapter 10

- Students will be able to list the five (5) assumptions of the Kinetic-Molecular Theory as it applies to gases.
- Students will be able to describe the behavior of an ideal gas.
- Students will be able to describe the five (5) physical properties of gases (Expansion, Fluidity, Low Density, Compressibility, and Diffusion).
- Students will be able to compare and contrast the processes of diffusion and effusion.
- Students will be able to compare and contrast evaporation and boiling of a liquid.
- Students will be able to define surface tension and capillary action
- Students will be able to explain why substances have higher surface tension than other substances.
- Students will be able to describe the process of freezing or solidification.
- Students will be able to define a solid.
- Students will be able to define an amorphous solid.
- Students will be able to define the melting point of a substance.
- Students will be able to compare and contrast solid, liquid, and gas in reference to the Kinetic-Molecular Theory.
- Students will be able to classify a change of state in matter as melting, freezing, condensing, sublimating, vaporization, or deposition.
- Given a graph of boiling points, students will be able to explain the differences in boiling temperatures for different substances.
- Given a phase diagram with temperature and pressure values, students will be able to determine which phase of matter the substance.
- Students will be able to define volatile liquids and use equilibrium vapor pressure to discuss the impact of intermolecular forces on volatility and equilibrium vapor pressure.
- Students will be able to explain the impact on atmospheric pressure on liquids and their boiling point.
- Students will be able to read a phase diagram and interpret freezing-melting point curve, vaporization-condensation curve, and sublimation-deposition curve.
- Students will be able to tell if a solid or liquid is more dense for a substance based on the slope of the phase diagram.

Chapter 11

- Students will be able to define pressure.
- Given a conversion sheet, students will be able to convert a given pressure value into atmosphere, torr, kPa, or mmHg.
- Students will be able to define volume.
- Students will be able to define temperature.
- Students will be able to convert Celsius degrees into absolute (kelvin) temperature.
- Students will be able to give the correct value and units for Standard Temperature and Pressure (STP) of a gas.
- Given pressure, temperature, and volume changes, students will be able to solve using the Combined Gas Law, this includes keeping values constant for Charles's, Boyle's and Gay-Lussac's laws.
- Given a scenario with a change in pressure, volume or temperature, students will be able to explain how the three factors will change.

- Students will be able to recall one mole of any gas at STP as a volume of 22.4 liters.
- Students will be able to convert liters to moles of gas at STP.
- Given a combination of pressure, temperature, volume, or moles, students will be able to solve using the Ideal Gas Law.
- Given volume of a gas and a balanced chemical reaction, students will be able to use stoichiometry to find, grams, moles, liters or molecules of any other part of the reaction.