

Title:	Kinetic Molecular Theory, Phase Behavior, Gas Laws, Thermochemistry, and Kinetics (Units 6- 8)
Subject:	Chemistry
Topics:	SC2c; SC5a; SC6a-c; SC7a
Grade:	11&12
Designers:	Chesnut

Unit Summary

The assumptions of the Kinetic Molecular Theory (KMT) allow predictions to be made about a wide variety of physical and chemical systems. This unit is consists of several thematically related topics. These will be divided into three tests over the course of the unit.

Desired Results

GPS Content Standards Addressed:

SC2. Students will relate how the Law of Conservation of Matter is used to determine chemical composition in compounds and chemical reactions.

- c. Apply concepts of the mole and Avogadro's number to conceptualize and calculate
 - Molar volumes of gases.

SC5. Students will understand that the rate at which a chemical reaction occurs can be affected by changing concentration, temperature, or pressure and the addition of a catalyst.

- a. Demonstrate the effects of changing concentration, temperature, and pressure on chemical reactions.

SC6. Students will understand the effects motion of atoms and molecules in chemical and physical processes.

- a. Compare and contrast atomic/molecular motion in solids, liquids, gases, and plasmas.
- b. Collect data and calculate the amount of heat given off or taken in by chemical or physical processes.
- c. Analyzing (both conceptually and quantitatively) flow of energy during change of state (phase).

SC7. Students will characterize the properties that describe solutions and the nature of acids and bases.

- a. Explain the process of dissolving in terms of solute/solvent interactions:
 - Observe factors that effect the rate at which a solute dissolves in a specific solvent,
 - Express concentrations as molarities,
 - Prepare and properly label solutions of specified molar concentration,
 - Relate molality to colligative properties.