

Pacing Guide

Course: AP Chemistry

Grade: 11-12

<u>Months/Days</u>	<u>UNITS</u>	<u>STANDARDS</u>	<u>CONTENT</u>
September	1 - Atoms & the Periodic Table	• SCI.HS-PS1-1 • SCI.HS-PS1-2 • SCI.HS-PS1-3 • SCI.HS-PS1-8 • SCI.HS-PS2-6	• Significant Figures • Atoms, Ions, Isotopes • Mass Spectroscopy • Electron Configuration • Frequency and Wavelength • Energy • Photoelectron Spectroscopy • Periodic Trends
October	2 - Bonding	• SCI.HS-PS1-3 • SCI.HS-PS2-6	• Molecular Geometry • Polarity • Hybridization • Formal Charge • Intermolecular Forces • Bond Types • Bond Properties
November	3 - Reactions	• SCI.HS-PS1-2 • SCI.HS-PS1-4 • SCI.HS-PS1-7	• Mole Calculations • Types of Reactions • Net Ionic Reactions • Acid/Base Reactions • Redox Reactions • Mathematics of Reactions
December	4 - Acids and Bases	• SCI.HS-PS1-2 • SCI.HS-PS1-3 • SCI.HS-PS1-6 • SCI.HS-PS1-7	• Strong vs Weak Acids • Strong vs Weak Bases • Titrations • pH and pOH

			• Buffers • Polyprotic Acid
January	5 - Gases and Equilibriums	• SCI.HS-PS1-4 • SCI.HS-PS1-6 • SCI.HS-PS1-7	• Gas Laws • Ideal Gas Law • Dalton's Law of Partial Pressure • Equilibriums • Kc and Kp • Stress
February	6 - Kinetics	• SCI.HS-PS1-5 • SCI.HS-PS1-6 • SCI.HS-PS1-7	• Factors Affecting Rates • Examining Rate of Reactions • Reaction Mechanisms • Rate Laws • Catalyst • Graphing and Rate Laws
March	7 - Thermodynamics	• SCI.HS-PS1-2 • SCI.HS-PS1-4 • SCI.HS-PS3-1 • SCI.HS-PS3-2 • SCI.HS-PS3-3 • SCI.HS-PS3-4	• Heat of Formation • Bond ENergies • Hess's Law • Entropy • Gibbs Free Energy • Calorimetry
April	8 - Electrochemistry	• SCI.HS-PS1-4 • SCI.HS-PS1-7 • SCI.HS-PS2-4 • SCI.HS-PS3-3 • SCI.HS-PS3-5	• Oxidation Numbers • Half Reactions • Electrolysis • Electroplating • Voltaic Cells
May / June	9 - Organic Chemistry	• SCI.HS-PS1-2 • SCI.HS-PS1-3 • SCI.HS-PS2-6	• Ending Functional Groups • Middle Functional Groups • Nitrogen Functional Groups

			• Cyclic Compounds • Complex Hydrocarbons • Complex Alcohols
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For each unit, the activities and assessments are of the type listed below. The actual activities are adjusted each year based on the availability of equipment, student interest, and the school calendar.

Activities include:

- Labs on multiple topics covered in the unit. These labs take place once a week. Students will be using technology such as Pocket Labs, LabQuests, Smart Phones, Chromebooks and Various probes to discover relationships dealing with the physical principle being studied that week. Often times simulation software will be coupled with the physical lab to enhance a student's understanding of the topic.
- Creation of spreadsheets using Google Sheets to complete repetitive calculations that will allow students to find some kind of pattern in nature.
- Working in computer-generated physics problems so that each student must demonstrate competence in the topic being studied.

Assessments include:

- Nearly daily progress checks on the ideas that we have covered that day. These progress checks can be google forms that students fill out, computer-generated questions that each student must answer, or a simple problem that is done in the notebook that the teacher goes around to check.
- A weekly lab report that students will complete, sometimes on paper and sometimes on the computer.
- A weekly quiz that assesses student knowledge on the topics covered during the week.
- A major test at the end of each unit (about once a month) to make sure students have mastered the connections between all the topics in the unit.
- A marking period assessment that will show that students have mastered the connections between topics in one unit and topics in other units.

