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Week/Days	Unit Number and Name (AP Chemistry)	Priority Standard (AP Unit Focus)	Supporting Standard (Science Practices)
Week 1 Days 1–5	Course Launch / Scientific Practices / Measurement Review	Science Practices 1–6	Modeling, data analysis, mathematical routines
Week 2–3 Days 6–15	Unit 1: Atomic Structure and Properties	AP Unit 1 (7–9%)	SP 1 (Models), SP 5 (Math), SP 4 (Analysis)
Week 4–5 Days 16–25	Unit 2: Compound Structure and Properties	AP Unit 2 (7–9%)	SP 1, SP 4, SP 6 (Argumentation)
Week 6–7 Days 26–35	Unit 3: Properties of Substances and Mixtures	AP Unit 3 (18–22%)	SP 3 (Data Representation), SP 5, SP 4
Week 8–9 Days 36–45	Unit 4: Chemical Reactions	AP Unit 4 (7–9%)	SP 5 (Stoichiometry), SP 6, SP 2 (Experimental Design)

Scope and Sequence: Second Term

Week/Days	Unit Number and Name (AP Chemistry)	Priority Standard (AP Unit Focus)	Supporting Standard (Science Practices)
Week 10–11 Days 46–55	Unit 5: Kinetics	AP Unit 5 (7–9%)	SP 2, SP 4, SP 5
Week 12–13 Days 56–65	Unit 6: Thermochemistry	AP Unit 6 (7–9%)	SP 5, SP 4, SP 6
Week 14–15 Days 66–75	Unit 7: Equilibrium	AP Unit 7 (7–9%)	SP 4, SP 5, SP 6
Week 16–17 Days 76–85	Unit 8: Acids and Bases	AP Unit 8 (11–15%)	SP 5, SP 6, SP 3
Week 18 Days 86–90	Unit 9: Thermodynamics and Electrochemistry + Semester Review/Assessment	AP Unit 9 (7–9%)	SP 4, SP 5, SP 6

Reference basis: This pacing aligns directly with the AP Chemistry Course and Exam Description unit sequence and weighting (Units 1–9) and incorporates the science practices as the core “supporting standards.”

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Atomic Structure and Properties - Pacing Guide

Essential Question: How can we use indirect evidence to model the structure and behavior of atoms we cannot observe directly?

Date	 Lesson Topic	 Assignments	 Lab	 Quiz/Test
	<u>COUNTING ATOMS</u> Moles and Molar Mass Mass Spectroscopy of Elements	READ: Avogadro's Number Moles and Molar Mass Mass Spectroscopy of Elements	REVIEW: Isotopes Average Atomic Mass LAB: Skittle Isotopes	Quiz 1
	<u>CHEMICAL COMPOSITION</u> Elemental Composition of Pure Substances Composition of Mixtures	Percent Composition Empirical Formula Molecular Formula Pure Substances		Quiz 2
	<u>ATOMIC STRUCTURE</u> Atomic Spectre Photoelectron Spectroscopy	READ: Uncertainty Principle Atomic Spectra Electron Configurations Electron Configurations PES	REVIEW: Quantum Numbers LAB: Excited Electrons Flame Test	Quiz 3
	<u>ATOMIC PROPERTIES</u> Periodic Trends Valence Electrons and Ionic Compounds	Periodic Trends Coulomb's Law Valence Electrons	LAB: Periodic Trends	Quiz 4 Practice Test

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Date	Lesson Topic	Assignments	Lab	Quiz/Test
	<u>INTRAMOLECULAR FORCES</u> Types of Chemical Bonds Intramolecular Force and Potential Energy	Discussion Article: Chemical Bonding - Types of Chemical Bonds - Intramolecular Force and Potential Energy		Quiz 1
	<u>IONIC/METALLIC STRUCTURE</u> Structure of Ionic Solids Structure of Metals and Alloys	- Structure of Ionic Solids - Structure of Metals and Alloys		Quiz 2
	<u>MOLECULAR STRUCTURE</u> Lewis Diagrams Resonance and Formal Charge	- Lewis Diagrams - Resonance and Formal Charge		
	<u>MOLECULAR STRUCTURE</u> VSEPR and Bond Hybridization	- VSEPR and Bond Hybridization		
	<u>MOLECULAR STRUCTURE</u> Hybridization Polarity	- Polarity		
	<u>MOLECULAR STRUCTURE</u> Molecular Structure	- Review of material	LAB: Molecular Models (VSEPR)	Quiz 3 Practice Test

Back**States of Matter - Pacing Guide**

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	INTERMOLECULAR FORCES - 3.1-3.3 Intermolecular Forces Properties of Solids Solids, Liquids, & Gases	- Intermolecular Forces - Properties of Solids Watch - 3.2 Daily Video 1 - 3.2 Daily Video 2 - Solids, Liquids, & Gases	Penny Drops Electrical Conductivity of Ionic Solids	Quiz 1
	IDEAL GAS LAW - 3.4-3.6 Properties of Gases Combined Gas Law Ideal Gas Law Dalton's Law of Partial Pressure Kinetic Molecular Theory Maxwell-Boltzmann Distribution Deviation from Ideal Gas Law	- Combined Gas Law - Ideal Gas Law - Dalton's Law of Partial Pressure - Kinetic Molecular Theory - Maxwell-Boltzmann Distribution - Deviation from Ideal Gas Law - FRQ		Quiz 2
	SOLUTIONS & MIXTURES - 3.7-3.10 Solutions and Mixtures Representations of Solutions Separation of Solutions Solubility Spectroscopy and the Electromagnetic Spectrum	- Solutions and Molarity - Representations of Solutions - Separation of Solutions - Solubility - Beer-Lambert's Law - PHET Simulation - FRQ	LAB: Solution Prep. Virtual LAB - Chromatography DEMO: Water and Ethanol	Quiz 3
	SPECTROSCOPY - 3.11-3.13 Spectroscopy and the Electromagnetic Spectrum Properties of Photons Beer-Lambert's Law	- Properties of Photons - Beer-Lambert's Law - PHET Simulation - FRQ - Practice Test		Quiz 4

AP Chemistry Daily Videos:

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Back**Chemical Reactions - Pacing Guide**

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	CHEMICAL EQUATIONS Physical vs. Chemical Changes Intro to Reactions Types of Chemical Equations Predicting Products Net Ionic Equations Representations of Reactions	- Physical vs. Chemical Changes - Intro to Reactions - Types of Chemical Equations - Predicting Products - Net Ionic Equations - Representations of Reactions	Lab: Chemical Equations	Quiz 1
	STOICHIOMETRY Stoichiometry Limiting Reactant Intro to Titration Ideal Gas Law	- Stoichiometry - Percent Error - Limiting Reactant - Intro to Titration - Ideal Gas Law	Lab: Mass-to-Mole Lab: Aluminum Leftovers Lab: Collecting Gas Over Water	Quiz 2
	CHEMICAL REACTIONS - Types of Chemical Reactions - Precipitation Reactions - Acid-Base Reactions - Redox Reactions (Oxidation Numbers)	- Types of Chemical Reactions - Precipitation Reactions - Acid-Base Reactions - Redox Reactions (Oxidation Numbers)	Poster Project on Chemical Reactions	Quiz 3

Back**Pacing Guide - Chemical Kinetics**

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	<u>RATE LAW</u> Reaction Rates Rate law Concentration Changes Half Life	<u>RATE LAW</u> - Reaction Rates Rate law - Concentration Changes - Half Life	LAB: Rate Law	Quiz 1
	<u>COLLISION MODEL</u> Elementary Reactions Collision Model Reaction Energy Profile	<u>COLLISION MODEL</u> - Elementary Reactions - Collision Model - Reaction Energy Profile		Quiz 2
	<u>REACTION MECHANISM</u> Intro to Reaction Mechanisms Reaction Mechanism and Rate Law Steady-State Approximation Multistep Reaction Energy Profile Catalysis	<u>REACTION MECHANISM</u> - Reaction Mechanism - Steady-State Approximation - Multistep Reaction Energy Profile - Catalysis		Quiz 3 PRACTICE TEST

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AP Unit Vocabulary

Unit 5 – Kinetics

Reaction rate

Rate law

Rate constant

Catalyst

Integrated rate law

Half-life

Reaction mechanism

Reaction intermediate

Elementary reaction

Unimolecular step

Bimolecular step

Termolecular step

Rate-determining step

Reaction energy profile

Maxwell-Boltzmann distribution

Activation energy

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Pacing Guide - Thermochemistry

Date	 Lesson Topic	 Assignments	 Lab	 Quiz/Test
	<u>ENERGY EXCHANGE</u> Endothermic and Exothermic Processes Energy Diagrams Heat Transfer and Thermal Equilibrium Heat Capacity and Calorimetry Energy of Phase Changes	<u>ENERGY EXCHANGE</u> -Endothermic and Exothermic Processes -Energy Diagrams -Heat Transfer and Thermal Equilibrium -Heat Capacity and Calorimetry -Energy of Phase Changes	LAB Endothermic vs Exothermic LAB – Specific Heat	– Quiz 1
	<u>BOND ENTHALPY</u> Introduction to Enthalpy of Reaction Bond Enthalpies Enthalpy of Formation Hess's Law	<u>BOND ENTHALPY</u> -Introduction to Enthalpy of Reaction -Bond Enthalpies -Enthalpy of Formation -Hess's Law	LAB – Hess's Law	- Quiz 2 PRACTICE TEST

Back**Pacing Guide - Equilibrium**

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	EQUILIBRIUM CONSTANT Introduction to Equilibrium Direction of Reversible Reactions Reaction Quotient and Equilibrium Constant Calculating the Equilibrium Constant Magnitude of the Equilibrium Constant	- Introduction to Equilibrium - Direction of Reversible Reactions - Reaction Quotient and Equilibrium Constant - Calculating the Equilibrium Constant - Magnitude of the Equilibrium Constant		Unit Introduction Reading Article Quiz 1
	Le CHATELIER'S PRINCIPLE Properties of the Equilibrium Constant Calculating Equilibrium Concentrations Representations of Equilibrium Introduction to Le Châtelier's Principle Reaction Quotient and Le Châtelier's Principle	- Introduction to Le Châtelier's Principle - Reaction Quotient and Le Châtelier's Principle - Properties of the Equilibrium Constant - Calculating Equilibrium Concentrations - Representations of Equilibrium		Quiz 2
	SOLUBILITY EQUILIBRIA Introduction to Solubility Equilibria Common-Ion Effect	- Introduction to Solubility Equilibria - Common-Ion Effect		Quiz 3 PRACTICE TEST



Pacing Guide - Acids and Bases

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	ACID AND BASES EQUILIBRIA Introduction to Acids and Bases pH and pOH of Strong Acids and Bases Weak Acid and Base Equilibria			
	REACTIONS AND BUFFERS Acid-Base Reactions and Buffers Acid-Base Titrations			
	MOLECULAR STRUCTURE AND BUFFERS Molecular Structure of Acids and Bases pH and pKa Properties of Buffers Henderson-Hasselbalch Equation Buffer Capacity <i>pH</i> and Solubility			

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Pacing Guide - Thermodynamics and Electrochemistry

Date	 Lesson Topic	 Assignments	 Lab	 Quiz/Test
	<u>REACTION SPONTANEITY</u> Introduction to Entropy Entropy and Change Gibbs Free Energy Kinetic Control	- Video 9.1 - Video 9.2 - Video 9.3.2 , 9.3.2 - Video 9.4		
	<u>REACTION COUPLING</u> Free Energy and Equilibrium Coupled Reaction	- Video 9.5 - Video 9.6		
	<u>ELECTROCHEMISTRY</u> Voltaic/Electrolytic Cells Cell Potential and Free Energy Nonstandard Cell Potential Electrolysis and Faraday's Law	- Video 9.7.1 , 9.7.2 - Video 9.8.1 , 9.8.2 - Video 9.9 - Video 9.10		