

Chemistry

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
CH.1	Differentiate among pure substances, mixtures, elements, and compounds.		
CH.1.2	Contrasting properties of metals, nonmetals, and metalloids	Bonding	Metallic Bonding
CH.1.3	Distinguishing between homogeneous and heterogeneous forms of matter	Solutions	Definitions Lab: make solution of kool-aid The Dissolution Process Factors that Affect the Dissolution Process Concentration
CH.2	Describe the structure of carbon chains, branched chains, and rings.	Organic Chemistry	Bonding
CH.3	Use the periodic table to identify periodic trends, including atomic radii, ionization energy, electronegativity, and energy levels.	Atoms	Trends in the Periodic Table
CH.3.1	Utilizing electron configurations, Lewis dot structures, and orbital notations to write chemical formulas	Bonding Bonding	Lewis Dot Structures Lab: Bonding (P/P only)
CH.3.2	Calculating the number of protons, neutrons, and electrons in an isotope	Atoms Nuclear Chemistry	The Atom Radioactive Isotopes
CH.3.3	Utilizing benchmark discoveries to describe the historical development of atomic structure, including photoelectric effect, absorption, and emission spectra of elements	Nuclear Chemistry	Inside the Atom
CH.4	Describe solubility in terms of energy changes associated with the solution process.		
CH.4.1	Using solubility curves to interpret saturation levels	Solutions	Solubility
CH.4.2	Explaining the conductivity of electrolytic solutions		
CH.4.3	Describing acids and bases in terms of strength, concentration, pH, and neutralization reactions	Acids & Bases	The pH Scale Lab: Test household acids/bases
CH.4.4	Describing factors that affect the rate of solution	Solutions	The Dissolution Process Factors that Affect the Dissolution Process Concentration Definitions Lab: make solution of kool-aid
CH.4.5	Solving problems involving molarity, including solution preparation and dilution	Solutions	Concentration Lab: make solution of

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			kool-aid
CH.5	Use the kinetic theory to explain states of matter, phase changes, solubility, and chemical reactions.	Bonding	States of Matter
		Matter	Classifying Chemical Reactions
		Solutions	Solubility
CH.6	Solve stoichiometric problems involving relationships among the number of particles, moles, and masses of reactants and products in a chemical reaction.	Matter	Stoichiometry
CH.6.1	Predicting ionic and covalent bond types and products given known reactants	Bonding	Ionic Bonding
			Covalent Bonding
			Lab: Bonding (P/P only)
CH.6.2	Assigning oxidation numbers for individual atoms of monatomic and polyatomic ions	Nuclear Chemistry	Inside the Atom
CH.6.3	Identifying the nomenclature of ionic compounds, binary compounds, and acids	Acids & Bases	The pH Scale
			Properties of Acids and Bases
			Lab: Test household acids/bases
			Deinition of Acids and Bases
			Acid and Base Strength
CH.6.4	Classifying chemical reactions as composition, decomposition, single replacement, or double replacement	Matter	Classifying Chemical Reactions
CH.6.5	Determining empirical or molecular formulas for a compound using percent composition data	Bonding	Covalent Bonding
			Ionic Bonding
		Solutions	Concentration
CH.7	Explain behavior of ideal gases in terms of pressure, volume, temperature, and number of particles using Charles's law, Boyle's law, Gay-Lussac's law, the combined gas law, and the ideal gas law.	Gases	Pressure
			Gas Laws
			Lab: Observe gas laws by changing P, V, T
CH.8	Distinguish among endothermic and exothermic physical and chemical changes.	Thermodynamics	Chemical Processes
			Heat Flow and Physical Changes
CH.8.2	Calculating temperature change by using specific heat	Measurement	Temperature
		Thermodynamics	Solving Problmes Involving Heat Flow
CH.8.3	Using Le Châtelier's principle to explain changes in physical and chemical equilibrium	Equilibrium	Pressure
			Lab: Le Chatelier's Principle (P/P only)
			Le Chatelier's Principle

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			Temperature
CH.9	Distinguish between chemical and nuclear reactions.		
CH.9.1	Identifying atomic and subatomic particles, including mesons, quarks, tachyons, and baryons	Nuclear Chemistry	Inside the Atom
CH.9.2	Calculating the half-life of selective radioactive isotopes	Nuclear Chemistry	Radioactive Decay
		Atoms	The Atom
		Nuclear Chemistry	Radioactive Isotopes
CH.9.4	Contrasting fission and fusion	Nuclear Chemistry	Fission and Fusion
CH.9.5	Describing carbon-14 decay as a dating method		