IAA Curriculum

Content Area	Science	Grade	12
Course Name	Chemistry		

Unit 1/Concepts	Unit 1: Fundamentals of Chemistry - Comprehensive overview of all the main ideas of chemistry such as the atomic nature of matter, systems, temperature, and energy.
Big Ideas	• What is chemistry about • Chemistry in your body • The importance of water • Measurements and units • Significant figures • Scientific notation • Unit conversions • Scientific method • Matter and energy • Periodic table & elements • The mole • Avogadro's number • Molarity • Thermodynamics • Phase changes • Physical and chemical changes • Bonds • Chemical reactions • Acid/base
Key learning objectives and skills	• Identify systems • Label parts of systems • Collect data • Interpret data • Show cause and effect • Develop a scientific model • Apply scientific concepts • Make calculations of density • Venn diagram of covalent and ionic bonds • Converting standard to metric • Calculate in scientific notation
Essential questions	• What is Chemistry? • Why is Chemistry important to know? • Why do we use the metric system? • How does mass differ from weight? • How do we calculate volume? • How do we calculate density? • How do we measure pressure?

	• What is the difference between accuracy and precision? • How do we calculate sig figs? • Why is scientific notation important? • What is a hypothesis? • What is the difference between experimental and control variables? • How do we calculate percent error? • What is a theory? • Why is repeatability and objectivity important? • What is matter? • What are the three forms of energy? • What is matter made of? • What is the difference between a physical property and a chemical property? Physical and a chemical change? • What is intrusive and extrusive? • What trends appear in the periodic table? • What is a mol? • How do you read chemical formulas? • How do we use Avogadro's number? • How is a solution formed? • What is molarity? • How do we find gas laws? • What is Brownian movement? • What are the three temperature scales? • How do we convert between the three temperature scales? • What is a joule? • How do we use the laws of thermodynamics? • How do we calculate temperature and heat? • What are the phases of matter and how do they change? • What is the difference between physical and chemical change? • How do we recognize a chemical change? • What kind of chemical changes are there? • What is the difference between a covalent and ionic bond? • How do we measure reactivity and how does it relate to the periodic table? • What is the difference between endothermic and exothermic? • What is a redox reaction?

Dates (estimates only)	Smart Objectives	Instructional Strategies and Activities	PA CC Standards	Keystone Anchors	Keystone Eligible Content	Vocabulary
9 weeks	• Identify objective observations • identify the importance of good observations. • identify the accuracy of their hypotheses. • Differentiate between qualitative and quantitative data • Classify physical or chemical changes within a system in terms of matter and/or energy	• Lab based learning • Modeling systems • Reading scientific procedures • Keeping a science notebook • Constructing a concept map • Developing communication skills	CHEM.A.1.1.1 CHEM.A.1.1.2 CHEM.A.1.2.2 CHEM.B.1.2.2 CC.3.5.11-12.H CC.3.6.11-12.A	CHEM.A.1.1 CHEM.B.1.1 CHEM.B.1.3	CHEM.A.1.1.1 CHEM.A.1.1.2 CHEM.A.1.1.3 CHEM.A.1.1.4 CHEM.A.1.1.5 CHEM.B.1.1.1 CHEM.B.1.3.1 CHEM.B.1.3.2 CHEM.B.1.3.3	pressure, force, Pascal, milliliter, accuracy, precise, graduated cylinder, significant figures, conversion factor, scientific notation, kilogram, measurement, mass, weight, gram, volume, air density, atmosphere, mantissa exponent, elements, atom, science, hypothesis, objective, average, theory, natural laws, conclusion, significant variable, experiments, inquiry, repeated,

	• Classify observations as qualitative and/or quantitative • Differentiate between homogeneous and heterogeneous mixtures (e.g., how such mixtures can be separated) • Apply the law of definite proportions to the classification of elements and compounds as pure substances • Evaluate hypotheses data, analysis, and conclusions in a science or technical text, verifying when possible and corroborating or challenging conclusions with other sources of information • Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text • Write arguments focused on discipline specific content	• Writing lab reports				procedure error, uncertainty, phases, control variable, scientific method, matter, scale, potential energy, conservation energy, kinetic energy, molar mass, mixture, physical property, extensive property, intensive property, chemical property, period, group, pure substance, chemical change, physical change, macroscopic, microscopic, mole, atomic number, molecule, compound, chemical formula, ion, ionic compound, structural diagram, space filling model, heterogeneous, homogeneous, solute, concentration, solubility, dissolved, molar volume, solvent, solution, insoluble, concentrated dilute, molarity, partial pressure, Brownian motion, Fahrenheit, thermometer, random temperature, thermistor, absolute zero, Kelvin, Celsius, specific heat, joule, calorie, thermal equilibrium, second law, system, heat, first law, conductor, insulator, gas, solid, liquid, triple point, vaporization, evaporation, heat of fusion, melting point, boiling point, phase change, dew point, interatomic forces, irreversible, covalent bond, ionic bond, molecule, chemical bond, intermolecular forces, electric charge, electron, neutral, proton, nucleus, enthalpy of formation, reactivity, chemical reaction, reactants, products, coefficient, balanced equation, endothermic, exothermic, conservation of mass, enthalpy, activation energy, surroundings, precipitate, aqueous solution, salt, pH scale, oxidation, reduction, acid, base
Resources	• Lab Aids SEPUP Natural Approach to Chemistry Textbook • Activities from Teachers Pay Teachers • Lab Aids lab materials • Virtual labs • Powerpoint slides • webquests • Internet materials such as Amoeba Sisters, Teacher's Pet, Bozeman Science, Edpuzzle, Nearpod, Kahoot, university resources for schools, National Geographic, Khan Academy, Better Lesson, Ptable.com					

Formative Assessments	• Exit tickets • Lab reports • Models • Quiz • Do now • Discussion • Stations • Oral questioning • Independent practice
Summative Assessments	• Chapter Tests • Unit Test • Project
Strategies for ELL and IEP Support	What tools, strategies, and resources will be used to provide accommodations and modifications to support students? • Productive pacing • Incorporate native languages • Use visuals • Small group teaching • Provide different levels of materials • Simplify language • Repetition • Provide content in multiple forms
Acceleration Strategies	What tools, strategies, and resources will be used to help advance students closer to grade-level expectations • Scaffolding of material • Collaboration with others • Grouping of students • Concrete examples • Visuals • Integrate technology • Goal setting

IAA Curriculum

Content Area	Science	**Grade**	12
Course Name	Chemistry		

Unit 2/Concepts	Unit 2: Core Concepts of Chemistry: Part 1 - Structure of atoms, elements of the periodic table, bonding, compounds & molecules, water & solutions
Big Ideas	• Properties of an atom • Atoms in chemistry • Sources of elements • Periodic Table organization • Essential elements of Earth • Bonds • Periodic Table predictions • Physical properties of atoms • Physical properties of molecules • Surface tension • The Importance of Water • Chemical Properties of Water • Solutions
Key learning objectives and skills	• Identify systems • Label parts of systems • Collect data • Interpret data • Show cause and effect • Develop a scientific model • Apply scientific concepts • Using a diagram compare the wavelength, frequency, and energy of waves • Make a molecular model from a Lewis dot structure • Calculate the percent by mass of water • Create a density curve •
Essential Questions	• What is an atom? • What are the properties of atoms? • Why are atoms imperative to chemistry? • Where did all the different elements come from? • How is the periodic table organized and used? • Which elements are essential for life on Earth? • Why do different kinds of bonds form? • How can we use the periodic table to predict what will bond? • Why are diamonds so hard? • Why do sugar and salt look so similar but have different properties? • How do water bugs walk on water? • Why is water so important?

	• What are the chemical properties of water? • What is a solution?					
Dates	**Smart Objectives**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone Anchors**	**Keystone Eligible Content**	**Vocabulary**
8 weeks	• Label parts of an atom • Draw a timeline showing the development of atomic theory starting with Democritus and ending with Heisenberg. Be sure to mention the person, a date, and their contribution to our current knowledge of the atom • Describe the difference between the mass number for an atom and the atomic mass of an element • Describe the Bohr model of the atom. • Compare and contrast between the Bohr model from previous models • Describe the difference between an orbit and an orbital. • Describe how does an electron absorb energy • Identify an element based on some combination of its atomic mass, number, symbol, isotope or properties • Describe the distribution of metals, nonmetals, and metalloids on the periodic table • Identify an element based on some combination of its atomic mass, number, symbol, isotope or properties • Determine the valence of an atom by building it, or by using the periodic table and some simple rules • Compare and contrast electronegativity and ionization energy • Compare and contrast the periodic properties of atomic radius, electronegativity, and	• Lab based learning • Modeling systems • Reading scientific procedures • Keeping a science notebook • Constructing a concept map • Developing communication skills • Writing lab reports	3.1.12.A6 3.1.12.A7 3.1.12.B1 3.1.12.B3 3.1.12.B4 3.1.12.B6 3.1.12.B5	CHEM.A.2.1 CHEM.A.2.2 CHEM.A.2.3	CHEM.A.2.1.1 CHEM.A.2.1.2 CHEM.A.2.2.1 CHEM.A.2.2.2 CHEM.A.2.2.3 CHEM.A.2.2.4 CHEM.A.2.3.1 CHEM.A.2.3.2	°C, °F, *K, ion, radioactivity, atomic mass unit, atomic number, orbit, isotope, nucleus, mass number, decay, electron configuration, spectrum, principle, quantum number, spectrophotometer, photon, frequency, wavelength, energy level, Planck's constant, orbital, quantum state, quantum theory, Pauli exclusion principle, electron, volt, electromagnetic spectrum, spectroscopy, speed of light, supernova, trace amounts, electronegativity, ionization energy, periodic, macronutrients, trace element, atomic radius, valence electrons, Lewis dot diagrams, electron configuration, electrostatic force, nonpolar covalent bond, polarize, polar covalent bond, ionic bond, isomer, VSEPR region of electron density, trigonal, planar, lone pair, tetrahedral, trigonal, pyramidal, bent, free radical, octet rule, unpaired electrons, antioxidant, covalent bonds,paired electrons, brittle, electric current, polyatomic ion, lipids, steroids, hydrocarbon, polymers, monomer, homopolymer, copolymers, network, covalent, empirical formula, molecular formula, organic molecule, intermolecular attractions, van der Waals interactions, hydrogen bonding, dipole–dipole attraction, surface tension, London dispersion attraction, hydration, tap water, dissolved solvent, aqueous, solute, polar, surface tension, distilled water, deionized water, concentration, solubility, insoluble, aqueous, equilibrium, dilute, supersaturated, concentrated, molarity, saturated,

	ionization energy • Compare and contrast a 1s and a 2s orbital • Predict an element's chemical properties • Compare and contrast covalent bonds and ionic bonds • Compare and contrast polar covalent bonds with nonpolar covalent bonds • Identify a compound from a chemical structure diagram • Create chemical structure models • Describe in your own words what Valence Shell Electron Repulsion Theory is and what it is used for. • Compare and contrast between trigonal planar and trigonal pyramidal shapes. • Predict chemical names based on the chemical formula • Describe a major difference between the properties of ionic compounds and molecular compounds. • Construct the structure of an ionic crystal • Compare and contrast a monomer and a polymer • Estimate how many different monomers are used to make proteins • Analyze the major categories of intermolecular attractions • Construct a calibration curve of absorbance vs. concentration • Make observations as to why hydrogen bonding is important to life on earth. • Give an example of surface tension that you have witnessed in your everyday life. • Analyze why sugar dissolves better in hot tea than in iced tea.					unsaturated, suspension, enthalpy, entropy, electrolyte, heat of solution, colloid, colligative, property, molality
Resources	• Lab Aids SEPUP Natural Approach to Chemistry Textbook • Activities from Teachers Pay Teachers • Lab Aids lab materials					

	• Virtual labs • Powerpoint slides • webquests • Internet materials such as Amoeba Sisters, Teacher's Pet, Bozeman Science, Edpuzzle, Nearpod, Kahoot, university resources for schools, National Geographic, Khan Academy, Better Lesson, Ptable.com
Formative Assessments	• Bell Ringers • Exit tickets • Lab reports • Models • Quiz • Do now • Discussion • Stations • Oral questioning • Independent practice •
Summative Assessments	• Chapter Tests • Unit Test • Project
Strategies for ELL and IEP Support	What tools, strategies, and resources will be used to provide accommodations and modifications to support students? • Productive pacing • Incorporate native languages • Use visuals • Small group teaching • Provide different levels of materials • Simplify language • Repetition • Provide content in multiple forms
Acceleration Strategies	What tools, strategies, and resources will be used to help advance students closer to grade-level expectations • Scaffolding of material • Collaboration with others • Grouping of students • Concrete examples • Visuals • Integrate technology • Goal setting

IAA Curriculum

Content Area	Science	Grade	12
Course Name	Chemistry		

Unit 3/Concepts	Unit 3: Core Concepts of Chemistry: Part 2 - Chemical Reactions, Stoichiometry, Reaction Rates and Equilibrium, Acids and Bases, Gases
Big Ideas	• Chemical Reactions • Stoichiometry: Balancing Chemical Equations - Use mathematics and visual representations to balance chemical equations. • The Mole • Reactions and Rates - See that atoms are conserved in an equilibrium situation where there are unreacted particles. • The Brownian Movement • Acids and Bases • Gas Laws • Avogadro's number
Key learning objectives and skills	• Identify systems • Label parts of systems • Collect data • Interpret data • Show cause and effect • Develop a scientific model • Apply scientific concepts • Balance chemical equations
Essential Questions	• How do we represent chemical equations? • How do we classify chemical reactions? • How do we calculate the amounts of chemicals needed for a reaction? • How do we predict the quantity of chemicals produced? • Why must we follow a recipe for chemical reactions? • What determines the rate of reaction? • What makes a chemical reaction stop? • Are chemical reactions reversible? • What is an acid? • What is a base? • Why are acids and bases important? • What type of chemical reactions happen with acids and bases? • Why do tires go flat on a cold day? • Why do mountain climbers need oxygen? • Will a vacuum cleaner work on the moon?

Dates (estimates only)	Smart Objectives	Instructional Strategies and Activities	PA CC Standards	Keystone Anchors	Keystone Eligible Content	Vocabulary

7 weeks	• Balance chemical equations • Convert equilibrium solutions with unreactive particles • Identify reactants and products in a chemical reaction • Predict the rates of reaction given mols of reactants • Categorize the differences between chemical equation and chemical reaction. • Analyze the three types of chemical reactions • Analyze why water is the most important compound of life • Classify chemical reactions • Analyze solubility of compounds • Compare and contrast exothermic and endothermic reactions • Identify how making popcorn explains percentage yields • Calculate the number of moles of solute in solutions • Hypothesis why the use of a mole is needed in chemistry • Compare ratios of reactants and products in a balanced equation • List four factors that affect reaction rates • Analyze the concept of equilibrium in the phases of water • Compare and contrast acids and bases • Analyze the difference between acid and base theories • Draw & label the pH scale • Compare & contrast solid, liquid and gas on the molecular level • Analyze Brownian movement • Define the differences between force and pressure • Apply gas law concepts to explain why balloons pop at high altitudes • Analyze the relationship between temperature and kinetic energy	• Lab based learning • Modeling systems • Reading scientific procedures • Keeping a science notebook • Constructing a concept map • Developing communication skills • Writing lab reports	3.2.12.A1 3.2.12.A2 3.2.12.A3 3.2.12.A4 3.2.12.A5	CHEM.A.1.2 C CHEM.B.1.4	CHEM.A.1.2.1 CHEM.A.1.2.2 CHEM.A.1.2.3 CHEM.A.1.2.4 CHEM.A.1.2.5 CHEM.B.1.4.1 CHEM.B.1.4.2	chemical reaction, reactants, chemical equation, products, mass conservation, balanced equation, unbalanced equation, enthalpy of reaction, chemical energy, exothermic, endothermic, energy barrier, enthalpy of formation, thermochemical, photosynthesis, spontaneous reaction, combination reaction, synthesis reaction, reaction, decomposition, precipitate, polymer, displacement reaction, polymerization, green chemistry, atom, economy, stoichiometry, mole, chemical engineering, ratio, stoichiometric equivalent, sustainable chemistry, hazardous substances, actual yield, theoretical yield, percent yield, limiting reactant, excess reactant, reaction rate, transition, state reaction, profile, activation energy, activated complex, reaction mechanism, bimolecular, elementary steps, intermediate, unimolecular rate, determining step, closed system, equilibrium, law of mass, action equilibrium, constant equilibrium position, Le Châtelier's principle, equilibrium expression, enzyme, catalyst, acid, hydronium ion, neutral, strong acid, weak acid, base, Arrhenius, Brønsted–Lowry, amphoteric, weak base, strong base, exponent, indicator, logarithm ion, product, constant neutralization, titration,

						common ion, buffer, capacity, equivalence point, salt, kinetic molecular theory, Bernoulli principle, Brownian motion, barometer, molar volume, ideal gas

Resources	• Lab Aids SEPUP Natural Approach to Chemistry Textbook • Activities from Teachers Pay Teachers • Lab Aids lab materials • Virtual labs • Powerpoint slides • webquests • Internet materials such as Amoeba Sisters, Teacher's Pet, Bozeman Science, Edpuzzle, Nearpod, Kahoot, university resources for schools, National Geographic, Khan Academy, Better Lesson, Ptable.com • Teacher selected laboratories supporting course content, appropriate videos, internet resources, teacher demos, probeware,teacher prepared notes and worksheets, software
Formative Assessments	• Exit tickets • Lab reports • Models • Quiz • Do now • Discussion • Stations • Oral questioning • Independent practice
Summative Assessments	• Chapter Tests • Unit Test • Project

Strategies for ELL and IEP Support	What tools, strategies, and resources will be used to provide accommodations and modifications to support students? • Productive pacing • Incorporate native languages • Use visuals • Small group teaching • Provide different levels of materials • Simplify language • Repetition • Provide content in multiple forms
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	• Integrate technology • Goal setting

IAA Curriculum

Content Area	Science	**Grade**	12
Course Name	Chemistry		

Unit 4/Concepts	Unit 4: Chemistry – Applications - Electrochemistry, Solids & Liquids, Organic Chemistry, The Chemistry of Living Systems, The Chemistry of the Earth, Nuclear Chemistry & Radioactivity, The Chemistry of the Solar System
Big Ideas	• Antioxidants • Batteries • Rust/Oxidation • Solids, liquids, gases • Organic Chemistry • Plastics • Chemistry of living systems • Chemical reactions in the atmosphere • The Role of water • Chemistry of environmental issues • Nuclear reactions • Radioactivity • Chemistry of space
Key learning objectives and skills	• Identify systems • Label parts of systems • Collect data • Interpret data • Show cause and effect • Develop a scientific model • Apply scientific concepts • Draw the formula for two structural isomers of pentane. • Sketch the structure for acetylsalicylic acid,
Essential Questions	• What are antioxidants and how do they work? • How do batteries work? • How do rechargeable batteries work? • Why do things rust? • How are solids, liquids, and gases different? • How do different solids/liquids differ from each other? • What is so special about Carbon? • Why is Carbon so abundant in nature? • Are organic molecules alive? • What are plastics made of? • What are the molecules of life? How are they formed? • Where does energy from living things come from? • What molecules are similar to all living things? • How do chemical reactions in the atmosphere affect life? • What is the role of water on earth?

	• How are elements and molecules recycled on Earth? • How is chemistry applied to environmental issues? • How do we write nuclear reactions? • How does radioactivity affect living things? • Where does nuclear energy come from? • What kinds of chemistry occur in the sun and other planets? • How do we know the universe is similar everywhere? • What can chemistry tell about the possibility of life outside of Earth?					
Dates (estimates only)	**Smart Objectives**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone Anchors**	**Keystone Eligible Content**	**Vocabulary**
9 weeks	• List four examples of devices or natural process that are based on electrochemistry • Analyze chemical reactions that create the voltage in a lemon battery • Prove that chemicals can provide energy in a battery • List metals that are the most easily oxidized • Show which metal ion is the most easily reduced • Apply concepts of free radicals • Analyze how antioxidants protect us from free radicals • Investigate voltage and show how it is related to electrical energy • Compare and contrast oxidation and reduction reactions • Organize the basic steps that we have to follow when balancing redox reaction equations. • Relate cell voltage to electromotive force • Make observations of how changes in the concentrations of reactants and products affect the voltage of a voltaic cell • Design a qualitative experiment to measure the relative surface tensions of different liquids • Design a simple experiment to measure relative viscosities of liquids • Compare and contrast the strength of bonding between	• Lab based learning • Modeling systems • Reading scientific procedures • Keeping a science notebook • Constructing a concept map • Developing communication skills • Writing lab reports	3.2.C.A3 3.2.12.A4 3.4.12.E2 3.4.12.E3 3.4.12.E4 3.4.12.E5 3.4.12.E6 3.4.12.E7	CHEM.B.2.1 CHEM.B.2.2	CHEM.B.2.1.1 CHEM.B.2.1.2 CHEM.B.2.1.3 CHEM.B.2.1.4 CHEM.B.2.1.5 CHEM.B.2.2.1 CHEM.B.2.2.2	electrochemistry, free radicals, electron charge, coulomb, proton charge, electrical current, Ampere, antioxidants, rust, electrical potential difference, voltage, electroneutrality, volt, resistance, ohm, Ohm's law, electron, redox, oxidized, reduced, charge conservation, oxidation number, oxidizing agent, reducing agent, reduction half, balance mass, balance charge, half-reactions, oxidation, half electrochemical cell, electrode, electrolyte, anode, cathode, voltaic cell, galvanic salt bridge, electrolytic cell, electromotive force, cell, EMF, standard reduction, potential, spontaneous, non-spontaneous, Nernst equation, electrolysis, hydrogen reference, half-cell, solids, liquids, gases, crystal glass, amorphous, crystal structure, Bravais lattices, metallic glass, point defects, dislocations, grain boundaries, inclusions, slip systems, close-packed direction,s hardness, Mohs, hardness scale, strength, brittle, ductile, alloy, alloying, elements, binary, triple point, alloy phase diagram, critical point, binary phase diagram, cohesion, adhesion, eutectic point flow, meniscus, capillary action, viscous, viscosity, nonviscous, surface tension, surfactant, hydrocarbon,

	molecules of solids vs. liquids vs. gases • Formulate what would happen to the molecules in a balloon filled with air if you popped it in outer space • Analyze why some lizards run on water • Make observations if a human tried to run on water • Draw the formula for two structural isomers of pentane. • List one example of a commercial use for an aldehyde and a ketone • List two functional groups that would NOT be very soluble in water • Predict the products and write the balanced chemical equation for organic reactions. • Name the process in which trans fats are formed. • Distinguish between a monosaccharide and an oligosaccharide • List the primary components of milk are and why it is nutritious • Describe the effect of heat on enzyme activity • Compare and contrast glucose and fructose					R group, alkene, alkane, structural Isomer, optical isomers, aromatic, saturated hydrocarbon, unsaturated hydrocarbon, alkyne, hydrocarbon parent compound, benzene, geometric isomers, aldehyde, alcohol, ketone, ether, carbonyl group, carboxylic acid, amines, esters, dehydrogenation, hydrogenation, cracking monomer, partial hydrogenation, amide, linkage, substitution, addition, petroleum, polymer, polymerization, condensation polymers, fat, oligosaccharides, polysaccharides, phospholipid, carbohydrates, monosaccharides, triglyceride, micelle chlorophyll, ATP, photosynthesis, NADPH, Krebs cycle, Calvin cycle, cellular respiration, glycolysis, NADH, electron, protein, amino acids, peptide bond, alpha helix, substrate, primary structure, pleated sheet, tertiary structure, cytochrome, protein active site, transport chain, nucleotide, gene, nitrogenous bases, DNA, RNA, troposphere, photoionization, global warming, stratosphere, photodissociation, carbon cycle, salinity, water cycle, transpiration, solar nebula, igneous rock, mineral, lava, geologists, nitrogen fixation, phosphorus cycle, core, magma, volcano, sedimentary rock, metamorphic rock, nitrogen cycle, atomic number, neutron number, mass number, nuclear charge, mass number balance, nuclear reactions, radioactivity, radiation, intensity, alpha decay, inverse square law, parent nuclide, daughter nuclide, beta decay, beta radiation, gamma decay, positron, positron emission, carbon-14, half-life, rate of decay, carbon dating, nuclear energy, rate constant activity, mass change, mass–energy equivalence,

						binding energy, fission reaction, fission products, chain reaction, nuclear power, ionization, plant fusion reaction, ionizing radiation, non ionizing, dose rad rem
Resources	• Lab Aids SEPUP Natural Approach to Chemistry Textbook • Activities from Teachers Pay Teachers • Lab Aids lab materials • Virtual labs • Powerpoint slides • webquests • Internet materials such as Amoeba Sisters, Teacher's Pet, Bozeman Science, Edpuzzle, Nearpod, Kahoot, university resources for schools, National Geographic, Khan Academy, Better Lesson, Ptable.com • Teacher selected laboratories supporting course content, appropriate videos, internet resources, teacher demos, probeware,teacher prepared notes and worksheets, software					
Formative Assessments	• Exit tickets • Lab reports • Models • Quiz • Do now • Discussion • Stations • Oral questioning • Independent practice					
Summative Assessments	• Chapter Tests • Unit Test • Project					
Strategies for ELL and IEP Support	What tools, strategies, and resources will be used to provide accommodations and modifications to support students? Productive pacing Incorporate native languages Use visuals Small group teaching Provide different levels of materials Simplify language Repetition Provide content in multiple forms					
Acceleration Strategies	What tools, strategies, and resources will be used to help advance students closer to grade-level expectations • Scaffolding of material • Collaboration with others • Grouping of students • Concrete examples					

	• Visuals • Integrate technology • Goal setting