Inquiry Investigations™
Chemistry – A Closer Look at Matter MODULE – 1287240
Grades: 7-10

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Alabama Courses of Study
Science
Grade 7

STANDARD	AL.1.	Life Science - Students will:
OBJECTIVE	1.5.a.	Additional Minimum Content: Describing the processes of photosynthesis and cellular respiration • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction

Alabama Courses of Study
Science
Grade 8

STANDARD	AL.1.	Physical Science - Students will:
OBJECTIVE	1.1.	Identify steps within the scientific process. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**1.1.a.**	Additional Minimum Content: Applying process skills to interpret data from graphs, tables, and charts • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law
OBJECTIVE	**1.1.c.**	Additional Minimum Content: Measuring dimension, volume, and mass using Systeme International d'Unites (SI units) • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass
OBJECTIVE	**1.1.e.**	Additional Minimum Content: Identifying appropriate laboratory glassware, balances, time measuring equipment, and optical instruments used to conduct an investigation • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal

		Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**1.2.**	Describe the structure of atoms, including the location of protons, neutrons, and electrons. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.2.a.**	Additional Minimum Content: Identifying the charge of each subatomic particle • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.2.b.**	Additional Minimum Content: Identifying Democritus and Dalton as contributors to the atomic theory • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.3.**	Determine the number of protons, neutrons, and electrons, and the mass of an element using the periodic table. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.3.a.**	Additional Minimum Content: Locating metals, nonmetals, metalloids, and noble gases on the periodic table • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table

		• Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.3.b.**	Additional Minimum Content: Using data about the number of electrons in the outer shell of an atom to determine its reactivity • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.4.a.**	Additional Minimum Content: Balancing chemical equations by adjusting coefficients • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes
OBJECTIVE	**1.5.**	Differentiate between ionic and covalent bonds. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.6.**	Define solution in terms of solute and solvent. • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.6.b.**	Additional Minimum Content: Defining isotonic, hypertonic, and hypotonic solutions • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction

		• Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	1.6.c.	Additional Minimum Content: Describing acids and bases based on their hydrogen ion concentration • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	1.7.	Describe states of matter based on kinetic energy of particles in matter. • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	1.7.a.	Additional Minimum Content: Explaining effects of temperature, concentration, surface area, and catalysts on the rate of chemical reactions • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Teacher Resource CD: Matter - Chemical Properties and Changes
OBJECTIVE	1.10.	Differentiate between potential and kinetic energy. Examples: potential - rock resting at the top of a hill, kinetic - rock rolling down a hill • Teacher Resource CD: Matter - Physical Properties and Changes

Alabama Courses of Study
Science
Grade 9

STANDARD	**AL.1.**	**Physical Science Core - Students will:**
OBJECTIVE	1.1.	Recognize periodic trends of elements, including the number of valence electrons, atomic size, and reactivity. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.1.a.**	Additional Minimum Content: Categorizing elements as metals, nonmetals, metalloids, and noble gases • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.1.b.**	Additional Minimum Content: Differentiating between families and periods • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.1.c.**	Additional Minimum Content: Using atomic number and mass number to identify isotopes • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.2.**	Identify solutions in terms of components, solubility, concentration, and conductivity. • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.2.a.**	Additional Minimum Content: Comparing saturated, unsaturated, and supersaturated solutions • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.2.b.**	Additional Minimum Content: Comparing characteristics of electrolytes and

		nonelectrolytes • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.2.c.**	Additional Minimum Content: Describing factors that affect solubility and rate of solution, including nature of solute and solvent, temperature, agitation, surface area, and pressure on gases • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.3.**	Contrast the formation of ionic and covalent bonds based on the transfer or sharing of valence electrons. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.3.a.**	Additional Minimum Content: Demonstrating the formation of positive and negative monatomic ions by using electron dot diagrams • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.4.**	Use nomenclature and chemical formulas to write balanced chemical equations.

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.4.b.**	Additional Minimum Content: Identifying chemical reactions as composition, decomposition, single replacement, or double replacement • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**1.4.c.**	Additional Minimum Content: Defining the role of electrons in chemical reactions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.8.a.**	Additional Minimum Content: Identifying the relationship between thermal energy and the temperature of a sample of matter • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.8.d.**	Additional Minimum Content: Relating simple formulas to the calculation of potential energy, kinetic energy, and work • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.10.b.**	Additional Minimum Content: Identifying mechanical, magnetic, and chemical methods used to create an electrical charge. Examples: mechanical - rubbing materials together, magnetic - moving a closed loop of wire across a magnetic field, chemical - using batteries • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water
OBJECTIVE	**1.12.**	Identify metric units for mass, distance, time, temperature, velocity, acceleration, density, force, energy, and power.

		• Teacher Resource CD: Matter - Physical Properties and Changes
STANDARD	**AL.2.**	**Biology Core - Students will:**
OBJECTIVE	**2.1.c.**	Additional Minimum Content: Identifying safe laboratory procedures when handling chemicals and using Bunsen burners and laboratory glassware • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction

		• Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**2.3.**	Identify reactants and products associated with photosynthesis and cellular respiration and the purposes of these two processes. • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction
OBJECTIVE	**2.14.a.**	Additional Minimum Content: Relating natural disasters, climate changes, nonnative species, and human activity to the dynamic equilibrium of ecosystems. Examples: natural disasters - habitat destruction resulting from tornadoes; climate changes - changes in migratory patterns of birds; nonnative species - exponential growth of kudzu and Zebra mussels due to absence of natural controls; human activity - habitat destruction resulting in reduction of biodiversity, conservation resulting in preservation of biodiversity • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
STANDARD	**AL.3.**	**Chemistry Core - Students will:**
OBJECTIVE	**3.1.**	Differentiate among pure substances, mixtures, elements, and compounds. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.1.a.**	Additional Minimum Content: Distinguishing between intensive and extensive properties of matter • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3:

		Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**3.1.b.**	Additional Minimum Content: Contrasting properties of metals, nonmetals, and metalloids • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.1.c.**	Additional Minimum Content: Distinguishing between homogeneous and

		heterogeneous forms of matter • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.2.**	Describe the structure of carbon chains, branched chains, and rings. • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.3.**	Use the periodic table to identify periodic trends, including atomic radii, ionization energy, electronegativity, and energy levels. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.3.a.**	Additional Minimum Content: Utilizing electron configurations, Lewis dot structures, and orbital notations to write chemical formulas • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds
OBJECTIVE	**3.3.b.**	Additional Minimum Content: Calculating the number of protons, neutrons, and electrons in an isotope • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.3.c.**	Additional Minimum Content: Utilizing benchmark discoveries to describe the historical development of atomic structure, including photoelectric effect, absorption, and emission spectra of elements. Example: Thompson's cathode ray, Rutherford's gold foil, Millikan's oil drop, and Bohr's bright line spectra experiments • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds
OBJECTIVE	**3.4.**	Describe solubility in terms of energy changes associated with the solution process. • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.4.a.**	Additional Minimum Content: Using solubility curves to interpret saturation levels • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.4.c.**	Additional Minimum Content: Describing acids and bases in terms of strength, concentration, pH, and neutralization reactions • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2:

		Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**3.4.e.**	Additional Minimum Content: Solving problems involving molarity, including solution preparation and dilution • Teacher Resource CD: Matter - Chemical Properties and Changes
OBJECTIVE	**3.5.**	Use the kinetic theory to explain states of matter, phase changes, solubility, and chemical reactions. Example: water at 25 degrees Celsius remains in the liquid state because of the strong attraction between water molecules while kinetic energy allows the sliding of molecules past one another • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.6.**	Solve stoichiometric problems involving relationships among the number of particles, moles, and masses of reactants and products in a chemical reaction. • Teacher Resource CD: Matter - Chemical Properties and Changes
OBJECTIVE	**3.6.a.**	Additional Minimum Content: Predicting ionic and covalent bond types and products given known reactants • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.6.c.**	Additional Minimum Content: Identifying the nomenclature of ionic

		compounds, binary compounds, and acids • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.6.d.**	Additional Minimum Content: Classifying chemical reactions as composition, decomposition, single replacement, or double replacement • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**3.7.**	Explain the 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. • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.9.a.**	Additional Minimum Content: Identifying atomic and subatomic particles, including mesons, quarks, tachyons, and baryons • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
STANDARD	**AL.4.**	**Physics Core - Students will:**
OBJECTIVE	**4.1.a.**	Additional Minimum Content: Explaining the significance of slope and area under a curve when graphing distance-time or velocity-time data. Example: slope and area of a velocity-time curve giving acceleration and distance traveled • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law
OBJECTIVE	**4.4.**	Describe quantitative relationships for velocity, acceleration, force, work, power, potential energy, and kinetic energy. • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**4.5.a.**	Additional Minimum Content: Using qualitative and quantitative methods to show the relationship between changes in heat energy and changes in temperature • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Teacher Resource CD: Matter - Physical Properties and Changes
STANDARD	**AL.5.**	**Aquascience Elective Core - Students will:**
OBJECTIVE	**5.2.**	Relate geological and hydrological phenomena and fluid dynamics to aquatic systems. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4:

		Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**5.4.a.**	Additional Minimum Content: Describing the influence of water quality on aquaculture. Examples: aquatic plant control, water quality management, recognition and correction of oxygen deficiency, pH control • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**5.4.b.**	Additional Minimum Content: Identifying sources of aquatic pollution. Examples: point and nonpoint pollution, volcanic ash, waste disposal • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification

STANDARD	**AL.6.**	**Botany Elective Core - Students will:**
OBJECTIVE	**6.7.**	Explain plant cell processes, including light dependent and light independent reactions of photosynthesis, glycolysis, aerobic and anaerobic respiration, and transport. • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction
STANDARD	**AL.8.**	**Environmental Science Elective Core - Students will:**
OBJECTIVE	**8.1.**	Identify the influence of human population, technology, and cultural and industrial changes on the environment. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.2.e.**	Additional Minimum Content: Identifying effects of fossil fuel by-products on the environment, including ozone depletion; formation of acid rain, brown haze, and greenhouse gases; and concentration of particulates and heavy metals • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**8.4.**	Identify the impact of pollutants on the atmosphere. • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**8.5.**	Describe properties of water that make it a universal solvent. • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification

		• Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**8.6.a.**	Additional Minimum Content: Determining the quality of fresh water using chemical testing and bioassessment • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.6.b.**	Additional Minimum Content: Describing the use of chemicals and microorganisms in water treatment • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.6.c.**	Additional Minimum Content: Describing water conservation methods • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.6.e.**	Additional Minimum Content: Identifying major residential, industrial, and agricultural water consumers • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.6.f.**	Additional Minimum Content: Identifying principal uses of water • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.8.**	Identify major contaminants in water resulting from natural phenomena, homes, industry, and agriculture. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.8.a.**	Additional Minimum Content: Describing the eutrophication of water by industrial effluents and agricultural runoffs • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.8.b.**	Additional Minimum Content: Classifying sources of water pollution as point and nonpoint • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.9.b.**	Additional Minimum Content: Identifying ways to manage waste, including composting, recycling, reusing, and reclaiming • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1:

		Water Purification
OBJECTIVE	8.12.	Identify positive and negative effects of human activities on biodiversity. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
STANDARD	AL.13.	**Marine Science Elective Core - Students will:**
OBJECTIVE	13.3.	Describe physical characteristics of oceans, including topography of the ocean floor, plate tectonics, wave motion, depth, and pressure. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4:

		Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**13.5.**	Discuss physical and chemical properties of saltwater. Examples: physical - turbidity, temperature, density; chemical - salinity, pH, dissolved gases • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration

Alabama Courses of Study
Science
Grade 10

STANDARD	AL.1.	Physical Science Core - Students will:
OBJECTIVE	1.1.	Recognize periodic trends of elements, including the number of valence electrons, atomic size, and reactivity. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	1.1.a.	Additional Minimum Content: Categorizing elements as metals, nonmetals, metalloids, and noble gases • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	1.1.b.	Additional Minimum Content: Differentiating between families and periods • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	1.1.c.	Additional Minimum Content: Using atomic number and mass number to identify isotopes

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.2.**	Identify solutions in terms of components, solubility, concentration, and conductivity. • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.2.a.**	Additional Minimum Content: Comparing saturated, unsaturated, and supersaturated solutions • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.2.b.**	Additional Minimum Content: Comparing characteristics of electrolytes and nonelectrolytes • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.2.c.**	Additional Minimum Content: Describing factors that affect solubility and rate of solution, including nature of solute and solvent, temperature, agitation, surface area, and pressure on gases • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.3.**	Contrast the formation of ionic and covalent bonds based on the transfer or

		sharing of valence electrons. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.3.a.**	Additional Minimum Content: Demonstrating the formation of positive and negative monatomic ions by using electron dot diagrams • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.4.**	Use nomenclature and chemical formulas to write balanced chemical equations. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.4.b.**	Additional Minimum Content: Identifying chemical reactions as composition, decomposition, single replacement, or double replacement • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**1.4.c.**	Additional Minimum Content: Defining the role of electrons in chemical reactions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table

		• Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.8.a.**	Additional Minimum Content: Identifying the relationship between thermal energy and the temperature of a sample of matter • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.8.d.**	Additional Minimum Content: Relating simple formulas to the calculation of potential energy, kinetic energy, and work • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**1.10.b.**	Additional Minimum Content: Identifying mechanical, magnetic, and chemical methods used to create an electrical charge. Examples: mechanical - rubbing materials together, magnetic - moving a closed loop of wire across a magnetic field, chemical - using batteries • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water
OBJECTIVE	**1.12.**	Identify metric units for mass, distance, time, temperature, velocity, acceleration, density, force, energy, and power. • Teacher Resource CD: Matter - Physical Properties and Changes
STANDARD	**AL.2.**	**Biology Core - Students will:**
OBJECTIVE	**2.1.c.**	Additional Minimum Content: Identifying safe laboratory procedures when handling chemicals and using Bunsen burners and laboratory glassware • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1:

		Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**2.3.**	Identify reactants and products associated with photosynthesis and cellular respiration and the purposes of these two processes. • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction
OBJECTIVE	**2.14.a.**	Additional Minimum Content: Relating natural disasters, climate changes, nonnative species, and human activity to the dynamic equilibrium of ecosystems. Examples: natural disasters - habitat destruction resulting from tornadoes; climate changes - changes in migratory patterns of birds; nonnative species - exponential growth of kudzu and Zebra mussels due to absence of natural controls; human activity - habitat destruction resulting in reduction of biodiversity, conservation resulting in preservation of biodiversity • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
STANDARD	**AL.3.**	**Chemistry Core - Students will:**

OBJECTIVE	**3.1.**	Differentiate among pure substances, mixtures, elements, and compounds. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.1.a.**	Additional Minimum Content: Distinguishing between intensive and extensive properties of matter • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**3.1.b.**	Additional Minimum Content: Contrasting properties of metals, nonmetals, and metalloids • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.1.c.**	Additional Minimum Content: Distinguishing between homogeneous and heterogeneous forms of matter • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction

		• Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.2.**	Describe the structure of carbon chains, branched chains, and rings. • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.3.**	Use the periodic table to identify periodic trends, including atomic radii, ionization energy, electronegativity, and energy levels. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.3.a.**	Additional Minimum Content: Utilizing electron configurations, Lewis dot structures, and orbital notations to write chemical formulas • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds
OBJECTIVE	**3.3.b.**	Additional Minimum Content: Calculating the number of protons, neutrons, and electrons in an isotope • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.3.c.**	Additional Minimum Content: Utilizing benchmark discoveries to describe the historical development of atomic structure, including photoelectric effect, absorption, and emission spectra of elements. Example: Thompson's cathode ray, Rutherford's gold foil, Millikan's oil drop, and Bohr's bright line spectra experiments

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds
OBJECTIVE	**3.4.**	Describe solubility in terms of energy changes associated with the solution process. • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.4.a.**	Additional Minimum Content: Using solubility curves to interpret saturation levels • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.4.c.**	Additional Minimum Content: Describing acids and bases in terms of strength, concentration, pH, and neutralization reactions • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**3.4.e.**	Additional Minimum Content: Solving problems involving molarity, including solution preparation and dilution

		• Teacher Resource CD: Matter - Chemical Properties and Changes
OBJECTIVE	**3.5.**	Use the kinetic theory to explain states of matter, phase changes, solubility, and chemical reactions. Example: water at 25 degrees Celsius remains in the liquid state because of the strong attraction between water molecules while kinetic energy allows the sliding of molecules past one another • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.6.**	Solve stoichiometric problems involving relationships among the number of particles, moles, and masses of reactants and products in a chemical reaction. • Teacher Resource CD: Matter - Chemical Properties and Changes
OBJECTIVE	**3.6.a.**	Additional Minimum Content: Predicting ionic and covalent bond types and products given known reactants • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.6.c.**	Additional Minimum Content: Identifying the nomenclature of ionic compounds, binary compounds, and acids • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.6.d.**	Additional Minimum Content: Classifying chemical reactions as composition, decomposition, single replacement, or double replacement • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2:

		Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**3.7.**	Explain the 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. • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**3.9.a.**	Additional Minimum Content: Identifying atomic and subatomic particles, including mesons, quarks, tachyons, and baryons • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Teacher Resource CD: Matter - Physical Properties and Changes
STANDARD	**AL.4.**	**Physics Core - Students will:**
OBJECTIVE	**4.1.a.**	Additional Minimum Content: Explaining the significance of slope and area under a curve when graphing distance-time or velocity-time data. Example: slope and area of a velocity-time curve giving acceleration and distance traveled • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law
OBJECTIVE	**4.4.**	Describe quantitative relationships for velocity, acceleration, force, work,

		power, potential energy, and kinetic energy. • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	4.5.a.	Additional Minimum Content: Using qualitative and quantitative methods to show the relationship between changes in heat energy and changes in temperature • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Teacher Resource CD: Matter - Physical Properties and Changes
STANDARD	**AL.5.**	**Aquascience Elective Core - Students will:**
OBJECTIVE	5.2.	Relate geological and hydrological phenomena and fluid dynamics to aquatic systems. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**5.4.a.**	Additional Minimum Content: Describing the influence of water quality on aquaculture. Examples: aquatic plant control, water quality management, recognition and correction of oxygen deficiency, pH control • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**5.4.b.**	Additional Minimum Content: Identifying sources of aquatic pollution. Examples: point and nonpoint pollution, volcanic ash, waste disposal • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
STANDARD	**AL.6.**	**Botany Elective Core - Students will:**
OBJECTIVE	**6.7.**	Explain plant cell processes, including light dependent and light independent reactions of photosynthesis, glycolysis, aerobic and anaerobic respiration, and transport. • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction
STANDARD	**AL.8.**	**Environmental Science Elective Core - Students will:**
OBJECTIVE	**8.1.**	Identify the influence of human population, technology, and cultural and industrial changes on the environment. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.2.e.**	Additional Minimum Content: Identifying effects of fossil fuel by-products on the environment, including ozone depletion; formation of acid rain, brown haze, and greenhouse gases; and concentration of particulates and heavy metals • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction

		• Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**8.4.**	Identify the impact of pollutants on the atmosphere. • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Teacher Resource CD: Matter - Chemical Properties and Changes • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**8.5.**	Describe properties of water that make it a universal solvent. • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Teacher Resource CD: Matter - Physical Properties and Changes
OBJECTIVE	**8.6.a.**	Additional Minimum Content: Determining the quality of fresh water using chemical testing and bioassessment • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.6.b.**	Additional Minimum Content: Describing the use of chemicals and microorganisms in water treatment • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.6.c.**	Additional Minimum Content: Describing water conservation methods • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.6.e.**	Additional Minimum Content: Identifying major residential, industrial, and

		agricultural water consumers • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.6.f.**	Additional Minimum Content: Identifying principal uses of water • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.8.**	Identify major contaminants in water resulting from natural phenomena, homes, industry, and agriculture. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.8.a.**	Additional Minimum Content: Describing the eutrophication of water by industrial effluents and agricultural runoffs • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.8.b.**	Additional Minimum Content: Classifying sources of water pollution as point and nonpoint • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.9.b.**	Additional Minimum Content: Identifying ways to manage waste, including composting, recycling, reusing, and reclaiming • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
OBJECTIVE	**8.12.**	Identify positive and negative effects of human activities on biodiversity. • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification
STANDARD	**AL.13.**	**Marine Science Elective Core - Students will:**
OBJECTIVE	**13.3.**	Describe physical characteristics of oceans, including topography of the ocean floor, plate tectonics, wave motion, depth, and pressure. • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1: Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt

		• Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration
OBJECTIVE	**13.5.**	Discuss physical and chemical properties of saltwater. Examples: physical - turbidity, temperature, density; chemical - salinity, pH, dissolved gases • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 1: Modeling Atoms and Ions • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 2: Forming Covalent Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 1 Activity 3: Forming Ionic Bonds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 1:

		Molecular Structure of Acids and Bases • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 2: Crystal Structure of Common Salt • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 3: Forming Organic Compounds • Chemistry - A Closer Look at Matter: Unit 1 Lab 2 Activity 4: Chemical Structure of Soaps and Detergents • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 1: Classifying Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 3 Activity 2: Exploring Changes in Matter • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 1: Examining Elements • Chemistry - A Closer Look at Matter: Unit 2 Lab 4 Activity 2: A Closer Look at the Periodic Table • Chemistry - A Closer Look at Matter: Unit 2 Lab 5 Activity 1: Investigating Mixtures • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 1: Separating the Compound Water • Chemistry - A Closer Look at Matter: Unit 2 Lab 6 Activity 2: Writing a Description of a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 2 Lab 7 Activity 1: Demonstrating Boyle's Gas Law • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 1: Testing Properties of Acids, Bases, and Salts • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 2: Chemical Reactions of Acids with a Metal • Chemistry - A Closer Look at Matter: Unit 3 Lab 10 Activity 3: Production of a Salt - Neutralization Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 11 Activity 1: The Traffic Light Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 1: Observing Temperature Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 2: Observing Color Change in a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 3: Observing Gas Production During a Chemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 8 Activity 4: Observing a Biochemical Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 1: An Exothermic Reaction • Chemistry - A Closer Look at Matter: Unit 3 Lab 9 Activity 2: An Endothermic Reaction • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 1: Water Purification • Chemistry - A Closer Look at Matter: Unit 4 Lab 12 Activity 2: Demonstrating Conservation of Mass • Virtual Laboratory: Titrating an Acid of Unknown Concentration