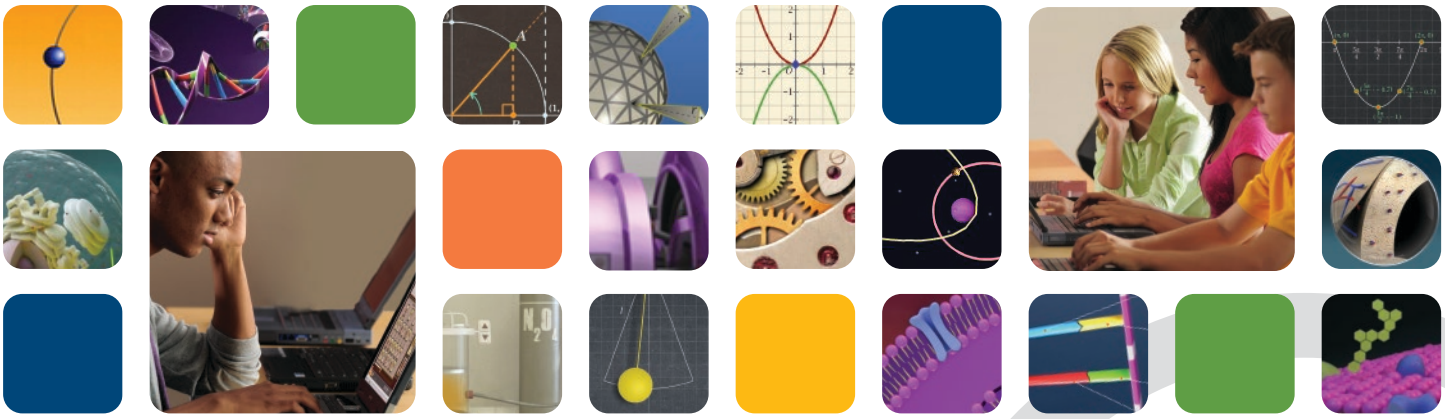
adaptive curriculum™

ac / TEKS Alignment

Dynamic, Interactive Learning



Readiness and Supporting Standards

Readiness Standards

These standards are considered essential for success in the current grade or course. They support college and career readiness as well as address broad, deep ideas with in-depth instruction.

Supporting Standards

These standards play a role in preparing students for the next grade though not a central role. They address more narrowly defined ideas and may be emphasized in a subsequent or previous year.

AC Science Activity Objects consist of five different types:

1. Concept Development

These activities introduce concepts through engaging, real-world scenarios and develop these concepts using an inquiry-based approach.

2. Experiment

These activities engage learners in a virtual lab environment to develop inquiry skills.

3. Skills Application

These activities help learners apply rules and procedures to strengthen computational skills.

4. Problem Solving

These activities engage learners with a guided problem-solving process to apply and enhance their science understanding.

5. Dynamic Modeling

These activities provide learners the opportunity to manipulate variables and observe dynamic changes with interactive 3D objects.

adaptive curriculum™

ac / TEKS Chemistry Alignment

High School Chemistry - Introduction

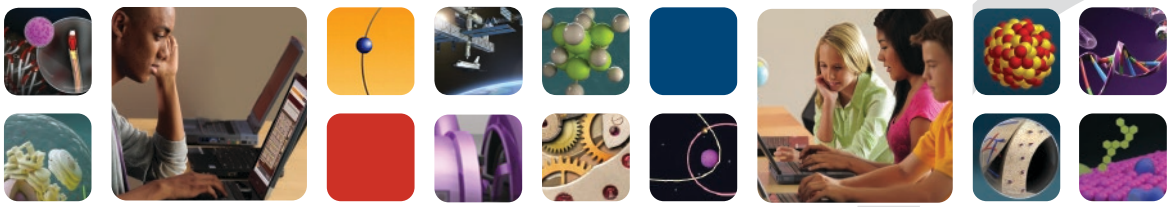
(1) Chemistry. In Chemistry, students conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students study a variety of topics that include characteristics of matter, use of the Periodic Table, development of atomic theory and chemical bonding, chemical stoichiometry, gas laws, solution chemistry, thermochemistry, and nuclear chemistry. Students will investigate how chemistry is an integral part of our daily lives.

(2) Nature of Science. Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process." This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not scientifically testable.

(3) Scientific inquiry. Scientific inquiry is the planned and deliberate investigation of the natural world. Scientific methods of investigation can be experimental, descriptive, or comparative. The method chosen should be appropriate to the question being asked.

(4) Science and social ethics. Scientific decision making is a way of answering questions about the natural world. Students should be able to distinguish between scientific decision-making methods and ethical and social decisions that involve the application of scientific information.

(5) Scientific systems. A system is a collection of cycles, structures, and processes that interact. All systems have basic properties that can be described in terms of space, time, energy, and matter. Change and constancy occur in systems as patterns and can be observed, measured, and modeled. These patterns help to make predictions that can be scientifically tested. Students should analyze a system in terms of its components and how these components relate to each other, to the whole, and to the external environment.



HIGH SCHOOL CHEMISTRY
Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
1.A	(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(A) demonstrate safe practices during laboratory and field investigations, including the appropriate use of safety showers, eyewash fountains, safety goggles, and fire extinguishers;	Laboratory Safety	●	
1.B	(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	**(B) know specific hazards of chemical substances, such as flammability, corrosiveness, and radioactivity as summarized on the Material Safety Data Sheets (MSDS); and**	Laboratory Safety	●	
1.C	(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(C) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.	Substances that Cause Environmental Pollution		●
			Laboratory Safety	●	
2.A	(2) Scientific processes. The student uses scientific methods **to solve investigative questions.** The student is expected to:	**(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section;**	What is Science?		●
			From Alchemy to Chemistry		●
			History of the Atomic Model: From Rutherford to Bohr	●	
			Atomic Model History: From Ancient Greece to Thomson	●	

Readiness Standard ●
Supporting Standard ▼

HIGH SCHOOL CHEMISTRY
Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
2.B	(2) Scientific processes. The student uses scientific methods **to solve investigative questions.** The student is expected to:	**(B) know that hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories;**	Scientific Hypotheses and Theories		●
			Partial Pressure	●	
			Introduction to Titration: Neutralization	●	
2.C	(2) Scientific processes. The student uses scientific methods **to solve investigative questions.** The student is expected to:	**(C) know scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed;**	Scientific Hypotheses and Theories		●
			What is Science?		●
			History of the Atomic Model: From Rutherford to Bohr	●	
			Atomic Model History: From Ancient Greece to Thomson	●	
			Particle Nature of Light		●
2.D	(2) Scientific processes. The student uses scientific methods **to solve investigative questions.** The student is expected to:	**(D) distinguish between scientific hypotheses and scientific theories;**	Scientific Hypotheses and Theories		●

Readiness Standard ●
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HIGH SCHOOL CHEMISTRY
Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
2.E	(2) Scientific processes. The student uses scientific methods **to solve investigative questions.** The student is expected to:	**(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting equipment and technology, including graphing calculators, computers and probes, sufficient scientific glassware such as beakers, Erlenmeyer flasks, pipettes, graduated cylinders, volumetric flasks, safety goggles, and burettes, electronic balances, and an adequate supply of consumable chemicals;**	Precipitation Reactions	●	
			Molecular Interactions and Solubility	●	
			Graphing Calculators		●
			Batteries, Chemicals, and Potential Difference	●	
			Calculating Atomic Mass	●	
			Introduction to Titration: Neutralization	●	
			Using Solubility to Identify Substances	●	
			Law of Multiple Proportions	●	
			The Number of Moles-Volume Relationship of Gases: Avogadro's Law	●	
			The Concentration of Solutions: Molarity and Molality	●	
			The Pressure-Volume Relationship of Gases: Boyle's Law	●	
			The Concept of Moles	●	
			Physical Properties	●	
			Comparing Ionic and Covalent Compounds	●	
			The Volume-Temperature Relationship of Gases: Charles' Law	●	
			Partial Pressure	●	
			Conservation of Mass in Chemical Reactions	●	
			How Electrical Conductivity Varies with Concentration and Temperature	●	
			Finding Molecular Formula by Using Mole and Molecular Weight	●	
2.F	(2) Scientific processes. The student uses scientific methods **to solve investigative questions.** The student is expected to:	(F) collect data and make measurements with **accuracy** and precision;	Accuracy and Precision		●
			Partial Pressure	●	
			The Pressure-Volume Relationship of Gases: Boyle's Law	●	
			Experimental Error		●
			The Number of Moles-Volume Relationship of Gases: Avogadro's Law	●	
			The Volume-Temperature Relationship of Gases: Charles' Law	●	

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HIGH SCHOOL CHEMISTRY
Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
2.G	(2) Scientific processes. The student uses scientific methods **to solve investigative questions.** The student is expected to:	(G) express and manipulate chemical quantities using scientific conventions and mathematical procedures, including dimensional analysis, scientific notation, and significant figures;	Metric System and Dimensional Analysis	●	
			SI Units and Dimensional Analysis	●	
			The Concentration of Solutions: Molarity and Molality	●	
			The Concentration of Solutions: Mass Fraction and Mass Percentage	●	
			Calculating Moles By Using Mass and Number of Particles	●	
			Scientific Notation and Significant Figures		●
2.H	(2) Scientific processes. The student uses scientific methods **to solve investigative questions.** The student is expected to:	(H) organize, analyze, evaluate, make inferences, and predict trends from data; and	Using Solubility to Identify Substances	●	
2.I	(2) Scientific processes. The student uses scientific methods **to solve investigative questions.** The student is expected to:	(I) communicate valid conclusions **supported by the data through methods such as lab reports, labeled drawings, graphs, journals, summaries, oral reports, and technology-based reports.**	Applying and Communicating Scientific Information		●
			Using Solubility to Identify Substances	●	
3.A	(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions **within and outside** the classroom. The student is expected to:	(A) in all fields of science, analyze, **evaluate**, and critique scientific explanations **by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;**	Partial Pressure	●	
			The Number of Moles-Volume Relationship of Gases: Avogadro's Law	●	
			The Volume-Temperature Relationship Of Gases: Charles' Law	●	
			The Pressure-Volume Relationship of Gases: Boyle's Law	●	
			Specific Heat	●	
			Law of Multiple Proportions	●	
3.B	(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions **within and outside** the classroom. The student is expected to:	**(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;**	Applying and Communicating Scientific Information		●
			How Electrical Conductivity Varies with Concentration and Temperature	●	

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Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
3.C	(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions **within and outside** the classroom. The student is expected to:	(C) draw inferences **based on data** related to promotional materials for products and services;	Evaluating Products and Services		●
3.D	(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions **within and outside** the classroom. The student is expected to:	(D) evaluate the impact of scientific research on society and the environment;	Photoelectric Effect	●	
			Batteries, Chemicals, and Potential Difference	●	
			How Electrical Conductivity Varies with Concentration and Temperature	●	
4.A	(4) Science concepts. The student knows the characteristics of matter **and can analyze the relationships between chemical and physical changes and properties.** The student is expected to:	(A) differentiate between physical and chemical **changes** and properties;	Physical Properties	●	
			Physical and Chemical Changes	●	
			Let's Decrease the Freezing Point of Water		●
4.B	(4) Science concepts. The student knows the characteristics of matter **and can analyze the relationships between chemical and physical changes and properties.** The student is expected to:	**(B) identify extensive and intensive properties;**	Physical Properties	▼	
			Using Solubility to Identify Substances	▼	
			Diluting Solutions		▼
4.C	(4) Science concepts. The student knows the characteristics of matter **and can analyze the relationships between chemical and physical changes and properties.** The student is expected to:	**(C) compare solids, liquids, and gases in terms of comprehensibility, structure, shape, and volume**	Properties of Solidas Liquids and Gases	▼	
4.D	(4) Science concepts. The student knows the characteristics of matter **and can analyze the relationships between chemical and physical changes and properties.** The student is expected to:	(D) classify matter as pure substances or mixtures through investigation of their properties.	Homogeneous Mixtures		●
			Separation of Mixtures	●	

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HIGH SCHOOL CHEMISTRY
Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
5.A	**(5) Science concepts. The student understands the historical development of the Periodic Table and can apply its predictive power. The student is expected to:**	(A) explain the use of chemical and physical properties in the historical development of the Periodic Table;	History of the Periodic Table		▼
			General Structure of the Periodic Table		▼
			Electron Affinity on the Periodic Table		▼
			Bonding and the Periodic Table		▼
			Durability of Ionic Bonds		▼
			Putting Elements in the Periodic Table	▼	
5.B	**(5) Science concepts. The student understands the historical development of the Periodic Table and can apply its predictive power. The student is expected to:**	(B) use the Periodic Table to identify and **explain the properties of chemical families, including alkali metals, alkaline earth metals, halogens, noble gases, and transition metals; and**	Properties of s-Block Elements		●
			Properties of Group 7A Elements		●
			Properties of Group 8A Elements		●
			Properties of d-Block Elements		●
			Physical Properties and the Periodic Table	●	
5.C	**(5) Science concepts. The student understands the historical development of the Periodic Table and can apply its predictive power. The student is expected to:**	(C) use the Periodic Table to identify and explain periodic trends, **including atomic and ionic radii, electronegativity, and ionization energy.**	Atomic Radius in the Periodic Table	●	
			Ionic Radius on the Periodic Table		●
			Electronegativity on the Periodic Table	●	
			Ionization Energy on the Periodic Table	●	
6.A	**(6) Science concepts. Science concepts. The student knows and understands the historical development of atomic theory. The student is expected to:**	**(A) understand the experimental design and conclusions used in the development of modern atomic theory, including Dalton's Postulates, Thomson's discovery of electron properties, Rutherford's nuclear atom, and Bohr's nuclear atom;**	History of Atomic Models		▼
			Millikan's Oil Drop Experiment		▼
			Discovery of Protons		▼
			Discovery of Neutrons		▼
			Bohr's Atomic Model		▼
			Discrete Spectrum of a Hydrogen Atom and Bohr's Atomic Model		▼
			Frequency, Wavelength, and Energy		▼
			History of the Atomic Model: From Rutherford to Bohr	▼	
			Atomic Model History: From Ancient Greece to Thomson	▼	

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HIGH SCHOOL CHEMISTRY
Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
6.B	**(6) Science concepts. Science concepts. The student knows and understands the historical development of atomic theory. The student is expected to:**	**(B) understand the electromagnetic spectrum and the mathematical relationships between energy, frequency, and wavelength of light;**	Wave Properties of Electromagnetic Radiation		▼
			Photoelectric Effect	▼	
			Photoelectricity and the Particle Nature of Light		▼
			Particle Nature of Light		▼
			Frequency, Wavelength, and Energy		▼
			The Wave Nature of Light		▼
			Modern Atomic Model: Orbitals and Quantum Numbers		▼
6.C	**(6) Science concepts. Science concepts. The student knows and understands the historical development of atomic theory. The student is expected to:**	**(C) calculate the wavelength, frequency, and energy of light using Planck's constant and the speed of light;**	Photoelectric Effect	▼	
			The Wave Nature of Light		▼
			Frequency, Wavelength, and Energy		▼
			Photoelectricity and the Particle Nature of Light		▼
			Particle Nature of Light		▼
6.D	**(6) Science concepts. Science concepts. The student knows and understands the historical development of atomic theory. The student is expected to:**	**(D) use isotopic composition to calculate average atomic mass of an element; and**	Calculating Atomic Mass	▼	

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HIGH SCHOOL CHEMISTRY
Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
6.E	**(6) Science concepts. Science concepts. The student knows and understands the historical development of atomic theory. The student is expected to:**	**(E) express the arrangement of electrons in atoms through electron configurations and Lewis valence electron dot structures.**	Electron Configuration	●	
			Modern Atomic Model: Orbitals and Quantum Numbers		●
			Bond Polarity	●	
			Molecular Structure of Elements		●
			Electron Configuration and the Tendency to Gain or Lose Electrons	●	
			Electronegativity and Chemical Bonding	●	
			Crystal Lattice	●	
			The Concept of Bonding		●
			Covalent Bonding and Molecules		●
			Bond Length and Bond Energy		●
			Lewis Dot Structure	●	
			Molecular Polarity		●
			Formation of Metallic Bonds		●
			Comparing Ionic and Covalent Compounds	●	
			Molecular Geometry		●
			Chemical Compounds: Ionic Bonding	●	
7.A	(7) Science concepts. The student knows how atoms form ionic, **metallic**, and covalent bonds. The student is expected to:	(A) **name ionic compounds containing main group or transition metals, covalent compounds, acids, and bases,** using International Union of Pure and Applied Chemistry (IUPAC) nomenclature rules;	Chemical Formulas and Naming Ionic Compounds	●	
			Naming Acids and Bases		●
			Chemical Formulas and Naming Covalent Compounds	●	
7.B	(7) Science concepts. The student knows how atoms form ionic, **metallic**, and covalent bonds. The student is expected to:	**(B) write the chemical formulas of common polyatomic ions, ionic compounds containing main group or transition metals, covalent compounds, acids, and bases;**	Chemical Formulas and Naming Ionic Compounds	●	
			Naming Acids and Bases		●
			Chemical Formulas and Naming Covalent Compounds	●	
7.C	(7) Science concepts. The student knows how atoms form ionic, **metallic**, and covalent bonds. The student is expected to:	**(C) construct electron dot formulas** to illustrate ionic and covalent bonds;	Lewis Dot Structure	●	

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State ID	TEKS	Student Expectation	Content	Activity Object	Animation
7.D	(7) Science concepts. The student knows how atoms form ionic, **metallic**, and covalent bonds. The student is expected to:	**(D) describe the nature of metallic bonding and apply the theory to explain metallic properties such as thermal and electrical conductivity, malleability, and ductility; and**	Formation of Metallic Bonds		▼
7.E	(7) Science concepts. The student knows how atoms form ionic, **metallic**, and covalent bonds. The student is expected to:	**(E) predict molecular structure for molecules with linear, trigonal planar, or tetrahedral electron pair geometries using Valence Shell Electron Pair Repulsion (VSEPR) theory.**	Molecular Geometry		▼
8.A	(8) Science concepts. The student can **quantify the changes** that occur during chemical reactions. The student is expected to:	**(A) define and use the concept of a mole;**	The Concept of Moles	▼	
			Calculating Moles By Using Mass and Number Of Particles	▼	
8.B	8) Science concepts. The student can **quantify the changes** that occur during chemical reactions. The student is expected to:	**(B) use the mole concept to calculate the number of atoms, ions, or molecules in a sample of material;**	The Concept of Moles	●	
			Calculating Moles By Using Mass and Number Of Particles	●	
8.C	8) Science concepts. The student can **quantify the changes** that occur during chemical reactions. The student is expected to:	**(C) calculate percent composition and empirical and molecular formulas;**	Percent Composition		▼
			The Concentration of Solutions: Mass Fraction and Mass Percentage	▼	
			Law of Multiple Proportions	▼	
			Finding Molecular Formula by Using Mole and Molecular Weight	▼	
8.D	8) Science concepts. The student can **quantify the changes** that occur during chemical reactions. The student is expected to:	(D) use the law of conservation of mass to write and balance chemical equations; and	Conservation of Mass in Chemical Reactions	●	
			Writing and Balancing Chemical Equations	●	

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HIGH SCHOOL CHEMISTRY
Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
8.E	8) Science concepts. The student can **quantify the changes** that occur during chemical reactions. The student is expected to:	**(E) perform stoichiometric calculations, including determination of mass relationships between reactants and products, calculation of limiting reagents, and percent yield.**	Gas Stoichiometry	▼	
			Conservation of Mass in Chemical Reactions	▼	
			Stoichiometric Calculations		▼
			Calculations with Yield		▼
9.A	(9) Science concepts. The student understands the principles of ideal gas behavior, **kinetic molecular theory**, and the conditions that influence the behavior of gases. The student is expected to:	(A) describe **and calculate** the relations between volume, pressure, number of moles, and temperature for an ideal gas as described by Boyle's law, Charles' law, Avogadro's law, Dalton's law of partial pressure, and the ideal gas law;	The Pressure-Volume Relationship of Gases: Boyle's Law	●	
			The Volume-Temperature Relationship Of Gases: Charles' Law	●	
			The Number of Moles-Volume Relationship of Gases: Avogadro's Law	●	
			Partial Pressure	●	
			Ideal Gas Law	●	
			Pressure-Temperature Relation		●
			Combined Gas Law		●
9.B	(9) Science concepts. The student understands the principles of ideal gas behavior, **kinetic molecular theory**, and the conditions that influence the behavior of gases. The student is expected to:	(B) **perform stoichiometric calculations**, including determination of mass and volume relationships between reactants and products for reactions involving gases; and	Gas Stoichiometry	▼	
9.C	(9) Science concepts. The student understands the principles of ideal gas behavior, **kinetic molecular theory**, and the conditions that influence the behavior of gases. The student is expected to:	**(C) describe the postulates of kinetic molecular theory.**	Kinetic Molecular Theory		▼
			Ideal Gas Law	▼	
			Graham's Law	▼	
10.B	(10) Science concepts. The student understands and can apply the factors that influence the behavior of solutions. The student is expected to:	(B) develop **and use** general rules regarding solubility through investigations with aqueous solutions;	Molecular Interactions and Solubility	●	
			Using Solubility to Identify Substances	●	
			Solutions		●
			Precipitation Reactions	●	

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HIGH SCHOOL CHEMISTRY
Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
10.C	(10) Science concepts. The student understands and can apply the factors that influence the behavior of solutions. The student is expected to:	**(C) calculate the concentration of solutions in units of molarity;**	The Concentration of Solutions: Molarity and Molality	▼	
			Diluting Solutions		▼
10.D	(10) Science concepts. The student understands and can apply the factors that influence the behavior of solutions. The student is expected to:	**(D) use molarity to calculate the dilutions of solutions;**	Diluting Solutions		▼
			The Concentration of Solutions: Molarity and Molality	▼	
			The Concentration of Solutions: Mass Fraction and Mass Percentage	▼	
10.E	(10) Science concepts. The student understands and can apply the factors that influence the behavior of solutions. The student is expected to:	(E) distinguish between types of solutions such as **electrolytes and nonelectrolytes** and unsaturated, saturated, and supersaturated solutions;	Electrical Conductivity in Solutions		●
			The Electrical Conductivity of a Solution		●
			Solutions		●
10.F	(10) Science concepts. The student understands and can apply the factors that influence the behavior of solutions. The student is expected to:	(F) investigate factors that influence solubilities and rate of dissolution such as temperature, agitation, and surface area	Precipitation Reactions	●	
			Molecular Interaction and Solubility	●	
			Factors Affecting the Rate of Dissolution		●
10.G	(10) Science concepts. The student understands and can apply the factors that influence the behavior of solutions. The student is expected to:	(G) **define acids and bases and distinguish between Arrhenius and Bronsted-Lowry definitions and** predict products in acid base reactions that form water;	Lewis Definitions of Acids and Bases		▼
			Bronsted-Lowry Definition of Acids and Bases		▼
			The Properties of Acids	▼	
			Introduction to Titration: Neutralization	▼	
			The Properties of Bases	▼	
			Arrhenius; Definition of Acids and Bases		▼
10.H	(10) Science concepts. The student understands and can apply the factors that influence the behavior of solutions. The student is expected to:	**(H) understand and differentiate among acid-base reactions, precipitation reactions, and oxidation-reduction reactions;**	Introduction to Titration: Neutralization	●	
			Bronsted-Lowry Definition of Acids and Bases		●
			Arrhenius Definition of Acids and Bases		●
			Precipitation Reactions	●	
			Double-Replacement Reactions		●
			Oxidation-Reduction Reactions		●
			Combustion Reactions		●
			Single-Replacement Reactions		●
			Differentiating Acid-Base, Precipitation and Oxidation-Reduction Reactions		●
			Decomposition and Combination Reactions		●

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HIGH SCHOOL CHEMISTRY
Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
10.I	(10) Science concepts. The student understands and can apply the factors that influence the behavior of solutions. The student is expected to:	**(I) define pH and use the hydrogen or hydroxide ion concentrations to calculate the pH of a solution; and**	pH Calculation of Acid and Base Solutions	▼	
			Acid-Base Indicators		▼
10.J	(10) Science concepts. The student understands and can apply the factors that influence the behavior of solutions. The student is expected to:	**(J) distinguish between degrees of dissociation for strong and weak acids and bases.**	Dissociation of Acids and Bases		▼
11.A	(11) Science concepts. The student understands the energy changes that occur in chemical reactions. The student is expected to:	(A) understand energy and its forms, **including kinetic, potential, chemical, and thermal energies;**	Energy in Chemical Systems		▼
			Concept of Bonding		▼
11.B	(11) Science concepts. The student understands the energy changes that occur in chemical reactions. The student is expected to:	(B) understand the law of conservation of energy and the **processes of heat transfer;**	Endothermic and Exothermic Reactions	▼	
			Heat Transfer in a Truck Engine	▼	
			Energy Conversions in a Power Plant	▼	
11.C	(11) Science concepts. The student understands the energy changes that occur in chemical reactions. The student is expected to:	(C) use thermochemical equations to **calculate** energy changes that occur in chemical reactions and **classify reactions as exothermic or endothermic;**	Hess's Law	●	
			Endothermic and Exothermic Reactions	●	
11.D	(11) Science concepts. The student understands the energy changes that occur in chemical reactions. The student is expected to:	(D) **perform calculations** involving heat, mass, temperature change, and **specific heat;** and	Specific Heat	▼	
			Conservation of Mass in Chemical Reactions	▼	
			Heating Curves	▼	
11.E	(11) Science concepts. The student understands the energy changes that occur in chemical reactions. The student is expected to:	(E) use calorimetry to **calculate the heat** of a chemical process.	Using The Calorimeter		▼

Readiness Standard ●
Supporting Standard ▼

HIGH SCHOOL CHEMISTRY
Texas Knowledge and Skills (TEKS)

State ID	TEKS	Student Expectation	Content	Activity Object	Animation
12.A	(12) Science concepts. The student understands the basic processes of nuclear chemistry. The student is expected to:	(A) describe the characteristics of alpha, beta, and gamma radiation;	Radioactive Decay	▼	
			Half Life		▼
12.C	(12) Science concepts. The student understands the basic processes of nuclear chemistry. The student is expected to:	(C) compare fission and fusion reactions.	Nuclear Energy: Fission	▼	

Readiness Standard ●
Supporting Standard ▼

Adaptive Curriculum's math and science solutions are used by millions of students in the United States, Europe and Asia and are available in multiple languages. World-wide experts in math, science and online learning theory contribute to the content and design of the interactive activities for both Adaptive Curriculum and its parent company, Sebit Inc.

In the United States, Adaptive Curriculum has partnered with Arizona State University's Technology Based Learning Research Center, which provides pedagogical research, multi-disciplinary expertise and content collaboration. The company headquarters is located in the ASU SkySong Center for Innovation, Technology and Imagination.

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