

PASADENA INDEPENDENT SCHOOL DISTRICT
COURSE SCOPE AND SEQUENCE

CHEMISTRY

[Texas Essential Knowledge and Skills \(TEKS\)](#)

Important resources for entire science curriculum:

TRACK

TAKS readiness (links to lessons, activities, video, etc.)

United Streaming Video

Streaming educational video on thousands of topics

Science Materials

Free science interactive lessons (Click on **Key Stage 3**)

****Instructional Days**

[number]- reflects **total** number of instructional days available in each six week period minus **3** days for review and testing

(number)- reflects recommended instructional days for each instructional topic within each six week period.

Important Dates

First Semester

First Six Weeks: Aug10- Sept 15 [23] Instructional Days
Second Six Weeks: Sept 18- Oct 27 [27] Instructional Days
Third Six Weeks: Oct 30- Dec 15 [26] Instructional Days

Second Semester

Fourth Six Weeks: Jan 3- Feb 16 [29] Instructional Days
Fifth Six Weeks: Feb 19- April 5 [24] Instructional Days
Sixth Six Weeks: April 10- May 24 [33] Instructional Days

Science TAKS Test: Thursday April 19, 2007- 8th, 10th, and 11th grades

FIRST SEMESTER

[23]

First Six Weeks

Laboratory Investigation and Inquiry Process are applied to all instruction, assessment and learning processes.
TEKS 1AB, 2ABCD, 3ABCDE

Represents the total number of instructional days available in each six-week period minus 3 days for review and testing.

TAKS	TEKS	DAYS	INSTRUCTIONAL TOPIC	RESOURCES	LABORATORY INVESTIGATIONS AND ACTIVITIES
1	1A 2ABDE 3AB	(5)	Laboratory Investigation and Inquiry Process Lab Safety, Science Equipment, and Safety Test Methods of Scientific Inquiry Method and Experimental Design, Theory and Law Data Collection and Analysis, Evaluate and Conclusions	Sample Safety Contract Lab Safety Lab Safety Carnegie Institution 40 Steps for Lab Safety Scientific Methods Notes Scientific Methods Lecture Notes Scientific Methods	
4	2BC 4C	(7)	Scientific Measurement and Problem Solving Scientific Notation Measurement Accuracy, Precision, and Error Significant Figures Dimensional Analysis Density, buoyancy and viscosity	Measurement Metric System	

Reflects recommended instructional days for each instructional topic within each six-week period.

First Six Weeks (Continued)

		First Six Weeks (Continued)			
TAKS	TEKS	**DAYS	INSTRUCTIONAL TOPIC	RESOURCES	LABORATORY INVESTIGATIONS AND ACTIVITIES
4	4ACD 5A 11A	(6)	Matter and Change Physical and Chemical Properties of Matter- pure substances and mixtures Physical and Chemical Changes of Matter Introduction to conservation of mass Identify common elements with names and symbols	Interactive Periodic Table Lessons and Activities about Periodic Table and Elements Lesson Plan on Matter Classification Classifying Matter Information Compilation of Solutions Tutorials Water Science Three Types of Mixtures Defined Diagrams of mixtures and solutions Chemistry Tutorial Physical and Chemical Property Chemical Properties Reference Page States of Matter Notes States of Matter Lesson Plans Mixtures Elements and Compounds Elements, Compounds and Mixtures	
4	4B 5C	(5)	States of Matter States of Matter: particle motion, compressibility, structure, shape, volume of solids/liquids/gases	Phases of Matter Information Comparison of Molecular Structure in a Solid Atomic Structure Notes Phase Change Diagrams Animated Phase Change Diagrams Matter Classification	

		[27]	Second Six Weeks <i>Laboratory Investigation and Inquiry Process are applied to all instruction, assessment and learning processes.</i> <u>TEKS 1AB, 2ABCD, 3ABCDE</u>		
TAKS	TEKS	**DAYS	INSTRUCTIONAL TOPIC	RESOURCES	LABORATORY INVESTIGATIONS AND ACTIVITIES
4	3ADE 6AB 11A	(10)	Atomic Theory & Structure History of the Atom (Dalton, Thomson, Rutherford models) Subatomic Particles and Isotopes: differences, stable/unstable behavior, average atomic mass Models of Atomic Theory Electron Configurations	Atomic Name Activity Famous Scientists History of the Atom Tutorial Subatomic Particles Tutorial The Particle Adventure Atomic Structure Timeline Atom Tour Atomic Structure Notes Atomic Structure Notes/Diagrams A Brief History of the Atom Mendeleev Biography Atomic Structure Notes	
4	4D 6C	(7)	Periodic Table Historical Development of the Periodic Table Organization of the Periodic Table & Properties: groups, families, periods, transition metals Trends: Electronegativity, Electron affinity, Ionization energy, periodicity	Interactive Periodic Table Interactive Periodic Table (plus more links) Los Alamos National Laboratory Periodic Table How to Interpret Periodic Table Periodic Chart Elements	
1 & 4	4D 8ABCD	(10)	Ionic Covalent Bonds Bonding Valence Electrons, predictions from periodic table General Properties of Ionic Compounds Formation of Cations and Anions Formation of Ionic Bonds, charge from periodic table Writing Chemical Formulas for ionic compounds	ChemTutor- Compounds Atomic Bonds Interactive Lesson and Animations on Chemical Bonding Bonding What are Ionic Compounds? Ionic Compounds	

		[26]	Third Six Weeks <i><u>Laboratory Investigation and Inquiry Process are applied to all instruction, assessment and learning processes. TEKS 1AB, 2ABCD, 3ABCDE</u></i>		
TAKS	TEKS	**DAYS	INSTRUCTIONAL TOPIC	RESOURCES	LABORATORY INVESTIGATIONS AND ACTIVITIES
4	4D 8B 11A	(7)	Covalent Molecular Bonds General Properties of Covalent Compounds Single, multiple bonds; Electron dot structures; polar/nonpolar bonds; Metallic bonding (optional) Naming Chemical Compounds (ionic and covalent)	Covalent Worksheets Covalent Compounds Covalent Bonding	
1 & 4	10A 11BC	(12)	Chemical Reactions Writing and Balancing Chemical Equations Classifying Types of Chemical Reactions: synthesis (combination), decomposition, single or double replacement, combustion Predicting Products of Chemical Reactants, written completed balanced resulting equation	Balancing Reactions Conservation of Mass Chemical Reactions Notes ChemTutor Reactions Chemical Reactions Balancing Chemical Reactions Chemical Reaction Interactive Slide Show	
4	5C	(7)	Heat and Energy Kinetic Molecular Theory Specific Heat : $Q = m \Delta T C_p$ Thermochemistry Endothermic and Exothermic	Kinetic Molecular Theory Tutorial Molecules in Motion Interactive Animation Specific Heat Tutorial with Problems Conduction, Convection, and Radiation Lesson Plan Transmission of Heat Lesson	

SECOND SEMESTER

		[29]	Fourth Six Weeks <i><u>Laboratory Investigation and Inquiry Process are applied to all instruction, assessment and learning processes. TEKS 1AB, 2ABCD, 3ABCDE</u></i>		
TAKS	TEKS	**DAYS	INSTRUCTIONAL TOPIC	RESOURCES	LABORATORY INVESTIGATIONS AND ACTIVITIES
1	2C 11B	(10)	Chemical Quantities Mole Concept and Mole Map Molar Mass Molar conversions: moles, mass, # of particles; relationship of Avogadro's Number and One Mole Molar conversions for gas/volume at STP Percentage composition Empirical and molecular formulas	Molarity Calculator Molarity, Molality and Normality	
4	12ABC 13AB	(5)	Water and Properties Properties of Water Molecules, Hydrogen bonding, Surface tension, Specific heat capacity for water Aqueous Solutions Heat of Vaporization Electrolytic Behavior	Water Structure and Behavior Oceans Online Hydrogen Bonds Water and Hydrogen Bonding Snowglobe (brass alloy activity)	

Fourth Six Weeks (Continued)					
TAKS	TEKS	**DAYS	INSTRUCTIONAL TOPIC	RESOURCES	LABORATORY INVESTIGATIONS AND ACTIVITIES
	12ABC 13AB	(5)	Solutions Calculate Molarity, Unsaturated, Saturated and Supersaturated Solutions Factors Affecting Solubility, Solubility Curves Separation of liquid mixtures; Alloys colligative properties	Molarity Calculator Solution Chemistry Tutorials	
1 & 4	3A 8B 13B 14AB	(5)	Acids and Bases Physical and Chemical Properties of Acids and Bases; classify solutions pH and Indicators; hydrogen ion/hydroxide ion concentration effects Compare and Contracts Acids and Bases; Strong and Weak Acids and Bases based on dissociation or electrical conductivity	Acids Acids and Bases ChemTutor- Acids Acids and Bases Information Acids and Bases	

		[24]	Fifth Six Weeks <i><u>Laboratory Investigation and Inquiry Process are applied to all instruction, assessment and learning processes. TEKS 1AB, 2ABCD, 3ABCDE</u></i>		
TAKS	TEKS	**DAYS	INSTRUCTIONAL TOPIC	RESOURCES	LABORATORY INVESTIGATIONS AND ACTIVITIES
1 & 4	14AC	(3)	Neutralization Characteristics of Neutralization Reactions Calculate concentration of acid or a base Endpoint and use of indicators to determine the endpoint Define and illustrate the application of Titration and Buffers	Neutralization of Acids and Bases Activity Acids,Bases, pH and Neutralization	
1	7AB 11C	(5)	Behavior of Gases Gases and the Kinetic Molecular Theory Explain relationship of Pressure, Volume and Temperature Calculation of Gas Laws	Gas Laws Everyday Gas Laws	

		[33*]	<p align="center">Sixth Six Weeks</p> <p align="center"><i>Laboratory Investigation and Inquiry Process are applied to all instruction, assessment and learning processes. TEKS 1AB, 2ABCD, 3ABCDE</i></p> <p align="center">*Please consider, that the total number of instructional days for second semester does not reflect the five days allocated for TAKS Testing nor the number of days a campus may use for TAKS review.</p>		
TAKS	TEKS	**DAYS	INSTRUCTIONAL TOPIC	RESOURCES	LABORATORY INVESTIGATIONS AND ACTIVITIES
4 & 5	6A 9ABCD 11C		<p>Nuclear Chemistry Types of Radiation Characteristics, symbols of alpha, beta, gamma positron and gamma radiation Balance Nuclear Equations Calculate Half-life of Isotopes Evaluate Environmental Issues with Nuclear Materials Compare and Contrast reactions and results of Fission and Fusion Evaluate Everyday Applications of Nuclear Chemistry</p>	<p>Fission Nuclear Structure Information Fusion vs. Fission Half-life</p>	
		(8)	<p>Stoichiometry Calculations: Moles and mass; Gas Volumes & STP</p>	<p>Chemtutor Hints for Solving Stoichiometry Problems</p>	
1,4,5	13C 15AB	(5)	<p>Reactions Rates and Equilibrium Collision Theory Conditions Affecting Rates of Chemical Reactions (Including surface area, temperature, concentration, stirring agitation, catalysts and inhibitors) Activation Energy Diagrams Le Chatlier's Principle</p>	<p>Introduction to Le Chatlier's Principle Collision Theory</p>	

Sixth Six Weeks (Continued)					
TAKS	TEKS	**DAYS	INSTRUCTIONAL TOPIC	RESOURCES	LABORATORY INVESTIGATIONS AND ACTIVITIES
			Special Topics of Chemistry Optional Topics: organic, expansion on real world applications, forensic chemistry, glass itching, hair, history, enthalpy, qualitative Kinetics:		
			GENERAL SCIENCE TEACHING RESOURCES	Free Lessons and Activities-Chemfiesta www.chemistry.about.com www.sciencespot.net www.chemcases.com	

Last updated 6/06