

Curriculum Map - Chemistry

Content	Skills	Assessment
UNIT 1: <ul style="list-style-type: none"> Scientific method 	<ul style="list-style-type: none"> Define control/variable. Analyze expt. to identify control/variable. Identify sources of error. Classify observation & inferences. 	<ul style="list-style-type: none"> Lab reports Homework
<ul style="list-style-type: none"> Measurement & metric conversions 	<ul style="list-style-type: none"> Identify equipment & function. Define & measure mass, volume, temperature, density, pressure. Use reference tables when appropriate. Convert between metric prefixes. Convert between Kelvins & Celcius. 	<ul style="list-style-type: none"> Lab reports Homework Project: Measure lung volume Quiz
<ul style="list-style-type: none"> Accuracy, precision & % error 	<ul style="list-style-type: none"> Determine precision of equipment. Compare accuracy & precision. Calculate % error. 	<ul style="list-style-type: none"> Lab reports Homework Skittles contest - Estimation
<ul style="list-style-type: none"> Scientific notation 	<ul style="list-style-type: none"> Convert between numbers & scientific notation. 	<ul style="list-style-type: none"> Homework
<ul style="list-style-type: none"> Significant figures 	<ul style="list-style-type: none"> Apply Atlantic/Pacific rule. Count number of significant figures. 	<ul style="list-style-type: none"> Quiz Unit test
<ul style="list-style-type: none"> Atomic structure Isotopes 	<ul style="list-style-type: none"> Identify part of atom & location. Calculate proton, neutrons, electrons. Use periodic table. Learn element names. 	<ul style="list-style-type: none"> Lab report Homework
<ul style="list-style-type: none"> Electron configuration 	<ul style="list-style-type: none"> Write electron configuration & orbital diagrams. Recognize excited state. 	<ul style="list-style-type: none"> Lab reports Homework
<ul style="list-style-type: none"> Quantum theory Ions, oxidation # 		

Curriculum Map - Chemistry

Content	Skills	Assessment
<ul style="list-style-type: none"> • Ionization energy, electronegativity, atomic/ ionic radii 	<ul style="list-style-type: none"> • Use reference tables K & P. 	<ul style="list-style-type: none"> • Quiz
<ul style="list-style-type: none"> • Nuclear chemistry 	<ul style="list-style-type: none"> • Interpret isotope notation. • Use reference tables J & L. • Calculate 1/2 lives. • Identify transmutations. 	<ul style="list-style-type: none"> • Labs • Nuclear survey • Response to career presentation
<ul style="list-style-type: none"> • Periodic table - metals & non-metals 	<ul style="list-style-type: none"> • Identify & describe characteristics of metals & non-metals. 	<ul style="list-style-type: none"> • Quiz • Unit test
<ul style="list-style-type: none"> • Periods & families 	<ul style="list-style-type: none"> • Use periodic table to infer characteristics. • Name families & their characteristics. 	<ul style="list-style-type: none"> • Lab reports • Homework
<ul style="list-style-type: none"> • Trends: Ionization energy, EN, reactivity 	<ul style="list-style-type: none"> • Use reference table K. • Explain trends based on energy levels, & nuclear charge. 	<ul style="list-style-type: none"> • Labs • Homework • Quiz
<ul style="list-style-type: none"> • Intro. matter & energy • Classify matter 	<ul style="list-style-type: none"> • Compare & contrast elements, compounds, mixtures. • Characteristics of each 	<ul style="list-style-type: none"> • Labs • Homework • Quiz • Unit test
<ul style="list-style-type: none"> • Physical & chemical changes & properties 	<ul style="list-style-type: none"> • Classify physical/chemical changes & properties. 	<ul style="list-style-type: none"> • Lab reports • Homework

Curriculum Map - Chemistry

Content	Skills	Assessment
<ul style="list-style-type: none"> • Energy changes 	<ul style="list-style-type: none"> • Identify & classify exothermic & endothermic. 	<ul style="list-style-type: none"> • Lab reports • Homework • Quiz
<ul style="list-style-type: none"> • Energy graph 	<ul style="list-style-type: none"> • Interpret energy, temperature, & phase change graph. 	<ul style="list-style-type: none"> • Homework
<ul style="list-style-type: none"> • Calorimetry 	<ul style="list-style-type: none"> • Calculate based on $h=m \times \Delta T$. • Heat of fusion & vaporization. 	<ul style="list-style-type: none"> • Lab reports • Homework • Quiz
<ul style="list-style-type: none"> • Solids, liquids, gases 	<ul style="list-style-type: none"> • Characteristics of each • Calculate vapor pressure. • Use reference table C & O. 	<ul style="list-style-type: none"> • Lab reports • Homework • Quiz
<ul style="list-style-type: none"> • Gas laws & the mole 	<ul style="list-style-type: none"> • Describe the temperature & pressure gas laws, & perform calculations. • Calculate moles, # of molecules & volume of gases. 	<ul style="list-style-type: none"> • Lab reports • Homework • Research: Uses of the gas laws • Quiz • Unit test
<ul style="list-style-type: none"> • Bonding: Ionic & Covalent 	<ul style="list-style-type: none"> • Classify compounds according to bonds. • Describe e- for bonding. • Calculate electronegativity. 	<ul style="list-style-type: none"> • Labs • Homework • Quiz
<ul style="list-style-type: none"> • Characteristics of substances 	<ul style="list-style-type: none"> • Describe physical/chemical character of substances based on bonding. 	<ul style="list-style-type: none"> • Labs • Homework • Quiz

Curriculum Map - Chemistry

Content	Skills	Assessment
<ul style="list-style-type: none"> • Intermolecular forces 	<ul style="list-style-type: none"> • Identify intermolecular forces. • Describe relation between forces & characteristics of substances. 	<ul style="list-style-type: none"> • Labs • Homework • Quiz • Unit test
<ul style="list-style-type: none"> • Names of compounds 	<ul style="list-style-type: none"> • Name a compound based on its formula. 	<ul style="list-style-type: none"> • Labs • Homework • Quiz
<ul style="list-style-type: none"> • Formulae of compounds 	<ul style="list-style-type: none"> • Write the correct formula of a compound based on its name & oxidation #. 	<ul style="list-style-type: none"> • Labs • Homework
<ul style="list-style-type: none"> • Types of reactions 	<ul style="list-style-type: none"> • Classify reactions as synthesis, decomposition, single, or double replacement. 	<ul style="list-style-type: none"> • Labs • Homework • Quiz • Unit test
<ul style="list-style-type: none"> • Math of Chemistry: moles 	<ul style="list-style-type: none"> • Calculate moles. • Calculate gram formula mass. 	<ul style="list-style-type: none"> • Homework
<ul style="list-style-type: none"> • % composition • Empirical & true formulas 	<ul style="list-style-type: none"> • Calculate % composition. • Identify true & empirical formulas & calculate. 	<ul style="list-style-type: none"> • Labs: % composition of a hydrate • Homework • Quiz
<ul style="list-style-type: none"> • Balance equations 	<ul style="list-style-type: none"> • Balance equations. 	<ul style="list-style-type: none"> • Labs: mole: mole ratios mass: mass calculation
<ul style="list-style-type: none"> • Stoichiometry • Mole ratios 	<ul style="list-style-type: none"> • Calculate new mole ratios. 	<ul style="list-style-type: none"> • Homework • Quiz • Unit test
<ul style="list-style-type: none"> • Solutions 	<ul style="list-style-type: none"> • Identify solutions & solubility. • Use reference tables D, F, M. 	<ul style="list-style-type: none"> • Labs: sol. curves/precipitates • Homework • Project: Solubility of NH₃ • Quiz

Curriculum Map - Chemistry

Content	Skills	Assessment
<ul style="list-style-type: none"> • Concentration 	<ul style="list-style-type: none"> • Calculate concentration of solutions. • Describe boiling point elevation & freeze point depression. 	<ul style="list-style-type: none"> • Make ice cream. • Homework • Quiz • Unit test
<ul style="list-style-type: none"> • Kinetics 	<ul style="list-style-type: none"> • Write equations showing exo. or endo. • Calculate ΔH; use reference table I. • Interpret mechanisms of reactions graph. • Identify spontaneous reactions. • Describe 4 factors affecting rate. • Identify & predict effects of four stresses. • Write mass action expression. • Interpret meaning of "K". 	<ul style="list-style-type: none"> • Labs: rates, calculate ΔH • Homework • Quiz
<ul style="list-style-type: none"> • Equilibria & stress • Mass action expressions • Common ion effect 	<ul style="list-style-type: none"> • Identify acid formulas. 	<ul style="list-style-type: none"> • Labs: equilibrium • Homework • Quiz • Unit test
<ul style="list-style-type: none"> • Arrhenius acids & bases 	<ul style="list-style-type: none"> • Compare/contrast properties & formulae of acids & bases. • Describe neutralization. • Predict electrolytic properties. 	<ul style="list-style-type: none"> • Labs: props of acids & bases, comparison of strong & weak acids • Homework • Quiz • Project: Homemade indicators
<ul style="list-style-type: none"> • Hydrolysis 	<ul style="list-style-type: none"> • Predict the pH of salts based on hydrolysis. • Analyze salts to determine the strength of the acid & base. 	<ul style="list-style-type: none"> • Labs: hydrolysis • Homework
<ul style="list-style-type: none"> • Bronsted-lowry 	<ul style="list-style-type: none"> • Write B/L equations. • Compare the strengths of acids & bases. • Identify conjugate pairs. • Identify amphoteric substances. 	<ul style="list-style-type: none"> • Homework • Quiz
<ul style="list-style-type: none"> • pH & titration 	<ul style="list-style-type: none"> • Determine the pH of substances based on H^+ or OH^- concentrations. • Perform titration calculations. 	<ul style="list-style-type: none"> • Labs: titration • Investigation: Design experiment to determine strength of vinegar • Homework • Quiz • Unit test

Curriculum Map - Chemistry

Content	Skills	Assessment
<ul style="list-style-type: none"> • Redox 	<ul style="list-style-type: none"> • Define redox. • Calculate changes in ox #. • Write redox half reactions 	<ul style="list-style-type: none"> • Labs • Homework • Quiz
<ul style="list-style-type: none"> • Electrochemical cells 	<ul style="list-style-type: none"> • Predict spontaneity of redox. • Draw & label battery. 	<ul style="list-style-type: none"> • Labs • Homework • Project: Fruit as a battery
<ul style="list-style-type: none"> • Electrolytic cells 	<ul style="list-style-type: none"> • Draw and label electrolytic cells. • Identify anode & cathode. • Predict location of oxidized & reduced substance. • Diagram electroplating. 	<ul style="list-style-type: none"> • Labs • Homework • Quiz • Unit test
<ul style="list-style-type: none"> • Organic Chemistry: hydrocarbons, functional groups 	<ul style="list-style-type: none"> • Identify hydrocarbons. • Compare homologous series. • Name organic compounds. • Write structural & molecular formulas of alcohols, acids, aromatics, ketones, aldehydes. 	<ul style="list-style-type: none"> • Labs • Homework • Quiz
<ul style="list-style-type: none"> • Reactions of organic materials 	<ul style="list-style-type: none"> • Classify reactions as fermentation, esterification, or oxidation. 	<ul style="list-style-type: none"> • Labs • Homework • Quiz • Unit test
<ul style="list-style-type: none"> • Begin review 		
<ul style="list-style-type: none"> • Review 		<ul style="list-style-type: none"> • Practice Regents Exams • Group competitive review • Poster & presentation of a unit