

BCCS – CHEMISTRY CURRICULUM MAP – (Revised 5-7-09)

Month	Content		Skills	Essential Questions	Standards/ Benchmarks	Instruction	Resources	Assessment
	What topic(s) is being covered and what is the important vocabulary? What do students need to know		What do students have to be able to do connected to the Content?	What are fundamental, enduring questions that will guide study and instruction?	What benchmarks are met through this topic?	What activities are used to develop the skills and knowledge?	What materials, texts, videos, internet, software, or human resources support instruction?	What evidence (products and/or performances) is collected to establish that the Content and Skills have been learned?
September	Topic: Periodic Table Metric Units and Conversions Matter and its properties Structure of the Atom	Vocabulary: Chemical change Compound Element Physical Change Reactant product Metals Non-metals	Learn to use unit cancellation and memorize 78 element symbols and interpret the structure of the atom	How do I determine the standard to use to cancel units. How does a student recognize the difference between a chemical change and a physical change?	Grasp the periodic table Recognition of a chemical reaction	Two labs over density and chemical reactions Models of atomic structure Demonstration of chemical and physical changes	Lab equipment and a scientific calculator	Lab demo quiz on density and four element quizzes
October	Topic: Mole / Mass Relationship Ionic & covalent bonding Naming Compounds	Vocabulary: Mole Molecular mass % composition Ionic bonding Covalent bonding Avagadro's #	Algebraic skills Grasp of element symbols	How does the concept of a "mole" relate to chemistry? What is the difference between ionic and covalent bonds?	Using avagadro's # and making conversions between moles and mass in chemical molecules and elements. Solving mass/mole problems	Lab; molecular mass of a solid acid	Computer files Overhead projectors Video projector Standard deviant VCR tape	Two quizzes over the material An oral assessment given by the students

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November	Topic: Lewis Structures Polarity Geometric Structures Bond Angles	Vocabulary: Electron pairs Electronegativity Bonds	Students must know about geometric figures and the angles that are made when bonds are formed in covalent structures. The unshared pairs of electrons that are left after the bonds are made contribute to the molecule's polarity.	Are molecules polar or non-polar? How does this affect the way a molecule reacts?	Students will use a computer model to access their progress. They have 8 models to make and understand .	Models with clay and sticks and toothpicks. Computer models of assessment.	Computer with a projection device. Computer aided lab of Lewis Structures. Worksheets	Oral questions to be answered by each student. Quiz both standardized and teacher generated.
December	Topic: Stoichiometry & Types of Reactions	Vocabulary: Excess / Limiting Molar ratios	Balance chemical equations and do molecular mass and % composition Basic algebra	How is the mass of each product of a reaction determined and how do we tell how much of each reactant gets used?	Mastering excess / limiting equations	There will be five labs that demonstrate stoichiometric equations	Lab equipment and a video	Lab unknown quia and a bal that expects a student to evaluate an unknown compound

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January	Topic: GAs laws and the Kinetic theory of gasses Avagadro's law	Vocabulary: STP Diffusion Ideal gas Absolute zero Effusion Molar volume	Be able to do gas law calculations and demonstrate rearrangement of algebraic equations	What is the relationship between volume, temperature, and pressure in the molecules of a gas? How are chemical reactions affected by the release of a gas?	Assessing the relationship between temperature, volume and pressure and balancing equations with volumes of gasses	Six labs	Lab equipment	Two written quizzes
February	Topic: Solutions and Concentration of solutions	Vocabulary: Molarity Molality % solution ppm ppb saturation electrolyte solubility	Be able to use a $y = mx + b$ equation	How do solutions become saturated and how do students measure the concentration of a solution? Why must ions be separated in solution to react?	Learn to incorporate the concentration of solutions into mass/mole equations	Three labs and five demonstrations	Lab equipment	One exam and an unknown solution to figure out the molarity.

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March	Topic: Acids Bases pH	Vocabulary: Alkaline Weak & Strong acids Binary acids pH and pOH Dissociation	Mastery of naming ionic and covalent molecules. Balancing and figuring mass / mole relationships of chemical equations. Must be able to understand logarithms	What causes a solution to be acidic or basic? What affect does the pH of a solution have on our environment?	Using pH to find the concentration of various solutions. Master the names of acids	Two labs One video	Lab equipment TV VCR	Three short quizzes.
April	Topic: Thermo-chemistry & redox reactions	Vocabulary: Endothermic & Exothermic reactions Joule Oxidation Reduction Entropy Free energy and disorder	Understand the relationship between energy being released and energy being absorbed. Mastery of solving simultaneous equations	How do students account for energy (heat) in chemical equation? What role do the movement of electrons have in chemical equations?	Use of Hess' Law describing entropy. Identifying those reactions that involve the change of charge	Two titration labs Video Computer files	Lab equipment TV, VCR and computer	Two quizzes Two titrations to solve for the unknown molarity of different solutions
May	Topic: Free energy Organic Chemistry	Vocabulary: Entropy Isomer Alkanes Alkenes Alkynes Aromatics Alcohols Aldehydes Radicals	<ul style="list-style-type: none"> Algebra and the mastery of identifying organic molecules. 	<ul style="list-style-type: none"> How can a student tell when a reaction will occur? <p>How does a student distinguish between an isomer and an identical structure?</p>	Use of Gibbs Free Energy equation: Knowledge of organic nomenclature	One lab Computer software Models of organic molecules	Lab equipment Computer Lab Kits Items from local store Projection device	One quiz Review sheets Two quizzes from computer files