Teacher: CORE HON CHEMISTRY P1 Year: 2012-13

Course: HONORS CHEMISTRY Month: All Months

August

Measurement ~ Can students recognize and use various metric units

Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards

September

Measurement and conversions ~ Zumdahl Chapters 1 - 2

Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards
Why is making and recording appropriate measurements useful in chemistry?	Units, Moles as a unit, and counting atoms Accuracy, precision, quantitative, qaulitative Scientific notation and *** significant figures The metric system Density with conversions	Recognize that an answer is not correct if units are wrong Convert between metric units Recognize SI base units Demonstrate proper use of scientific notation and significant figures discriminate	Metric conversions 9/1/2012 Scientific method 9/1/2012 Density 9/1/2012 Homework 9/1/2012 Lab report 9/1/2012 Quiz 9/1/2012	lecture and notes Poster	learn to read the info given for each element in the P.T: symbol, atomic #, atomic wt, density, melting pt, boiling pt. Differentiate between elements, compounds, pure substances, heterogeneous and homogeneous mixtures Explain that substances can be	RST.11-12.4- Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics. RST.11-12.5- Analyze how the text structures information or

			between numbers that are significant and those that are not. Explain the steps of the scientific method Calculate density Differentiate between physical and chemical properties insert a data table into a word document			found in four different states that are dependent on energy and particle size graphically interpret states of matter given boiling.pt. , melting.pt. and phase transition graph Differentiate btwn chem and phys properties and changes Do two or three step density problems including metric conversions and using algebra to solve for one of three variables in the density equation Convert between metric units multiplying the appropriate conversion factor Convert a number	ideas into categories or hierarchies, demonstrating understanding of the information or ideas. STE.12.01.01- Identify and explain some of the physical properties that are used to classify matter, e.g., density, melting point, and boiling point. STE.12.01.02- Explain the difference between mixtures and pure substances. STE.12.01.03- Describe the four states of matter (solid, liquid, gas, plasma) in terms of energy, particle motion, and phase transitions. STE.12.01.04-

					expressed in scientific notation to its decimal form and visa versa. Perform division and multiplication using scientific notation Understand and apply the use of significant figures	Distinguish between chemical and physical changes STE.12.05.03- Understand the mole concept in terms of number of particles, mass, and gaseous volume.

Unit One - Matter and Measurement ~ Zumdahl Text Chapters 1,2,3

Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards
How does the structure of matter relate to what matter does? How can atoms, which are made of all of the same parts, combine into elements which have such different properties?	Properties of Matter measurement, mass, length, volume, temperature, density, metric units, moles Measuring mass and volume and Calculating density	Use common prefixes. Use scientific notation. Making measurements with glassware, scales, thermometers, micrometers, displacement of water Creating a data table and	Measurement Quiz 9/8/2012 Unit Test 9/1/2012 Measurement Lab Data Table 9/1/2012 Write up of Separation Procedure 9/1/2012 Problem Solving 9/1/2012 Density Problems 9/1/2012	Measurement Mixtures Lab		

		Chemical and physical properties and changes Distinguish between elements, compounds, and heterogeneous and homogeneous mixtures	analyzing data collected in lab or from outside sources Determining if measurements are reliable. Separate a mixture by physical properties using magnetism filtration, distillation, solubility Solve for x in a simple algebraic equation incorporating units into the algebra	Various Practice 9/1/2012				

O c t o b e r	Unit 1 continued Principles of Matter ~ Zumdahl Chapter 3						
	Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards
	Can students recognize an element, a compound and a	Four states of matter Chemical and	Separation of a mixture Lab Filtration	Lab report 10/1/2012 chemical and physical			STE.12.01.01-Identify and explain some of the physical

mixture Can students distinguish between chemical and physical change? Can students identify common plastics based on chemical and physical tests How are matter and energy related	physical properties Conservation of mass - lab with a focus on the scientific method Conservation of energy	Differentiate between a chemical and physical change. Understand that many chemical changes result in products with new physical properties. Show that matter is not destroyed in a chemical reaction	10/1/2012 Quiz 10/1/2012 Lab report 10/1/2012			properties that are used to classify matter, e.g., density, melting point, and boiling point. STE.12.01.02-Explain the difference between mixtures and pure substances. STE.12.01.03-Describe the four states of matter (solid, liquid, gas, plasma) in terms of energy, particle motion, and phase transitions. STE.12.01.04-Distinguish between chemical and physical changes

Unit Two - Elements, Atoms, Ions and Nomenclature ~ Zumdahl Text Chapters 4, 5, 11, and 12

Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards
How did scientists develop	Atomic Theory according to	Understand the history of the	Quiz on Atomic Theory	Ions in solution	Explain the contributions of	STE.12.02.01-Trace the development of

	Atomic Theory How do scientists communicate about chemistry?	Dalton, Thompson, Rutherford and Bohr Structure of the Atom, and understanding the relationship between the particles, their relative sizes and their distance from one another in an atom Symbols for the elements Basic nuclear chemistry Formulas of Compounds Intro to Periodic Table Naming Ionic and Simple Covalent Compounds, recognize and use common	development of the atomic theory Be able to draw an atom and label the individual parts Learn to use the Periodic Table and Write formulas for chemical compounds understand the role of the neutron, learn the names of the other particles involved in nuclear chemistry Understand the concept of accuracy and precision as it pertains to collection of a product in a chemical reaction	10/4/2012 Test 10/4/2012 Homework Practice 10/1/2012 Identify ions in aqueous solution lab 10/1/2012 Atoms 10/1/2012 Electron arrangement 10/1/2012 Nuclear reading 10/1/2012		dalton, Thompson, and Bohr to atomic Theory Identify the location and charges of subatomic particles Explain that conservation of mass means elements can be rearranged but not destroyed (except in nuclear reactions) and that constant composition means compounds always have the same formula, same elements in same ratios Recognize that matter has properties of both particles and waves because electrons	atomic theory and the structure of the atom from the ancient Greeks to the present (Dalton, Thompson, Rutherford, Bohr, and modern theory). STE.12.02.02-Interpret Dalton's atomic theory in terms of the Laws of Conservation of Mass, Constant Composition, and Multiple Proportions. STE.12.02.03-Identify the major components of the nuclear atom (protons, neutrons, and electrons) and explain how they interact. STE.12.02.04-Understand that matter has properties of both particles and waves. STE.12.02.05-Using Bohr's model of the atom interpret changes (emission/absorption)

		polyatomic ions Electron configuration for the first 18 elements Chemical Bonding	use the periodic table to predict trends: electron configuration, size, ionization energy, electronegativity, valence electrons, ion charges, metals/non-metals Draw Lewis Dot diagrams of elements, compounds and polyatomic ions Name covalent and ionic compounds from chemical formulas, write formulas given names Classify bond types by being able to recognize metal non-metal compounds, all non-metal compounds, and support with			have properties of both waves and particles Interpret changes in electron energies in the hydrogen atom corresponding to emission transitions between quantum levels Write the electron configuration for transition elements be able to associate the d and f orbitals with the corresponding parts of the Periodic Table where these elements are found Be able to interpret the electromagnetic	in electron energies in the hydrogen atom corresponding to emission transitions between quantum levels. STE.12.02.06-Describe the electromagnetic spectrum in terms of wavelength and energy; identify regions of the electromagnetic spectrum. STE.12.02.07-Write the electron configurations for elements in the first three rows of the periodic table. STE.12.03.01-Explain the relationship of an element's position on the periodic table to its atomic number and mass. STE.12.03.02-Use the periodic table to identify metals, nonmetals, metalloids, families

			difference in electronegativity calculations.			spectrum and identify gamma rays as being small wavelength, high frequency, radio waves being the opposite and visible light values in between Determine the element or ion if given the electron configuration. Write the electron conif if given the element or ion (for first 18 elements). Understand that elements in same columns have same # of electrons in outer shell and this affects their reactivity Explain the	(groups), periods, valence electrons, and reactivity with other elements in the table. STE.12.03.03-Relate the position of an element on the periodic table to its electron configuration. STE.12.03.04-Identify trends on the periodic table (ionization energy, electronegativity, electron affinity, and relative size of atoms and ions). STE.12.04.01-Explain how atoms combine to form compounds through both ionic and covalent bonding. STE.12.04.02-Draw Lewis dot structures for simple molecules. STE.12.04.03-Relate electronegativity and ionization energy to the type of bonding an element is likely

						relationship of an element's positoin on the P.T to its atomic # and mass Use the P.T to identify metals, nonmetals, metalloids, families (groups), periods (columns) Understand how # of valence electrons causes elements to bind with other elements to complete their outer shell Draw Lewis dot structures for elements, simple molecules and polyatomic ions Name and write the formulas for ionic and molecular compounds, including those with polyatomic ions (honors will	to undergo. STE.12.04.04-Predict the geometry of simple molecules and their polarity (valence shell electron pair repulsion). STE.12.04.05-Identify the types of intermolecular forces present based on molecular geometry and polarity. STE.12.04.06-Predict chemical formulas based on the number of valence electrons. STE.12.04.07-Name and write the chemical formulas for simple ionic and molecular compounds, including those that contain common polyatomic ions.

						be given more polyatomic ions than c.p.) Relate electronegativity and ionization energy to the type of bonding an element is likely to undergo Predict the geometry of simple molecules and their polarity (valence shell electron pair repulsion) Identify the types of intermolecular forces present based on molecular geometry and polarity	

November

Unit Three - Chemical Reactions ~ Chapters 6, 7- Zumdahl

Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards
What are the different kinds of chemical reactions that take	Evidence for a Chemical Reaction	Balancing Equations, apply the law of conservation of	Unit 3 Quiz 11/1/2012 Unit 3 Test 11/1/2012	Evidence of a Reaction lab Virtual 5 kinds of reactions lab	Balance chemical equations including equations with	STE.12.05.01- Balance chemical equations by applying the law

	place?	Chemical Equations Reactions in which a solid forms Reactions in aqueous solutions Reaction classification	mass Identify the five main kinds of reactions and predict products from the patterns of each Use a solubility chart to determine when a solid will form Make an aqueous solution for a lab experiment	Evidence of a reaction 11/1/2012 Virtual 5 kinds of reactions 11/1/2012 5 kinds of reactions 11/1/2012 Homework Practice 11/1/2012 Reading about rust 11/1/2012	5 kinds of reactions lab	polyatomic ions and combustion reactions with an uneven # of oxygens) Recognize synthesis, decomposition, single displacement, double displacement and neutralization reactions Describe the process by which solutes dissolve in solvents, noting that water's polar nature allows the oppositely charged pole of water pulls on the corresponding pole of polar compounds and that nonpolar compounds are dissolved in nonpolar solvents Recognize that smell, formation	of conservation of mass. STE.12.05.02- Recognize synthesis, decomposition, single displacement, double displacement, and neutralization reactions. STE.12.07.01- Describe the process by which solutes dissolve in solvents. STE.12.07.07- Write net ionic equations for precipitation reactions in aqueous solutions.

						of a gas and color change are evidence of a reaction	
December	Unit 3 continued Chemical Composition and Chemical ~ Zumdahl Chapters 8 and 9						
	Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards
	How do we quantify substances in Chemistry How does the law of conservation of matter relate to solving chemical problems? What is a mole? What does it measure?	Atomic Mass The Mole Molar Mass Mole-Mole Relationships Percent Yield Empirical and Molecular Formulas	Calculate grams to moles, moles to atoms Do stoichiometry problems, predicting what products and how much will form. Calculate Empirical and Molecular Formulas Perform a series of double replacement reactions	Unit 4 Quiz 12/1/2012 Unit 4 Test 12/1/2012 Double Displacement Lab 12/1/2012 Determine moles of iron and copper 12/1/2012 Percent yield of Asprin 12/1/2012 Homework review 12/1/2012 Reading on Aspirin 12/1/2012	Counting by Weighing PLA Lab	Know that one mole of any substance is 6.02 x 10 23 power and perform multiplication and division with multiples of this # Apply concept of one mole = wt of elements on P.T. in problems Know that one mole of any gas = 22.4 L at 1 atm pressure Be able to convert from grams to moles of any substance using atomic mass or wt	STE.12.05.03- Understand the mole concept in terms of number of particles, mass, and gaseous volume. STE.12.05.04- Determine molar mass, percent compositions, empirical formulas, and molecular formulas. STE.12.05.05- Calculate mass-mass, mass-volume, volume-volume, and limiting reactant problems for chemical reactions.

						of that substance Given the mass or moles of a reactant or product in a chemical reaction, calculate the mass or moles of another reactant or product in that reaction using stoichiometry and the concept of limiting reactants Calculate percent yield in a reaction using the concept of limiting reactants Calculate Empirical and molecular formulas	STE.12.05.06- Calculate percent yield in a chemical reaction.

January

Unit 4 - Energy (including Nuclear) Ch 10,19

Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards
How do changes in enthalpy prove that there is no such thing as a chemical	Temperature and Heat Exothermic and Endothermic	Be able to identify and endothermic and exothermic process	Unit 5 Quiz 1/1/2013 Unit 5 Quiz 2 1/1/2013 Unit 5 Test	cold pack/hot pack lab molecular model kits Energy of a	Define potential energy, kinetic energy, temperature, heat, system, surroundings, endothermic, exothermic	STE.12.09.05- Define the role of activation energy in a chemical

	free lunch? How does submicroscopic phenomena affect chemistry? Describe how entropy is a driving force in the world What is the role of nuclear chemistry in our life?	Processes Thermodynamics, Q=msT and Enthalpy calculations Electromagnetic Radiation Emission of Energy by atoms Electronegativity VSEPR Theory Fission, Fusion, half-life, radioactive decay and dating	Be able to calculate the energy of a physical change or chemical reaction using the correct formula, and determine if the change is endothermic or exothermic. Understand and identify the system, boundary and surroundings for a thermodynamic process. Be able to describe what makes a better fuel and support with testing based on the ability to heat water	1/1/2013 Determination of the charge of an electron 1/1/2013 Nuclear reading 1/1/2013	snack food Specific heat capacity of water and iron	Understand the law of conservation of energy to mean that energy can be converted from one form to another (but not created nor destroyed) and that energy is lost as heat when conversions occur Be able to combine conversions from joules to calories and use of specific heat equation in multi-step problems Analyze the energy changes involved in physical processes using calorimetry. Demonstrate understanding of energy flow from a substance colling down (metal) ot a substance heating up (water). Identify substance through calculations Measure the energy change that takes place in a chemical process using calorimetry. Calculate the energy contained by calculating energy absorbed by water. compare to energy	reaction. STE.12.10.01-Interpret the law of conservation of energy. STE.12.10.02-Explain the relationship between energy transfer and disorder in the universe. STE.12.10.03-Analyze the energy changes involved in physical and chemical processes using calorimetry. STE.12.10.04-Apply Hess's law to determine the heat of reaction.

			Compare and contrast fission and fusion. calculate half-life, relate E=mc2 to law of conservation of mass and energy. Identify and describe the particles involved in nuclear reactions. Describe the role of nuclear energy in our life and the near future			reported on package. calculate percent error. devise ways to improve results with insulation Identify activiation energy on a graph, discuss the effect on this of a catalyst, differentiate between endothermic, exothermic. perform calculations with stoichiometry and endothermic and exothermic reactions Apply Hess' Law to determine the heat of reaction Explain the relationship between energy transfer and disorder in the universe	

Feb ruary

U4 continued - Nuclear chemistry ~ nuclear chemistry and nuclear energy

Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards
How can so much power come from such a small amount of Uranium?	nuclear reactions alpha, beta and gamma radiation nuclear fission vs. nuclear fusion radioactive decay		Nuclear Power Policy Paper 2/1/2013	nuclear power debate	Demonstration of ability to analyze a topic taking data and various viewpoints into account	STE.12.02.08- Describe alpha, beta, and gamma particles; discuss the properties of alpha, beta, and

		stable and unstable isotopes half life of radioactive elements C-14 as a way to date objects				Recognize alph, beta and gamma particles and their relative ability to penetrate living tissue and do damage Determine which particles are missing in balanced nuclear equations Differentiate between nuclear fission and fusion. Explain which one is used in nuclear reactors and how so much energy is captured from splitting an atom because matter is transformed to energy, E = mc squared. understand fission is still in experimental stages and why Describe radioactive decay as the	gamma radiation; and write balanced nuclear reactions. STE.12.02.09- Compare nuclear fission and nuclear fusion and mass defect. STE.12.02.10- Describe the process of radioactive decay as the spontaneous breakdown of certain unstable elements (radioactive) into new elements (radioactive or not) through the spontaneous emission by the nucleus of alpha or beta particles. Explain the difference between stable and unstable isotopes. STE.12.02.11- Explain the

							spontaneous breakdown of certain unstale elements (radioactive) into new elements through the emission of alpha or beta particles. Explain the difference between stable and unstable isotopes and why they occur Calculate the age of objects using C-14 data Calculate the half life of particles, how much radioactive matter will remain after a given amount of time	concept of half-life of a radioactive element, e.g., explain why the half-life of C14 has made carbon dating a powerful tool in determining the age of very old objects.
Mar c	Unit 5 - Gases, Liquids, Solids and Solutions ~ Zumdahl chapters 13, 14, 15							
	Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks Standards		

h	How do the properties of gases affect how we measure them? What forces and conditions are at work that determine states of matter What makes solutions different from each other?	atmosphere pressure and barometers units of pressure ideal gas law, Charles's, Boyle's, Avogadro's, Guy Lussac's, Dalton's law of partial pressure kinetic molecular theory Water and its phase changes Intermolecular forces Solubility Mass percent, molarity, Dilution Neutralization Reactions	Be able to measure the volume of a gas by displacement of water Be able to calculate percent yield Be able to differentiate between a direct relationship and an inverse relationship Be able to read word problems describing multiple changing variables and choose the proper equation to use to solve for volume, temperature, pressure, or moles and grams for both reactants and or products involving gases.	Unit 6 - Quiz 1 3/1/2013 Unit 6 Test 3/1/2013 Gas law worksheets 3/1/2013 Pipette rocket lab 3/1/2013 Intermolecular forces 3/1/2013 Molarity problems 3/1/2013 Reading gases and solutions 3/1/2013	Gas Rocket lab with stoichiometric ratios Collect a gas underwater Solubility Curve Lab Graph the phase change for water	Understand that gases are unique in their ability to spread to fill containers and this affects volume, dependent on temp, amount of gas and pressure Use kinetic molecular theory to explain why Boyles law is an inverse relationship, charles law depicts direct proportion and # of gas particles is proportional to volume Explain the relationship btwn temp and avg kinetic energy Use the Ideal Gas law to calculate any missing variable. convert units appropriately. Use ideal gas law in stoich problems with limiting reactants Describe conditions under which a real gas deviates from an ideal gas	STE.12.06.01- Using the kinetic molecular theory, explain the relationship between pressure and volume (Boyle's law), volume and temperature (Charles'law), and the number of particles in a gas sample (Avogadro's hypothesis). STE.12.06.02- Explain the relationship between temperature and average kinetic energy. STE.12.06.03- Perform calculations using the ideal gas law. STE.12.06.04- Describe the conditions under which a real gas deviates from

			Understand the use of a barometer and the applications of atmospheric pressure to real world situations Describe the role of intermolecular forces and how they are related to phase change and solubility Calculate moles and molarity of solutions. Use them to predict moles of product, or limiting reactant.			Interpret Dalton's empirical Law of Partial Pressures, use it to calculate partial pressures and total pressures Use the combined gas law to calculate temp, pressure and volume Identify and explain the factors that affect the rate of dissolving, temp, concentration and mixing Describe a saturated solution calculate each of the three variables in the molarity equation, using correct metric units and conversion. Calculate molality and percent by mass Calculate the freezing point depression and boiling point elevation for a solution Write net ionic	ideal behavior. STE.12.06.05-Interpret Dalton's empirical Law of Partial Pressures and use it to calculate partial pressures and total pressures. STE.12.06.06-Use the combined gas law to determine changes in pressure, volume, or temperature. STE.12.07.01-Describe the process by which solutes dissolve in solvents. STE.12.07.02-Identify and explain the factors that affect the rate of dissolving (i.e., temperature, concentration, and mixing). STE.12.07.03-Describe the

						equations for precipitation reactions in aqueous solution	dynamic equilibrium that occurs in saturated solutions. STE.12.07.04- Calculate concentration in terms of molarity, molality, and percent by mass. STE.12.07.05- Use a solubility curve to determine saturation values at different temperatures. STE.12.07.06- Calculate the freezing point depression and boiling point elevation of a solution.
	How do Pressure and Temperature changes affect chemistry?						
	How do the						

	different phases of water affect chemistry and life?							
	Why is solubility important and what factors affect it?							
April	Unit 6- Acids and Bases and Equilibrium ~ Ch 16 and 17 in Zumdahl							
	Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards	
	How can strong reactants neutralize one another? What influences the rate of a chemical reaction?	Acid and Base characteristics Acid and Base Strength Water as an Acid and Base the pH scale Buffered Solutions Conditions that Affect Reaction Rates	Calculate pH and pOH from hydrogen ion and hydroxide ion concentration identify the characteristics of strong acids and bases predict which way a reaction in equilibrium will shift if acted upon perform an acid base titration and	Quiz Acid-Base 1/5/2013 Unit 7 Test 3/1/2013 Reading: Quest for a clean drink 4/1/2013 Homework 4/1/2013 Titration lab 4/1/2013	Lab Acid-Base Titration Le Chatelier's Principle Lab	Define Arrhenius acids as donating H ions to solution and bases as donating OH ions, relate their concentration to the pH scale. Relate Bronsted's theory of acids as proton donors and bases as proton acceptors and relate their concentrations to the pH scale Compare and contrast the	STE.12.08.01-Define Arrhenius'theory of acids and bases in terms of the presence of hydronium and hydroxide ions, and Bronsted's theory of acids and bases in terms of proton donor and acceptor, and relate their concentrations to the pH scale. STE.12.08.02-	

		Le Chatelier's Principle	identify the endpoint Calculate the concentration of an unknown using titration			nature, behaviou, concentration and strength or acids and bases. , acid-base neutralization, degree of dissociation or ionization, electrical conductivity Explain how indicators are used and how they are selected Describe an acid base titration, identify when the equivalence point is reached and its significance, calculate how much acid of a certain concentration would be needed to neutralize a certain amount of base Calculate the pH or pOH of a solution given the hydronium or	Compare and contrast the nature, behavior, concentration and strength of acids and bases. a. Acid-base neutralization b. Degree of dissociation or ionization c. Electrical conductivity STE.12.08.03- Identify a buffer and explain how it works. STE.12.08.04- Explain how indicators are used in titrations and how they are selected. STE.12.08.05- Describe an acid-base titration. Identify when the equivalence point is reached and its significance. STE.12.08.06- Calculate the pH or pOH of

						hydroxide concentration Write the equilibrium expression and calculate the equilibrium constant for a reaction Predict the shift in equilibrium when a system is subjected to a stress, change in amount of reactant or product or temp Identify the factors that affect the ragte of a chem reaction, temp, concentration, and factors that cause a shift in equilib, concentration, pressure, volume, temp Explain rates of	aqueous solutions using the hydronium or hydroxide ion concentration. STE.12.09.01- Write the equilibrium expression and calculate the equilibrium constant for a reaction. STE.12.09.02- Predict the shift in equilibrium when the system is subjected to a stress (LeChatelier's principle). STE.12.09.03- Identify the factors that affect the rate of a chemical reaction (temperature, concentration) and the factors that can cause a shift in equilibrium (concentration,

						reaxtion in terms of collision frequency, energy of collision, and orientation of colliding molecules Define the role of activation energy in a reaction	pressure, volume, temperature). STE.12.09.04- Explain rates of reaction in terms of collision frequency, energy of collisions, and orientation of colliding molecules. STE.12.09.05- Define the role of activation energy in a chemical reaction.

May

Unit 7 - Oxidation-Reduction and Electrochemistry ~ Chapters 18 in Zumdahl

Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards
Why are Oxidation-Reduction reactions so important in Industry and Medicine?	oxidation states oxidation - reduction reactions electrochemistry batteries corrosion	Determine oxidation states of elements in compounds Determine which components in a chemical reaction are being oxidized and which reduced	Quiz oxidation reduction 4/26/2013 Debate Battery power/Research Paper 4/25/2013 Battery Lab 5/1/2013 Reading Bleach alternative 5/1/2013	Electrochemistry lab	Assign oxidation numbers to elements in compounds Identify which elements are oxidized and which are reduced in chemical reactions, noting	STE.12.11.01- Describe the chemical processes known as oxidation and reduction. STE.12.11.02- Assign oxidation numbers. STE.12.11.03- Balance oxidation-

			Build a battery and explain how it works explain the difference between amps, watts, volts, kilowatt hours Describe how electricity is used to decompose water			that loss of electrons is oxidation, gain of electrons is reduction Balance oxidation-reduction equations by using half-reactions Identify the cathode and anode in an electrochemical cell Label a diagram to explain how a typical battery, such as a lead storage battery or a dry cell works Compare and contrast voltaic and electrolytic cells and their uses Calculate the net voltage of a cell	reduction equations by using half-reactions. STE.12.11.04-Identify the components, and describe the processes that occur in an electrochemical cell. STE.12.11.05-Explain how a typical battery, such as a lead storage battery or a dry cell, works. STE.12.11.06-Compare and contrast voltaic and electrolytic cells and their uses. STE.12.11.07-Calculate the net voltage of a cell given a table of standard reduction potentials.

						given a table of standard reduction potentials	

June

Unit 8 - Organic chemistry ~ Chapter 20 in Zumdahl

Essential Questions	Content	Skills	Assessments	Lessons	Learning Benchmarks	Standards
Why does life revolve around carbon	Basic naming of hydrocarbons and functional groups carbon cycle and carbon dating polymers and other long chains	be able to identify some basic carbon compounds and name alkanes and alcohols describe the use of carbon in protein, DNA, and cellular structure Explain carbon cycle and production of fossil fuel, and now plastic and other carbon compounds.	Quiz 6/1/2013 plastic lab 6/1/2013 Reading 6/1/2013		Name simple and complex hydrocarbon molecules using ane, ene, yne and numbering hydrocarbon chains. Discuss the pros and cons of synthetic petroleum based polymers vs biopolymers	