Bexley City School District
A community of learners becoming productive global citizens and leaders

Welcome to Honors Chemistry
Mrs. Golliday
Room 4244
tami.golliday@bexleyschools.org

Classroom Procedures and Information

Text: Buthelezi, Dingrando, Hainen, Wistrom & Zike. *Glencoe Science: Chemistry: Matter and Change,* The McGraw-Hill Companies, Inc., 2013.

Online Edition: See separate handout on how to access.

Materials Needed: A three-ring binder, paper for notes and handouts, and a scientific calculator.

Classroom Rules:
Mature, respectful behaviors are expected in the classroom. Examples of unacceptable behavior would include outburst in class, talking during class, disrespectful remarks or actions to fellow students, faculty, or staff; or any other behaviors deemed inappropriate for the intended situation. Should this occur, incident reports will be filed.

Rules:
- Be in assigned seat when bell rings.
- Bring all books and materials.
- Speak and treat others, myself, and yourself with respect at all times.

Consequences:
- Warning.
- Removed to hallway for short conference.
- Referred to office.

Fire and Tornado Procedures: Please see posted signs.

Cheating: Cheating WILL NOT be tolerated. Copying someone's homework is cheating! Cheating on homework, tests, quizzes, labs, etc. will be dealt with severely. Be careful to not put yourself into a situation that could be interpreted as cheating. I will post solutions to assignment problems on Canvas. Do not just copy them (especially don't copy, paste, and print. If you are stuck on a problem use them to assist you and certainly use them to check your solutions. Homework must include work needed to solve and units with answers.

Absence: If you are absent, you have the number of days plus one that you were absent to make up the work. It is YOUR responsibility to see me for any missed assignments/notes on the day that you get back to school. Do not interrupt class time to do this. Any homework that was assigned BEFORE you were absent and is due DURING your absence is due the day after you get back. I understand when ill or a family emergency that you will probably not be doing your chemistry that day. If you know ahead of time that you will be absent on a test day, you may take the test ahead of time. Please arrange a time to do so with me. Make-up tests may be all essay or otherwise different from the 'original' test. If you know you will be missing a lab, please set up a time to make it up BEFORE you are absent. Sometimes, it will not be possible for you to make up a missed lab, so you will be given an alternative assignment to do instead. (See me if you have an extended absence or illness.)

Assessment: The grading system is based on total points earned out of total points available. Grades will be based on tests, quizzes, homework assignments and labs. There are no retakes on tests, but there will be optional (during learning lunch) test corrections for an independent grade. Students who fail a unit test are offered additional assignments to improve the test grade to a 60%. You may correct and retake quizzes (except element symbols and polyatomic ion quizzes) during learning lunch. Homework Assignments not completed must be shown to me before retakes, but you will not be given points for late homework. They must be completed prior to the unit test. Check PowerSchool frequently. Anticipated points earned are listed below. This may be modified in response to weather or classroom needs.

1st Semester:
- 7 unit tests worth 50 points each

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- 1 safety quiz worth 10 points
- 7 unit quizzes worth 10 points each
- 4 short element quizzes worth 5 points each
- 1 long element quiz worth 10 points
- 3 short polyatomic ion quizzes worth 5 points each
- 1 long polyatomic quiz worth 10 points
- 15 labs worth 10 points each
- 14 homework checks worth 5 points each
- 7 test corrections worth 5 points each
- Midterm: 100 points

2nd Semester:

- 7 unit tests worth 50 points each
- 14 quizzes worth 10 points each
- 15 labs worth 10 points each
- 14 homework checks worth 5 points each
- 7 test corrections worth 5 points each
- Final exam: TBD – depends on ACT Quality Core Exam

Practice Exercises: It is necessary to do ALL assignments to be successful in chemistry class! Homework is due by the end of the day that it is due unless I tell you it is due at the beginning of class. Please pay careful attention to your learning schedule. I am explicit about what was done in class, what was due in class, what you need to do that night. You may give it to me in class, put it in my mailbox (in office), take pictures and email, scan and email, but it is due by midnight. Be sure to show all of your work on your assignments with units. *At the top of all assignments, write the date assigned, the pages, and problem numbers.* I use these as visual markers when grading. Zeroes are never given for practice exercises and partial credit is not given (it lowers your overall grade; people not doing it at all would have an advantage over you). Work is never accepted late for credit except for absences. I post solutions to assignments on Canvas BEFORE you are assigned the problems. Use them to assist you but do not just copy them. You must master this material. 5 points on an assignment is meaningless if you cannot pass the quiz and unit exam. Chemistry keeps building on itself and it is important to KEEP UP!

Notebooks: It is necessary to take notes and use these notes to be effective in chemistry class! You should read and make notes from the book ***prior*** to the classroom lecture and bring them to class. I will be looking for them and taking notes on whether you are prepared for class. You can add information and strategies not covered in your book to your notes while we discuss in class. Keep every handout, quiz, etc. that you are given in your 3-ring binder. I upload my lectures and all handouts to Canvas. Chemistry just keeps building on itself. Information you learn today will still be very important eight months from now. Keep your notebook well-organized. Put the date on the notes you take, use dividers, etc.

Extra Help: I am available before school on Monday and Friday, learning lunch most days, and 3rd Period. Often, we can find other times to meet by appointment. Please don't wait until the night before or morning of a quiz/test to get help.

Laboratory Program

Safety procedures will be covered and enforced. If you miss a lab, you need to set up a time with me, outside of class time, to make it up. Sometimes, it will not be possible to make up a missed lab. In this case, you will be given an alternative assignment. Labs can be very fun and exciting. However, the rules that we learn during the safety unit will apply all year long. Not following these rules can be extremely dangerous. Any violation of these rules will result in the suspension or termination of your lab privileges and/or other consequences. You are all responsible young adults. Please behave this way in the lab. Do not do anything that you were not specifically told to do. Do not touch the computers or related equipment without permission and instruction to do so. If you are

ever in doubt of what to do or not to do, ASK ME!!! You will be signing and abiding by a safety contract. In addition to the rules we learn, never touch ANYTHING that I have not told you to! Often there will be labs set up for or by other classes. You are not to touch anything in the classroom that you do not have direct permission to touch.

1st Quarter:

1. Introduction to the laboratory and Reading MSDS Sheets; Safety Quiz (ACS, CSCC, TG) 1 day Week 1
2. Mass and Change (Modeling) 2 days Week 2
3. Measurement Challenge (Flinn) 1 day Week 3
4. Physical and Chemical Changes (CSCC) 1 day Week 4
5. Separation of a mixture (CSCC)1 day Week 5
6. Chromatography (TG) 1 day Week 6 (Flinn ChemTopic)
7. Bean Isotopes (TG) 1 day Week 7
8. Analyzing Absorption spectra (TG)1 day Week 8
9. Periodic Trends (TG)1 day Week 9

2nd Quarter:

10. Analyses of Ions in solution (CSCC; Flinn) 2 days Week 10 and 11
11. Determination of a Chemical Formula (TG) 1 day Week Week 12
12. Chemical Bonding (CSCC and Flinn Chemtopic) 1 day Week 13
13. Bonding and Intramolecular Forces (TG) 1 day Week 14
14. Chemical Reactions Suite(TG and modeling) 3 days Week 15 and 16
15. Model Nuclear Decay (pg. 873) Week 17

3rd Quarter:

16. Model of the Mole Concept (TG)1 day Week 19 no lab writeup
17. Water of Hydration (CSCC)1 day Week 20
18. Stoichiometry of Al and CuCl2 (TG)1 day Week 21
19. Stoichiometry of Baking Soda (TG)1 day Week 22
20. Intermolecular Forces (TG)1 day Week 23
21. Graphical Analysis of Boyles and Charles Law (Modeling and Vernier) 2 days Week 24
22. Molar Calculation Using Ideal gas Law (TG) 1 day Week 24
23. Determining the “R” in PV=nRT (TG) 1 day Week 25
24. Energy of Food (TG) 1 day Week 26
25. Specific Heat of Metals (TG)1 day Week 26
26. Icy Hot (molar enthalpy; modeling)1 day Week 27

4th Quarter:

27. Solution and Solubility (CSCC)1 day Week 28
28. Buffers (CSCC)2 days Week 29
29. Determination of Formula Weight of an Acid by titration (CSCC and TG) 3 days Week 30
30. Chemical Kinetics of Alka Seltzer (TG)1 day Week 31
31. Reaction Rates (CSCC)1 day Week 31
32. Le Chateliers Principle (Flinn)1 day Week 32
33. Voltaic Cells (pg. 734) 2 days Week 33 and 34

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Learning Schedule, pacing guide, and learning objectives

Quarter 1

Chapter	Topic (Textbook Section)	Dates	# Days
1.2-1.3, 2.1-2.4, 6.1	**Unit 1 - Introduction to Chemistry and Measurement**	8-13 To 8-28	12
3.1-3.4, 14.1	**Unit 2 - Properties and Changes of Matter**	8-29 To 9-16	11
4.1-4.4, 5.1-5.2	**Unit 3 - Structure and Theory of the Atom**	9-17 To 10-2	12
5.3, 6.2-6.3	**Unit 4 - Periodic Trends**	10-3 To 10-17	11

Quarter 2

7	**Unit 5 - Ionic Compounds and Bonding**	10-20 To 10-31	10
8	**Unit 6 - Covalent Compounds and Bonding**	11-5 To 11-25	15
9.1-9.3, 24.1-24.3	**Unit 7 - Chemical and Nuclear Reactions**	12-1 To 12-12	10
	Semester 1 Exam Review and Exam	12-15 To 12-18	6

Quarter 3

Chapter	Topic (Textbook Section)	Dates	# Days
10	**Unit 8 - The Mole**	1-5 To 1-16	10
11	**Unit 9 - Stoichiometry**	1-20 To 2-2	10
12.1-12.3, 13.1-13.3	**Unit 10 - States of Matter**	2-3 To 2-23	13
12.4, 14.4, 15.1-15.5,	**Unit 11 - Energy and Changes**	2-24 To 3-13	14

Quarter 4

14.2-14.3, 18.1-18.4	**Unit 12 - Solutions, Acids, and Bases**	3-23 To 4-7	12
16.1-16.4, 17.1-17.3	**Unit 13 – Rates and Equilibrium**	4-8 To 4-28	14
19.1-19.2, 20.1	**Unit 14 – Redox and Electrochemistry**	4-29 To 5-13	11
23.1-23.4	**Large Macromolecules, Lab Cleanup, and Review for Final**	5-14 To 5-20	5

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Unit ACT Learning Objectives:

All Units	
Scientific Inquiry I.A.1	a. Identify and clarify research questions and design experiments b. Design experiments so that variables are controlled and appropriate numbers of trials are used c. Collect, organize, and analyze data accurately and use techniques and equipment appropriately d. Interpret results and draw conclusions, revising hypotheses as necessary and/or formulating additional questions or explanations e. Write and speak effectively to present and explain scientific results, using appropriate terminology and graphics f. Safely use laboratory equipment and techniques when conducting scientific investigations g. Routinely make predictions and estimations
Unit 1 - Introduction to Chemistry and Measurement	
Mathematics and Measurement in Science I.A.2	a. Distinguish between precision and accuracy with respect to experimental data b. Use appropriate SI units for length, mass, time, temperature, quantity of matter, area, volume, and density; describe the relationships among SI unit prefixes (e.g., centi-, milli-, kilo-); recognize commonly used non-SI units c. Use the correct number of significant figures in reporting measurements and the results of calculations d. Use appropriate statistical methods to represent the results of investigations e. Express numbers in scientific notation when appropriate f. Solve for unknown quantities by manipulating variables g. Use graphical, mathematical, and/or statistical models to express patterns and relationships inferred from sets of scientific data
Science in Practice I.A.3	a. Explain and apply criteria that scientists use to evaluate the validity of scientific claims and theories b. Explain why experimental replication and peer review are essential to eliminate as much error and bias as possible in scientific claims c. Explain the criteria that explanations must meet to be considered scientific (e.g., be consistent with experimental/observational evidence about nature, be open to critique and modification, use ethical reporting methods and procedures) d. Explain why all scientific knowledge is subject to change as new evidence becomes available to the scientific community e. Use a variety of appropriate sources (e.g., Internet, scientific journals) to retrieve relevant information; cite references properly f. Identify and analyze the advantages and disadvantages of widespread use of and reliance on technology g. Compare the scientific definitions of fact, law, and theory, and give examples of each in chemistry

Mass, Volume, and Density II.A.1	a. Explain why mass is used as a quantity of matter and differentiate between mass and weight b. Explain density qualitatively and solve density problems by applying an understanding of the concept of density
Periodic Table and Periodicity IV.B.2	a. Describe the historical development of the modern periodic table, including work by Mendeleev and then Moseley b. Describe and explain the organization of elements into periods and groups in the periodic table
Unit 2 - Properties and Changes of Matter	
Elements, Atomic Mass, and Nomenclature II.A.2	a. Use the IUPAC symbols of the most commonly referenced elements b. Compare the characteristics of elements, compounds, and mixtures
Phase of Matter, Phase Changes, and Physical Changes II.B.1	a. Compare the definition of matter and energy and the laws of conservation of matter and energy b. Describe how matter is classified by state of matter and by composition d. Explain the difference between chemical and physical changes and demonstrate how these changes can be used to separate mixtures and compounds into their components e. Define chemical and physical properties and compare them by providing examples
Structure of Liquids and Solids IV.A.1	a. Describe differences between solids, liquids, and gases at the atomic and molecular levels b. Describe and perform common separation techniques (e.g., filtration, distillation, chromatography)
Types of Solutions, Concentration, and Solubility V.A.1	a. Define solution, solute, and solvent b. Compare properties of suspensions, colloids, and true solutions d. Give examples of solid, liquid, or gas medium solutions
Unit 3 - Structure and Theory of the Atom	
Elements, Atomic Mass, and Nomenclature II.A.2	c. Compare characteristics of isotopes of the same element
Periodic Table and Periodicity IV.B.2	c. Use the periodic table to determine the atomic number; atomic mass; mass number; and number of protons, electrons, and neutrons in isotopes of elements d. Calculate the weighted average atomic mass of an element from isotopic abundance, given the atomic mass of each contributor
Atomic Theory (Dalton), Atomic Structure, and Quantum Theory IV.B.1	a. Describe the importance of models for the study of atomic structure b. Describe the crucial contributions of scientists and the critical experiments that led to the development of the modern atomic model c. Describe characteristics of a wave, such as wavelength, frequency, energy, and speed d. Describe the role of probability in orbital theory e. Describe atomic orbitals (s, p, d, f) and their basic shapes
Unit 4 - Periodic Trends	

Atomic Theory (Dalton), Atomic Structure, and Quantum Theory IV.B.1	f. Apply Hund's rule and the Aufbau process to specify the electron configurations of the elements
Periodic Table and Periodicity IV.B.2	e. Identify regions (e.g., groups, families, series) of the periodic table and describe the chemical characteristics of each f. Compare the periodic properties of the elements (e.g., metal/nonmetal/metalloid behavior, electrical/heat conductivity, electronegativity and electron affinity, ionization energy, atomic/covalent/ionic radius) and how they relate to position in the periodic table g. Use the periodic table to predict and explain the valence electron configurations of the elements, to identify members of configuration families, and to predict the common valences of the elements
Unit 5 - Ionic Compounds and Bonding	
Empirical Formulas, Molecular Formulas, and Percentage Composition III.A.1	c. Use the names, formulas, and charges of commonly referenced polyatomic ions d. Provide the interconversion of molecular formulas, structural formulas, and names, including common binary and ternary acids
Intermolecular Forces and Types of Bonds IV.B.3	a. Describe the characteristics of ionic and covalent bonding b. Explain ionic stability, recognize typical ionic configurations, and predict ionic configurations for elements (e.g., electron configurations, Lewis dot models) c. Describe the nature of the chemical bond with respect to valence electrons in bonding atoms d. Explain how ionic and covalent compounds differ e. Describe the unique features of bonding in carbon compounds
Orbital Theory Applied to Bonding IV.B.4	a. Use Lewis dot diagrams to represent bonding in ionic and covalent compounds
Unit 6 - Covalent Compounds and Bonding	
Intermolecular Forces and Types of Bonds IV.B.3	a. Describe the characteristics of ionic and covalent bonding c. Describe the nature of the chemical bond with respect to valence electrons in bonding atoms d. Explain how ionic and covalent compounds differ e. Describe the unique features of bonding in carbon compounds g. Explain and provide examples for dipole moments, bond polarity, and hydrogen bonding
Orbital Theory Applied to Bonding IV.B.4	a. Use Lewis dot diagrams to represent bonding in ionic and covalent compounds b. Draw Lewis structures for molecules and polyatomic ions, including those that must be represented by a set of resonance structures c. Use VSEPR theory to explain geometries of molecules and polyatomic ions d. Describe how orbital hybridization models relate to molecular geometry e. Describe the molecular orbital models for double bonds, triple bonds, and delocalized pi electrons f. Describe the relationship between molecular polarity and bond polarity
Unit 7 - Chemical and Nuclear Reactions	

Chemical Equations and Stoichiometry III.A.3	a. Explain how conservation laws form the basis for balancing chemical reactions and know what quantities are conserved in physical, chemical, and nuclear changes b. Write and balance chemical equations, given the names of reactants and products c. Describe what is represented, on a molecular and molar level, by chemical equations d. Use the appropriate symbols for state (i.e., solid, liquid, gaseous, aqueous) and reaction direction when writing chemical equations e. Classify chemical reactions as being synthesis, decomposition, single replacement, or double replacement reactions f. Predict the products of synthesis, combustion, and decomposition reactions and write balanced equations for these reactions g. Predict products of single replacement reactions, using the activity series, and write balanced equations for these reactions h. Predict the products of double replacement reactions, using solubility charts to identify precipitates, and write balanced equations for these reactions m. Write ionic equations, identifying spectator ions and the net ionic equation
Nuclear Chemistry V.E.	a. Describe alpha, beta, and gamma decay, half-life, and fission and fusion b. Write appropriate equations for nuclear decay reactions, using particle balance; describe how the nucleus changes during these reactions and compare the resulting radiation with regard to penetrating ability
Unit 8 - The Mole	
Mole Concept, Molar Mass, Gram Formula Mass, and Molecular Mass III.A.2	a. Explain the meaning of mole and Avogadro's number b. Interconvert between mass, moles, and number of particles c. Distinguish between formula mass, empirical mass, molecular mass, gram molecular mass, and gram formula mass
Empirical Formulas, Molecular Formulas, and Percentage Composition III.A.1	a. Distinguish between chemical symbols, empirical formulas, molecular formulas, and structural formulas b. Interpret the information conveyed by chemical formulas for numbers of atoms of each element represented e. Calculate the percent composition of a substance, given its formula or masses of each component element in a sample f. Determine the empirical formulas and molecular formulas of compounds, given percent composition data or mass composition data g. Determine percent composition experimentally and derive empirical formulas from the data (e.g., for hydrates)
Unit 9 - Stoichiometry	
Chemical Equations and Stoichiometry III.A.3	i. Use chemical equations to perform basic mole-mole, mass-mass, and mass-mole computations for chemical reactions j. Identify limiting reagents and use this information when solving reaction stoichiometry problems

	k. Compute theoretical yield, actual (experimental) yield, and percent yield l. Calculate percent error and analyze experimental errors that affect percent error
Unit 10 - States of Matter	
The Nature of Gases II.B.2	a. Define gas pressure and the various pressure units (e.g., torr, kilopascals, mm Hg, atmospheres) b. Describe the use and operation of mercury barometers and manometers to find atmospheric pressure or relative gas pressures c. Define the gas laws given by Boyle, Charles, Gay-Lussac, and Dalton and solve problems based on these laws d. Predict boiling point changes based on changes in atmospheric pressure e. Explain the basis for gaseous diffusion and effusion f. Describe Avogadro's hypothesis and use it to solve stoichiometric problems
Ideal Gas Law II.B.3	a. Explain the difference between an ideal and real gas, the assumptions made about an ideal gas, and what conditions favor ideal behavior for a real gas b. Apply the mathematical relationships that exist among the volume, temperature, pressure, and number of particles in an ideal gas c. Compute gas density when given molar mass, temperature, and pressure d. Apply the ideal gas law to determine the molar mass of a volatile compound e. Solve gas stoichiometry problems at standard and nonstandard conditions
Kinetic Molecular Theory of Gases IV.A.2	a. Use the kinetic molecular theory to explain the states and properties (i.e., microscopic and macroscopic) of matter and phase changes b. Explain the basis and importance of the absolute temperature scale and convert between the Kelvin and Celsius scales c. Use the kinetic-molecular theory as a basis for explaining gas pressure, Avogadro's hypothesis, and Boyle's/Charles's laws
Intermolecular Forces and Types of Bonds IV.B.3	f. Compare the different types of intermolecular forces (e.g., van der Waals, dispersion) h. Describe the unique physical and chemical properties of water resulting from hydrogen bonding i. Explain the relationship between evaporation, vapor pressure, molecular kinetic energy, and boiling point for a single pure substance j. Explain the relationship between intermolecular forces, boiling points, and vapor pressure when comparing differences in the properties of pure substances k. Classify solids as ionic, molecular, metallic, or network
Unit 11 - Energy and Changes	
Phases of Matter, Phase Changes, and Physical Changes II.B.1	c. Describe the phase and energy changes associated with boiling/condensing, melting/freezing, sublimation, and crystallization (deposition)
Chemical Processes and Heat; Calorimetry V.B.3	a. Explain the law of conservation of energy in chemical reactions b. Describe the concept of heat, and explain the difference between heat energy and temperature

	c. Explain physical and chemical changes as endothermic or exothermic energy changes d. Solve heat capacity and heat transfer problems involving specific heat, heat of fusion, and heat of vaporization e. Calculate the heat of reaction for a given chemical reaction when given calorimetric data
Enthalpy and Entropy V.B.4	a. Define enthalpy and explain how changes in enthalpy determine whether a reaction is endothermic or exothermic b. Compute ΔHrxn from ΔHf° values and explain why the ΔHf° values for elements are zero c. Explain and apply, mathematically, the relationship between ΔHrxn° (forward) and ΔHrxn° (reverse) d. Define entropy and explain the role of entropy in chemical and physical changes, and explain the changes that favor increases in entropy
Unit 12 - Solutions, Acids, and Bases	
Types of Solution, Concentration, and Solubility V.A.1	c. Define the terms saturated, unsaturated, supersaturated, dilute, and concentrated as they pertain to solutions e. Define and calculate the molarity of a solution f. Define and calculate the percent composition of a solution g. Describe the preparation and properties of solutions h. Solve stoichiometry calculations based on reactions involving aqueous solutions i. Describe the relationship between temperature or pressure and the solubility of gases in liquids j. Describe the relationship between solvent character and solute character and explain miscibility k. Apply the general rules of solubility to aqueous salt solutions l. Describe the factors affecting the solubility of a solute in a given solvent and its rate of solution
Colligative Properties V.A.2	a. Describe qualitatively the effect of adding solute on freezing point, boiling point, and vapor pressure of a solvent b. Define molality and mole fraction c. Calculate changes in the boiling point and freezing point when nonvolatile, nonelectrolyte solutes are added to solvents
Acid/Base Theories V.C.1	a. Describe the nature and interactions of acids and bases b. Describe the hydronium ion and the concept of amphoterism c. Describe Arrhenius and Brønsted-Lowry acids and bases; identify conjugate acids and bases in reactions d. Relate solvent interaction to the formation of acidic and basic solutions e. Define the water constant, Kw, and the pH scale f. Describe characteristics of strong and weak acids and bases, and identify common examples of both
Acid/Base Constants and pH; Titration; Buffers V.C.2	a. Write and balance a simple equation for a neutralization reaction b. Calculate hydrogen ion concentration, hydroxide ion concentration, pH, and pOH for acidic or basic solutions c. Explain how the acid-base indicators work d. Define percent ionization, Ka, and Kb and explain how they relate to acid/base strength e. Conduct a titration experiment in order to determine the concentration of an acid

	or base solution f. Qualitatively understand the behavior of a buffer and explain why buffer solutions maintain pH upon dilution
Unit 13 – Rates and Equilibrium	
Chemical Equilibrium and Factors Affecting Reaction Rates; Le Chatelier's Principle V.B.1	a. Explain the collision theory of reactions b. Analyze factors (e.g., temperature, nature of reactants) affecting reaction rates in relation to the kinetic theory c. Relate reaction mechanism, rate-determining step, activated complex, heat of reaction, and activation energy to reaction kinetics d. Interpret potential energy diagrams for chemical reactions e. Describe the conditions that define equilibrium systems on a dynamic molecular level and on a static macroscopic scale f. Apply Le Châtelier's principle to explain a variety of changes in physical and chemical equilibria g. Define Ksp and manipulate Ksp to predict solubility h. Explain the law of concentration (mass) action and write equilibrium law expressions for chemical equilibria i. Determine solubility product constants from solubilities (and vice versa) for a given solubility equilibrium system
Mechanism, Rate-Determining Step, Activation Energy, and Catalysts V.B.2	a. Relate the rate of a chemical reaction to the appearance of products and the disappearance of reactants b. Describe the meaning of reaction mechanism and rate-determining step c. Relate collision theory to the factors that affect the rate of reaction d. Describe the meaning of activation energy and activated complex e. Interpret and label a plot of energy versus reaction coordinate f. Explain the effects of catalysts on reaction rates (e.g., mechanism, activation energy/activated complex)

Unit 14 – Redox and Electrochemistry	
Redox Reactions and Electrochemistry V.D.	a. Define REDOX reaction, oxidation, reduction, oxidizing agent, and reducing agent b. Assign oxidation numbers (states) to reaction species; identify the species oxidized and reduced, and the oxidizing agent and reducing agent, in a REDOX reaction c. Balance REDOX equations by the ion-electron and half-reaction methods d. Diagram and explain the operation of a voltaic cell e. Determine the net voltage obtained when standard half-cells are paired to form a voltaic cell, and use this voltage to predict reaction spontaneity.

Please remember that this is an accelerated college prep course. I will present you with much information and various resources to obtain information. It is important that you learn to be responsible for your own learning. Studying, preparing, practicing skills, using the resources, and sharpening your thinking are all your responsibility. Plan to spend an hour <u>each</u> day to study what we've done, read the assigned material, review objectives, work problems, etc. This way you will keep up with the class and not have to cram before tests. This also assures that you will be able to ask questions about the topics you are troubled by .If you need additional help outside of class then it is your responsibility to come see me. I LOVE talking about this stuff and you will make my day! The most exciting moments for me are when you stump me with a question. We both get to learn and discover the answer. Don't wait until the last minute. Your brain will thank you.