

Mr. Callender's AP CHEMISTRY Class Expectations 2014-2015

Warren Mott High School
Room 229



WCS Course Description: AP CHEMISTRY (BOARD APPROVED) COURSE ID: HS3181 / HS3182

AP Chemistry covers topics and information normally contained in a first-year college general chemistry course.

This course is intended to prepare the student for success on the AP Chemistry Exam. Emphasis will be given to areas not covered in Chemistry 1, including, but not limited to Kinetic- Molecular Theory of Matter, Solutions/Acid-Base Reactions, Thermochemistry, Oxidation/Reduction Reactions, Organic Reactions, and Nuclear Chemistry. This course is supported by many extensive labs, some of which may require students to spend time outside the traditional school day to complete.

Recommendation: Satisfactory completion of Honors Chemistry and/or Chemistry 1. An honor point may be earned in this course.

Course Description: This course is structured around the six big ideas articulated in the AP Chemistry curriculum framework provided by the College Board [CR2]. The AP Chemistry course is designed to be the equivalent of the general chemistry course usually taken during the first college year. Homework should be completed every day. Homework includes not only doing problems, but also assigned reading and studying. Exams will attempt to follow a similar format to the AP Exam questions. Students need to be aware that additional class time will be needed outside of the scheduled school day to complete lab assignments and or lectures. All students who want to be successful in AP Chemistry must be prepared to work harder in this course than they have ever worked before. Welcome to VARSITY CHEMISTRY and Good-Luck.

Big Idea 1	Structure of matter
Big Idea 2	Properties of matter, characteristics, states and forces of attraction
Big Idea 3	Chemical reactions
Big Idea 4	Rates of chemical reactions
Big Idea 5	Thermodynamics
Big Idea 6	Equilibrium

This course offers the opportunity for students to further their study of chemistry. Additionally, students may elect to take the AP Chemistry Exam in May. Topics studied include thermochemistry, structure of matter, intermolecular forces, solutions, kinetics, chemical equilibrium, acid-base chemistry, electrochemistry, chemical reactions, and qualitative analysis [CR3a-f]. Hands on lab work will account of a minimum of 25% of class time minimum of 6 laboratory experiences will be conducted in an inquiry fashion.

Warren Mott High School Mission Statement:	We Believe:	We Value:
At Warren Mott High School we are a teaching and learning community devoted to: <ul style="list-style-type: none">• Providing the tools to acquire knowledge,• Mastering Skills for success in a changing world,• Encouraging an appreciation for learning for a lifetime.	<ul style="list-style-type: none">• We are all teachers & learners.• Everyone is accountable.• A nurturing setting is essential for learning.• Learning is exciting.• Self-discipline leads to success.• Everyone is needed & important.	<ul style="list-style-type: none">• Respect for self & others.• Diversity & unity.• New ideas & strategies.• A safe environment.• Active & productive citizens.• Honesty & Integrity.• Pride in who we are and what we do.

Primary Textbooks & Supplemental Resources: [CR1]

Text: Chemistry 5th ed. Steven S. & Susan A. Zumdahl (Study Guide to Accompany provided)

Lab: Experimental Chemistry 4th ed. James F. Hall

Other Sources:

- Laboratory Experiments for Advanced Placement Chemistry 2nd Edition. By Sally Ann Vonderbrink, Ph.D.
- Chang, Raymond, and Brandon Cruickshank. Chemistry, ninth edition. New York: McGraw-Hill, 2007.
- Randall, Jack, Advanced Chemistry with Vernier. Oregon: Vernier Software and Technology, 2004. (ACV)
- Holmquist, D. et.al, Chemistry with Vernier. Oregon: Vernier Software and Technology, 2008. (CV) (IV)
- The College Board, AP Chemistry Guided-Inquiry Experiments: Applying the Science Practices. New York: The College Board, 2013. (APGI)
- Hauge, G., Smith, J. The Ultimate Chemical Equations Handbook. Illinois: Flinn Scientific Inc, 2001.

THE AP EXAM: The exam is 3 hours long and includes both a 90 minute multiple-choice section and a 90 minute free-response section. The multiple-choice section accounts for half of your exam grade, and the free-response section accounts for the other half.

▪ **Section I: Multiple Choice** — 90 minutes

Section I consists of 60 multiple-choice questions, either as discrete questions or question sets, that represent the knowledge and science practices outlined in the AP Chemistry course and exam description, which you should understand and be able to apply. Question sets are a new type of question: They provide a stimulus or a set of data and a series of related questions. Total scores on the multiple-choice section are based on the number of questions answered correctly. Points are not deducted for incorrect answers and no points are awarded for unanswered questions.

▪ **Section II: Free Response Questions** — 90 minutes

Long Free Response — 3 Questions

Short Free Response — 4 Questions

Section II contains two types of free-response questions (short and long), and you will have a total of 90 minutes to complete all of the questions. Section II of the exam will contain questions pertaining to experimental design, analysis of authentic lab data and observations to identify patterns or explain phenomena, creating or analyzing atomic and molecular views to explain observations, articulating and then translating between representations, and following a logical/analytical pathway to solve a problem.

- You will be allowed to use a scientific calculator on the entire free-response section of the exam. Additionally, you will be supplied with a periodic table of the elements and a formula and constants chart to use on both the multiple-choice and free-response sections of the exam.

Students who are considering taking the AP Chemistry Exam in the spring should acquire a review guide (The Princeton Review 2014 Cracking the AP Chemistry Exam, ISBN-13: 9780307946201) available at bookstores or internet vendors. Remember that this is an AP class. **You will be expected to prepare for the AP test regardless if you plan on taking it or not. Failure to do so will affect your grade in this course.**

Required Materials/Supplies:	<ul style="list-style-type: none"> • Scientific Calculator (TI-83 or higher recommended) (Check out the AP Central for Calculator criteria.) • Lab Notebook \$10, available from Mr. C • Notebook/Binder Recommended • AP Chemistry Review Guides (Highly Recommended) 	
Recommended Online Sites:	<ul style="list-style-type: none"> • http://apcentral.collegeboard.com/ • www.webelements.com • www.chemistry.org 	<ul style="list-style-type: none"> • www.bb91.misd.net • www.callenderchemistry.weebly.com • www.wcskids.net
Computer with Internet:	<p>Some components of this course may require the use of a computer with internet access for research, online assessments and homework.</p> <p>If computers are not available at home students may use the computers in the school library on Wednesdays at study round up, the public library, or may make arrangements with the teacher for other options.</p>	

Attendance and Chemistry

<ul style="list-style-type: none"> <input type="checkbox"/> Students must be in class to learn chemistry. Missing out on lectures, labs, homework, review and other educational opportunities will adversely affect a student's grade in chemistry. <input type="checkbox"/> Students are expected to be in their seat ready to begin class when the bell rings, not in the hallway or doorway. Arriving tardy is a severe disruption to the educational process. Each additional Tardy beyond 4 will be issued a detention <input type="checkbox"/> You are responsible for all materials presented in class, whether you are present or not. In the event of an absence, it is YOUR responsibility to find out what you missed. Daily assignments and resources are posted on my web page or Blackboard. 	<p>If absent it is the students responsibility to make up missed assignments in a timely manner.</p> <ul style="list-style-type: none"> <input type="checkbox"/> One make-up day for each day of absence. <input type="checkbox"/> Write absent on your paper and the date of absence <input type="checkbox"/> If a student is absent the day of a test they will be expected to make up the test within a timely manner or an F will be given. (If tests have been passed back to class, student may not make up the test.) <input type="checkbox"/> Unverified absences on test or lab days will result in an F being issued. (With no make-up allowed)
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Warren Consolidated Schools District Grading Scale

The following grading policy has been developed based on newly adopted Warren Consolidated Schools Grading Policy changes.

Semester Grades

40 % of Quarter 1 + 40% of Quarter 2 + 20 % of Final Exam = Final Semester Course Grade

98-100% = A+	87-89% = B+	77-79% = C+	67-69% = D+	No credit earned: 50-59% = E 0- 49% = F
93-97% = A	83-86% = B	73-76% = C	63-66% = D	
90-92% = A-	80-82% = B-	70-72% = C-	60-62% = D-	

Rules and Procedures

While in class and school students are expected to behave in an appropriate manner. Failure to obey these rules will result in calls home to parents, detentions, and possible removal from class.

<ol style="list-style-type: none"> 1. ALL SCHOOL RULES APPLY (WCS Student Code of Conduct) 2. IDs must be visible at all times (Except during labs) 3. Come to class prepared (Book, pen and pencil, paper, homework, notebook, calculator, etc.) 4. Students are expected to behave appropriately/respectfully so as not to interfere with the educational rights of all students. 5. Assignments will be due at the beginning of the class period unless told otherwise. Late assignments are not acceptable but often taken for a late penalty. 6. Passes will not be given unless there is an absolute necessity. NO ID = NO PASS 	<ol style="list-style-type: none"> 7. ABSOLUTELY NO: <ul style="list-style-type: none"> ✓ Food, beverages, candy/gum (OSHA) ✓ Electronic Communication Devices ✓ Hats, coats, backpacks ✓ Open toed shoes in the lab (OSHA) ✓ Other distractions from learning. 8. When the bell rings class is not dismissed until the teacher dismisses the class. 9. All Students must take and pass a safety test prior to working in the lab, as well as, sign a safety contract. <i>Additionally, students may be responsible for incurring some cost for lab breakage.</i> 10. Violation may result in: <ul style="list-style-type: none"> ✓ Calls home ✓ Detentions ✓ Referrals ✓ Suspensions
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Quarter Grade Calculations

Quarterly Grades will be calculated using the following weighted categories.

<p>65%</p> <p>Tests & Quizzes</p>	<p>Tests and Quizzes are the primary method for determining the level of mastery within the chemistry course. This category is considered a type of summative assessment and is the most heavily weighted category in the students overall grade determination. Students must earn a passing average on tests in order to guarantee a passing grade in the chemistry course. Stay current with the material being covered. Do not wait until the last minute to study. (Students must earn at least a passing average on tests in order to pass the quarter.)</p> <ul style="list-style-type: none"> • Test corrections are offered on all tests. This is an opportunity to correct wrong answers to test problems only. Students may not earn enough points as to achieve full credit for a problem and may not earn more than 10% additional score on their test. • Approximately 3-4 tests per card-marking
<p>25 %</p> <p>Labs</p>	<p>[CR5]Students are engaged in hands-on laboratory work, integrated throughout the course, which accounts for 25 percent of the course.</p> <p>Lab Written labs are to be completed in a laboratory notebook using carbon copies as is in many college chemistry labs and a typed formal lab write up must be included with the carbon copy torn from the lab notebook. [CR7] Students usually work in pairs to complete lab work. Write-ups are turned in individually. All labs must include Experiment Number, Title, Date, Name and Partner. They should also include a purpose, list of materials, summarized procedure, answers to any pre-lab questions, data/results, calculations, answers to post lab questions and a detailed conclusion.</p> <p>Laboratory assignments are a type of formative assessment that offers students the opportunity to apply and also form their own learning experiences. Attendance and participation is critical to success in the lab. Students must think critically and write detailed explanations for their observations. Putting extra effort into laboratory work can be a good way to boost your grade; however failure to turn in labs will harm your grade significantly.</p> <ul style="list-style-type: none"> • Make every attempt to be in class on lab days. If absent a student is responsible for the laboratory report/write-up. • Students should arrange to make-up missed labs before or after school. • Typically 4-5 labs per card-marking (at least 16 labs per year)
<p>10%</p> <p>Homework</p>	<p>Homework and practice tasks are designed to help students master new concepts in chemistry. These assignments are generally graded based on completeness, effort, neatness, and attention to detail. Grades on homework tasks do not necessarily reflect mastery of the concepts.</p> <ul style="list-style-type: none"> • Failure to turn in assignments will do great harm to your grade; homework is a method of practicing and using new information to prepare for a test. Not doing homework leads to poor test scores. • Approximately 10-15 assignments per card-marking; generally worth 10 points each. Homework should be used as a learning tool.

	<ul style="list-style-type: none"> • Homework graded based on completeness, use of complete sentences, work shown, and following directions • Tasks less than half complete or earning less than 50% will be considered missing and will be labeled as missing in Power School (aka Parent Portal)
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Course Outline	
Monday, Tuesday: Lecture and Homework Problems Wednesday: Pre-Lab and Lecture	
Thursday: Lab (90 minute period- Labs extend beyond normal school hours) Friday: Quizzes, finish lab, review lecture material	

Quarter 1	
<p><i>Unit 1: Safety and Equipment Calculations Measurements and Uncertainty</i> 2.0 weeks</p> <p>LAB: EXP 2 Uncertainty and Volumetric Glassware [SP 2.1, 5.2]</p> <p>LAB: EXP 21 Chemical Reactions [SP 4.2, 5.1]</p>	<p>SI Units, Dimensional Analysis, Classification of matter Dimensional analysis, uncertainty, significant figures. Including Review of Chemistry 1</p> <ul style="list-style-type: none"> • Chapter 1: Chemical Foundations (Review) <p>Safety, Equipment, The AP Chemistry Course Overview, Expectations, and much more.</p>
<p><i>Unit 2: Atoms, Molecules, and Ions</i> 2.0 weeks</p> <p>LAB: EXP 9 Chromatography [SP 2.1, 4.1]</p> <p>Guided Inquiry Investigation 1 Spectroscopy: What Is the Relationship Between the Concentration of a Solution and the Amount of Transmitted Light Through the Solution? [SP 4.1, 6.4]</p>	<p>Atomic Theory, Atomic Structure, Overview of the periodic table Review of formula writing, oxidation states, nomenclature, etc. History of the atom, and naming</p> <ul style="list-style-type: none"> • Chapter 2: Atoms, Molecules, and Ions (Review) <p>[BI 1 & 2] [CR3a] Learning objective 1.17 The student is able to express the law of conservation of mass quantitatively and qualitatively using symbolic representations and particulate drawings. [See SP 1.5; Essential knowledge 1.E.1]</p> <ul style="list-style-type: none"> • Students will work with magnetic marbles to examine the law of conservation of mass. Based on this work students will create sketches and/or presentations of their work and report their findings.
<p><i>Unit 3: Stoichiometry</i> 3.0 weeks</p> <p>Guided Inquiry Investigation 2 Spectrophotometry: How Can Color Be Used to Determine the Mass Percent of Copper in Brass? [SP 4.2, 5.1]</p> <p>Guided Inquiry Investigation 3 Gravimetric Analysis: What Makes Hard Water Hard? [SP 4.2, 5.1, 6.4]</p>	<p>Atomic mass, the Mole, molar mass, percent composition, chemical equations and calculations Aqueous solutions, types of reactions, precipitate reactions, oxidations/reductions, acid base reactions, descriptive chemistry Mole, atomic weight, molecular formula, balancing equations, limiters, empirical formulas, percent composition, percent yield, and solution stoichiometry</p> <ul style="list-style-type: none"> • Chapter 3: Stoichiometry (Review) • Chapter 4: Solution Stoichiometry <p>[BI 3] [CR3c] Learning objective 3.8 The student is able to identify redox reactions and justify the identification in terms of electron transfer. [See SP 6.1; Essential knowledge 3.B.3]</p> <ul style="list-style-type: none"> • Students will be given a set of reactions in which they will identify the oxidation and reduction half reactions.
Quarter 2	
<p><i>Unit 3: Acids and Bases</i> 2.0 weeks</p> <p>LAB: Introduction to the pH Meter [SP 4.2, 4.3]</p> <p>Guided Inquiry Investigation 4 Titration: How Much Acid Is in Fruit Juices and Soft Drinks? [SP 4.2, 5.1, 6.4]</p> <p>Guided Inquiry Investigation 14 Acid-Base Titration: How Do the Structure and the Initial</p>	<p>Strong/weak acids and bases, calculations of acids and bases, acid base properties titrations pH, Ka and Kb expressions, titration, degree of ionization, Kw expressions, indicators, equivalence points, Arrhenius, Brønsted-Lowry and Lewis acid theories, and salt hydrolysis</p> <ul style="list-style-type: none"> • Chapter 14 Acids and Bases <p>[BI 6]</p>

<p>Concentration of an Acid and a Base Influence the pH of the Resultant Solution During a Titration? [SP 5.1, 6.4]</p>	
<p><i>Unit 4:</i> <i>Gases Liquids and Solids</i> 3.0 weeks</p> <p>LAB: Preparation and Properties of Gases [SP 2.1, 2.2]</p> <p>LAB: Intermolecular Forces: Slime Lab [SP 3.3, 4.1]</p> <p>Guided Inquiry Investigation 8 Redox Titration: How Can We Determine the Actual Percentage of H₂O₂ in a Drugstore Bottle of Hydrogen Peroxide? [SP 4.2, 5.1]</p>	<p>Pressure, Ideal Gas Law, gas Stoichiometry, Kinetic molecular theory, chemistry in the atmosphere States of matter , intermolecular forces Ideal gas law, van der Waal's equation, Avogadro's Law, STP, Dalton's Law, Graham's Law, kinetic theory of gases, etc. Dipole–dipole interactions, hydrogen bonding, London forces, liquid state, types of solids, metallic bonding, network solids, vapor pressure, change of state, phase diagrams, and specific heat.</p> <ul style="list-style-type: none"> • Chapter 5 Gases (Review) • Chapter 10 Liquids and Solids <p>[BI 1 &2]</p>
<p><i>Unit 5:</i> <i>Chemical Thermodynamics/ Thermochemistry</i> 3.5 weeks</p> <p>Lab: Calorimetry and Hess's Law [SP 2.1, 2.3]</p> <p>Guided Inquiry Investigation 12 Calorimetry: The Hand Warmer Design Challenge: Where Does the Heat Come From? [SP 4.2, 5.1, 6.4]</p>	<p>Nature of energy, enthalpy, Calorimetry, Hess's Law, new energy Sources, thermodynamics Thermodynamics, G, H, S Gibbs free energy equation; laws of thermodynamics; enthalpy; entropy; free energy; energy and work; exothermic and endothermic reactions; and state functions Enthalpy, thermochemical equations, heats of formation, bond energies, heats of reactions, etc. solution stoichiometry.</p> <ul style="list-style-type: none"> • Chapter 6: Thermochemistry • Chapter 16: Spontaneity, Entropy, and Free Energy <p>[BI 5]</p> <p>[CR3e] Learning objective 5.13 The student is able to predict whether or not a physical or chemical process is thermodynamically favored by determination of (either quantitatively or qualitatively) the signs of both ΔH° and ΔS°, and calculation or estimation of ΔG° when needed. [See SP 2.2, 2.3, 6.4; Essential knowledge 5.E.2, connects to 5.E.3]</p> <ul style="list-style-type: none"> • Students solve problems in which they qualitatively and quantitatively predict the signs and magnitude of ΔH°, ΔS°, and ΔG° from a set of thermochemical data. <p>[CR4] Essential knowledge 3.C.2.d: It is important to be able to use an understanding of energy changes in chemical reactions to identify the role of endothermic and exothermic reactions in real-world processes. Students will examine a variety of real-world/everyday examples of chemical reactions. Students will provide rationale describing why they believe these reactions to be either endothermic or exothermic processes. Students will then examine the products and energy involved in a variety of chemical reactions and examine alternative energy in relationship to chemical reactions. This will give students the opportunity to connect their knowledge of chemistry and science to major societal or technological developments.</p>
<p>Semester 1 Exams January 14th – 16th</p>	
<p>Quarter 3</p>	
<p><i>Unit 6:</i> <i>Atomic Structure and Chemical Bonding</i> 3.0 weeks</p> <p>Guided Inquiry Investigation 6 Bonding in Solids: What's in That Bottle? [SP 4.2, 6.4]</p> <p>Guided Inquiry Investigation 7 Stoichiometry: Using the Principle</p>	<p>Periodic trends, nature of matter, quantum mechanics, history of the periodic table, properties of a group, hydrogen emission spectra Types of bonds, polarity, bond energy, Lewis structures, resonance structures, VSEPR Hybridization, localized electron model</p> <p>Atomic spectra, Bohr atom, quantum numbers, atomic orbitals, electron configurations, periodic table, trends in the periodic table in terms of Lewis structures, ionic bonding, character of bonds, covalent model, octet rule and exceptions, resonance, VSEPR model, and hybridization</p> <ul style="list-style-type: none"> • Chapter 7: Atomic Structure and Periodicity • Chapter 8: Bonding: General Concepts

<p>That Each Substance Has Unique Properties to Purify a Mixture: An Experiment Applying Green Chemistry to Purification [SP 2.1, 4.2, 6.4]</p>	<ul style="list-style-type: none"> Chapter 9: Covalent Bonding: Orbitals <p>[BI 1 &2] [CR3b] Learning objective 2.21 The student is able to use Lewis diagrams and VSEPR to predict the geometry of molecules, identify hybridization, and make predictions about polarity. [See SP 1.4; Essential knowledge 2.C.4]</p> <ul style="list-style-type: none"> Students will use molecular model kits and/or Styrofoam balls to develop molecules, examine bond angles, symmetry, and polarity. The will then develop a report or digital presentation to demonstrate their findings
<p>Unit 7: <i>Properties of Solutions</i> 1.5 weeks</p>	<p>Boiling point elevation, freezing point depression, colligative properties Electrolytes and nonelectrolytes, molarity, molality, mole fraction, colligative properties, Raoult's Law, Henry's law, freezing point depression, boiling point elevation, and osmotic pressure.</p> <ul style="list-style-type: none"> Chapter 11: Properties of Solutions <p>[BI 2]</p>
<p>Unit 8: <i>Chemical Kinetics</i> 1.5 weeks</p> <p>Guided Inquiry Investigation 11 Kinetics: What Is the Rate Law of the Fading of Crystal Violet Using Beer's Law? [SP 5.1, 6.4]</p>	<p>Reaction rates, Rate Laws Reaction kinetics, rate law expressions, order of reactions, rate constant, half-life, activation energy, catalysts, and reaction mechanism</p> <ul style="list-style-type: none"> Chapter 12: Chemical Kinetics <p>[BI 4] [CR3d] Learning objective 4.2 The student is able to analyze concentration vs. time data to determine the rate law for a zero-, first-, or second-order reaction. [See SP 5.1, 6.4; Essential knowledge 4.A.2, connects to 4.A.3]</p> <ul style="list-style-type: none"> Students will examine and present orally the solution to a problem given a set of data of concentration against time to the class, indicating the order of the reaction and the rate constant with appropriate units.
<p>Unit 9: <i>Chemical Equilibria</i> 2.0 weeks</p> <p>Guided Inquiry Investigation 13 Equilibrium: Can We Make the Colors of the Rainbow? An Application of Le Châtelier's Principle [SP 4.2]</p>	<p>Equilibrium constant/expressions, Le Chatelier's Principle Laws of mass action, equilibrium expressions, calculations of K and equilibrium concentrations, Le Chatelier's principle, and how equilibrium is shifted by temperature, concentration, etc</p> <ul style="list-style-type: none"> Chapter 13: Chemical Equilibrium <p>[BI 4] [CR3f] Learning objective 6.4 The student can, given a set of initial conditions (concentrations or partial pressures) and the equilibrium constant, K, use the tendency of Q to approach K to predict and justify the prediction as to whether the reaction will proceed toward products or reactants as equilibrium is approached. [See SP 2.2, 6.4; Essential knowledge 6.A.3]</p> <ul style="list-style-type: none"> Students will be divided into small groups to examine data to compare K and Q. Students will predict and justify for the class what would be expected to occur with regards to the equilibrium shift.
<p>Quarter 4</p>	
<p>Unit 10: <i>Electrochemistry</i> 2.0 weeks</p> <p>LAB: Electrochemical Cells [SP 3.1, 7.2]</p>	<p>Galvanic Cells, reduction potentials, cell potential, types of reactions Oxidation and reduction half-cells and equations electrochemical (voltaic) cells, standard voltages, standard voltages from a table, Nernst equation, Faraday's laws, writing redox equations, and balancing, equations in acid/base solutions.</p> <ul style="list-style-type: none"> Chapter 17: Electrochemistry <p>[BI 3]</p>
<p>Unit 11: <i>Organic Chemistry</i> 1.5 week</p> <p>LAB: Demo Day Lab Research and Presentation [SP 1.1]</p>	<p>Nomenclature, basic reactions and classifications</p> <ul style="list-style-type: none"> Chapter 22: Organic Chemistry <p>[BI 2]</p>
<p>Beginning in the Fourth Quarter → Review Sessions Leading up to the AP Exam will be held before school on Tuesdays and Thursdays</p>	
<p><u>Additional AP Labs as time permits:</u> Inquiry Investigation 5 Chromatography: Sticky Question: How Do You Separate Molecules That Are Attracted to One Another? [SP 4.2, 5.1 6.4] Inquiry Investigation 9 Physical and Chemical Changes: Can the Individual Components of Quick Ache Relief Be Used to Resolve Consumer Complaints? [SP 1.4, 6.1] Inquiry Investigation 10 Kinetics: How Long Will That Marble Statue Last? [SP 4.2, 5.1]</p>	

Inquiry Investigation 15 Buffering Activity: To What Extent Do Common Household Products Have Buffering Activity? [SP 6.4]

Inquiry Investigation 16 Buffer Design: The Preparation and Testing of an Effective Buffer: How Do Components Influence a Buffer's pH and Capacity? [SP 2.3, 4.2, 6.4]

AP Chemistry Board Exam May 4th 2015

Demonstration Projects

Demo Day End of May or Beginning of June

Senior Exams May 29, June 1, & 2nd 2015 all others → Final Exams June 9, 10, & 11th 2015

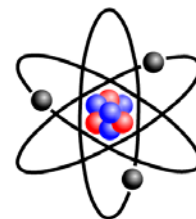
**** Alternative Final ** aka, the easy one!**

(Students Must meet ALL of the following to qualify for the alternative final)

- Must attend and actively participate in at least 7 of 10 review sessions, and be on time.
- Must earn at least 50 of 75 on the Final Multiple Choice Practice Exam
- Must have no missing assignments and or labs prior to the AP Exam
- Must have an overall average on all class tests greater than 75%
- Must take the College Board AP Chemistry Exam on May 4th 2015



Warren Mott High School Chemistry Department *Student Safety Contract*



PURPOSE

Science is a hands-on laboratory class. You will be doing many laboratory activities which require the use of hazardous chemicals. Safety in the science classroom is the #1 priority for students, teachers, and parents. To ensure a safe science classroom, a list of rules has been developed and provided to you in this student safety contract. These rules must be followed at all times. Two copies of the contract are provided. One copy must be signed by both you and a parent or guardian before you can participate in the laboratory. The second copy is to be kept in your science notebook as a constant reminder of the safety rules.

GENERAL RULES

1. Conduct yourself in a responsible manner at all times in the laboratory.
2. Follow all written and verbal instructions carefully. If you do not understand a direction or part of a procedure, ask the instructor before proceeding.
3. Never work alone. No student may work in the laboratory without an instructor present.
4. When first entering a science room, do not touch any equipment, chemicals, or other materials in the laboratory area until you are instructed to do so.
5. Do not eat food, drink beverages, or chew gum in the laboratory. Do not use laboratory glassware as containers for food or beverages.
6. Perform only those experiments authorized by the instructor. Never do anything in the laboratory that is not called for in the laboratory procedures or by your instructor. Carefully follow all instructions, both written and oral. Unauthorized experiments are prohibited.
7. Be prepared for your work in the laboratory. Read all procedures thoroughly before entering the laboratory.
8. Never fool around in the laboratory. Horseplay, practical jokes, and pranks are dangerous and prohibited.
9. Observe good housekeeping practices. Work areas should be kept clean and tidy at all times. Bring only your laboratory instructions, worksheets, and/or reports to the work area. Other materials (books, purses, backpacks, etc.) should be stored in the classroom area.
10. Keep aisles clear. Push your chair under the desk when not in use.

11. Know the locations and operating procedures of all safety equipment including the first aid kit, eyewash station, safety shower, fire extinguisher, and fire blanket. Know where the fire alarm and the exits are located.
12. Always work in a well-ventilated area. Use the fume hood when working with volatile substances or poisonous vapors. Never place your head into the fume hood.
13. Be alert and proceed with caution at all times in the laboratory. Notify the instructor immediately of any unsafe conditions you observe.
14. Dispose of all chemical waste properly. Never mix chemicals in sink drains. Sinks are to be used only for water and those solutions designated by the instructor. Solid chemicals, metals, matches, filter paper, and all other insoluble materials are to be disposed of in the proper waste containers, not in the sink. Check the label of all waste containers twice before adding your chemical waste to the container.
15. Labels and equipment instructions must be read carefully before use. Set up and use the prescribed apparatus as directed in the laboratory instructions or by your instructor.
16. Keep hands away from face, eyes, mouth and body while using chemicals or preserved specimens. Wash your hands with soap and water after performing all experiments. Clean all work surfaces and apparatus at the end of the experiment. Return all equipment clean and in working order to the proper storage area.
17. Experiments must be personally monitored at all times. You will be assigned a laboratory station at which to work. Do not wander around the room, distract other students, or interfere with the laboratory experiments of others.
18. Students are never permitted in the science storage rooms or preparation areas unless given specific permission by their instructor.
19. Know what to do if there is a fire drill during a laboratory period; containers must be closed, gas valves turned off, fume hoods turned off, and any electrical equipment turned off.
20. When using knives and other sharp instruments, always carry with tips and points pointing down and away. Always cut away from your body. Never try to catch falling sharp instruments. Grasp sharp instruments only by the handles.

21. If you have a medical condition (e.g., allergies, etc.), check with your physician prior to working in lab.

ACCIDENTS AND INJURIES

22. Report any accident (spill, breakage, etc.) or injury (cut, burn, etc.) to the instructor immediately, no matter how trivial it may appear.
23. If you or your lab partner are hurt, immediately yell out "Code one, Code one" to get the instructor's attention.
24. If a chemical splashes in your eye(s) or on your skin, immediately flush with running water from the eyewash station or safety shower for at least 20 minutes. Notify the instructor immediately.
25. When mercury thermometers are broken, mercury must not be touched. Notify the instructor immediately.

HANDLING CHEMICALS

26. All chemicals in the laboratory are to be considered dangerous. Do not touch, taste, or smell any chemicals unless specifically instructed to do so. The proper technique for smelling chemical fumes will be demonstrated to you.
27. Check the label on chemical bottles twice before removing any of the contents. Take only as much chemical as you need.
28. Never return unused chemicals to their original containers.
29. Never use mouth suction to fill a pipet. Use a rubber bulb or pipet pump.
30. When transferring reagents from one container to another, hold the containers away from your body.
31. Acids must be handled with extreme care. You will be shown the proper method for diluting strong acids. Always add acid to water, swirl or stir the solution and be careful of the heat produced, particularly with sulfuric acid.
32. Handle flammable hazardous liquids over a pan to contain spills. Never dispense flammable liquids anywhere near an open flame or source of heat.
33. Never remove chemicals or other materials from the laboratory area. Take great care when transporting acids and other chemicals from one part of the laboratory to another. Hold them securely and walk carefully.



Warren Mott High School
Chemistry Department



Student Safety Contract - continued

HANDLING GLASSWARE AND EQUIPMENT

- 34. Carry glass tubing, especially long pieces, in a vertical position to minimize the likelihood of breakage and injury.
- 35. Never handle broken glass with your bare hands. Use a brush and dustpan to clean up broken glass. Place broken or waste glassware in the designated glass disposal container.
- 36. Inserting and removing glass tubing from rubber stoppers can be dangerous. Always lubricate glassware (tubing, thistle tubes, thermometers, etc.) before attempting to insert it in a stopper. Always protect your hands with towels or cotton gloves when inserting glass tubing into, or removing it from, a rubber stopper. If a piece of glassware becomes "frozen" in a stopper, take it to your instructor for removal.
- 37. Fill wash bottles only with distilled water and use only as intended, e.g., rinsing glassware and equipment, or adding water to a container.
- 38. When removing an electrical plug from its socket, grasp the plug, not the electrical cord. Hands must be completely dry before touching an electrical switch, plug, or outlet.
- 39. Examine glassware before each use. Never use chipped or cracked glassware. Never use dirty glassware.
- 40. Report damaged electrical equipment immediately. Look for things such as frayed cords, exposed wires, and loose connections. Do not use damaged electrical equipment.
- 41. If you do not understand how to use a piece of equipment, ask the instructor for help.
- 42. Do not immerse hot glassware in cold water; it may shatter.

HEATING SUBSTANCES

- 43. Exercise extreme caution when using a gas burner. Take care that hair, clothing and hands are a safe distance from the flame at all times. Do not put any substance into the flame unless specifically instructed to do so. Never reach over an exposed flame. Light gas (or alcohol) burners only as instructed by the teacher.
- 44. Never leave a lit burner unattended. Never leave anything that is being heated or is visibly reacting unattended. Always turn the burner or hot plate off when not in use.
- 45. You will be instructed in the proper method of heating and boiling liquids in test tubes. Do not point the open end of a test tube being heated at yourself or anyone else.

- 46. Heated metals and glass remain very hot for a long time. They should be set aside to cool and picked up with caution. Use tongs or heat-protective gloves if necessary.
- 47. Never look into a container that is being heated.
- 48. Do not place hot apparatus directly on the laboratory desk. Always use an insulating pad. Allow plenty of time for hot apparatus to cool before touching it.
- 49. When bending glass, allow time for the glass to cool before further handling. Hot and cold glass has the same visual appearance. Determine if an object is hot by bringing the back of your hand close to it prior to grasping it.

QUESTIONS

- 50. Do you wear contact lenses?
_____ YES _____ NO
- 51. Are you color blind?
_____ YES _____ NO
- 52. Do you have allergies?
_____ YES _____ NO
- 53. If so, list specific allergies _____

SAFETY SYMBOLS

Use your textbook or internet to identify the purpose of the following symbols:



54. _____



55. _____



56. _____



57. _____



58. _____

AGREEMENT

I, _____, (student's name) have read and agree to follow all of the safety rules set forth in this contract. I realize that I must obey these rules to ensure my own safety, and that of my fellow students and instructors. I will cooperate to the fullest extent with my instructor and fellow students to maintain a safe lab environment. I will also closely follow the oral and written instructions provided by the instructor. I am aware that any violation of this safety contract that results in unsafe conduct in the laboratory or misbehavior on my part, may result in being removed from the laboratory, detention, receiving a failing grade, and/or dismissal from the course.

Student Signature: _____

Date: _____

Dear Parent or Guardian:

We feel that you should be informed regarding the school's effort to create and maintain a safe science classroom/ laboratory environment. With the cooperation of the instructors, parents, and students, a safety instruction program can eliminate, prevent, and correct possible hazards.

You should be aware of the safety instructions your son/daughter will receive before engaging in any laboratory work. Please read the list of safety rules above. No student will be permitted to perform laboratory activities unless this contract is signed by both the student and parent/guardian and is on file with the teacher.

Your signature on this contract indicates that you have read this Student Safety Contract, are aware of the measures taken to ensure the safety of your son/daughter in the science laboratory, and will instruct your son/daughter to uphold his/her agreement to follow these rules and procedures in the laboratory.

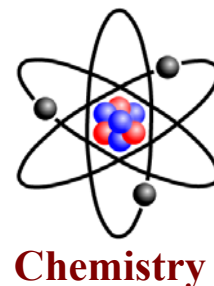
Parent/Guardian Signature: _____

Date: _____



*Warren Mott High School
3131 Twelve Mile Road
Warren, Michigan 48092*

Robert L. Callender, Chemistry Teacher
586.574.3250 ext 13229
callendb@wskids.net
www.callenderchemistry.weebly.com



Dear parent/ guardian,

I would like to introduce myself as your son/daughter's AP Chemistry teacher for 2014-2015. If you have any questions or concerns throughout the school year please let me know. You may leave me a message by calling the school at 586-574-3250 ext 13229; I will return your call as soon as possible. If you have access to the Internet you may e-mail me at callendb@wskids.net this is my school e-mail address, which I check at least once a day.

The AP Chemistry course is designed to be the equivalent of the general chemistry course usually taken during the first college year. Homework should be completed every day. Homework includes not only doing problems, but also assigned reading and studying. Exams will attempt to follow a similar format to the AP Exam questions. Students need to be aware that additional class time will be needed outside of the scheduled school day to complete lab assignments and or lectures. All students who want to be successful in AP Chemistry must be prepared to work harder in this course than they have ever worked before. Students that have been successful on the AP Chemistry Exam: ask questions, seek help, come in before and after school, use review guides, keep up with assignments, and research advanced topics in chemistry.

I highly recommend students purchase a scientific or graphing calculator and an AP Chemistry Exam prep book such as a Baron's, Kaplan, or Princeton Review. In addition to these items students should purchase a laboratory notebook which I have available for \$10 (Just like the ones used in college with carbon copy pages)

Throughout this course we will be doing labs that require the use of hazardous materials. Students will be made aware of the safety guidelines before each lab as well as the proper use of safety equipment. Attached is a copy of the safety contract that students and parents must read and sign prior to allowing students to work in the lab. Please be aware that accidents can and do occur and that I suggest students not wear their best or most expensive clothing on lab days.

Sincerely,

Mr. Callender

Mr. Callender's AP Chemistry Class Contract 2014-2015

Please fill out and return this Check List along with your signed safety contract.

Have You:

Students (initial each)

Parents (initial each)

_____ Read the Course Expectations _____ Read the Course Expectations

_____ Read the Safety Contract _____ Read the Safety Contract

_____ Signed the Safety Contract _____ Signed the Safety Contract

_____ Read the letter from the instructor _____ Read the letter from the instructor

I _____ (Print student name) understand that in order to do well in **AP Chemistry** it will take a strong commitment on my part to be successful. **AP Chemistry** is intended to be the equivalent of the first year General Chemistry Course offered at the college level.

Signed: _____ (Student signature) Date: _____

I _____ (Parents please print your name) have received and read the entire packet of course expectations for **AP Chemistry** and will commit to continuous monitoring of my son's/daughter's progress via Parent Portal and communicating with the teacher regarding any questions or concerns. *(Please realize that concerns should be brought to the attention of the teacher as soon as possible so they may be addressed, do not wait until the end of a term or after a term when grades have been finalized.)*

Signed: _____ (Parent signature) Date: _____

Parent email address: (Please write clearly)

_____ @ _____

Does your son/daughter have access to a computer with internet at home?

YES

NO

If NO, are there extenuating circumstances that would prevent the student from being able to use a computer with internet for class use?
