

### 32-week topical outline: Cornerstone Tutorial

<i>Date</i>	<i>Wk</i>	<i>Topic</i>	<i>Exams/Labs/Papers Due</i>
9/9/2013	1	Review basic science concepts & measurement Introduce Research Paper	
9/16/13	2	Significant Figures, accuracy, density	All homework from Module 1 due on 9/10/13
9/23/13	3	Define and learn to measure energy and heat <b>Introduce Research Paper</b>	Experiment 2.1 Experiment 1.4, Module 1 test.
9/30/13	4	Apply concepts of heat and calculate heat	Exp. 2.2 & Module 2 Test
10/7/13	5	History and laws concerning elements and compounds, atomic theory	Experiment 3.1
10/14/13	6	Classifying and naming compounds	Exp. 3.2 & Module 3 Test
10/21/13	7	Classifying matter and its changes, Kinetic theory	Experiment 4.1(modified) & 4.2
10/28/13	8	Phase changes, writing and balancing chemical equations	Exp. 4.3 & 4.4 Module 4 Test Research paper due*.
11/4/13	9	Types of chemical reactions (additional material will be supplied) and molecular mass.	Experiment on types of reactions.
11/11/13	10	Mole concept and calculations	Exp. 5.1 & Module 5 Test
11/18/13	11	Chemical equations and moles, limiting reactants, mass relationships in equations (stoichiometry)	Experiment 6.1
11/25/13	12	Volume relationships for gases, empirical and molecular formulas	Stoichiometry Experiment Module 6 Test
12/2/13	13	Electrical charge, atomic structure, isotopes, light and the electromagnetic spectrum	Experiment 7.1
12/9/13	14	Frequency and energy of light, models of the atom, electron configurations	Experiment 7.2 and Flame test experiment Module 7 Test
12/16/13	15	The Periodic table, and periodic properties	Experiment 8.1
1/6/14	16	Lewis structures of ionic and covalent compounds	<b>Semester Exam</b>
1/13/14	17	Polyatomic ions, molecular geometry End of 2 <sup>nd</sup> Quarter, end first semester	Experiment 9.1
1/20/14	18	Polar and non-polar bonds	Exp. 9.2 & Module 9 Test
1/27/14	19	Acids and bases: properties, formula, and reactions	Experiment 10.1
2/3/14	20	Concentration, molarity, and solution stoichiometry/titrations	Experiment 10.2 Module 10 Test
2/10/14	21	Solubility, solutions and energy of dissolving	Experiments 11.1 & 11.2
2/17/14	22	Solution stoichiometry, molality, freezing point depression and boiling point elevation	Experiments 11.3 & 11.4 Module 11 Test
2/24/14	23	Pressure and gas laws	Cartesian Diver Experiment
3/3/14	24	Gas laws and gas stoichiometry	Exp. 12.1 Research paper due*
3/10/14	25	Thermodynamics	Module 13a
3/17/14	26	Thermodynamics	Module 13b

3/24/14	27	Reaction rates and rate calculations (kinetics)	Experiment 14.1
3/31/14	28	Temperature and catalyst effects on reaction rates	Experiment 14.2 Module 14 Test
4/7/14	29	Equilibrium & Le Chatelier's Principle	Experiment 15.1
4/14/14	30	Acid/Base equilibria and the pH scale	Experiment 15.2 Module 15 Test
4/28/14	31	Redox reactions, oxidation numbers	Experiment 16.1
5/5/14	32	Batteries and corrosion	Making a Battery <b>Semester Exam</b>

\*Mrs. Milligan reserves the right to make changes to this and all other assignments in the syllabus presented. All On Your Own Questions, Review Questions and Practice Problems must be completed for each Module as well as a test which Mrs. Milligan will email to the parents for each Module. The tests are taken at home, turned in next class period, graded, and returned to the parents. ***Cheating or plagiarism will result in an automatic F.*** It may also result in the expulsion of the student from the entire class. If the answer given on the test is verbatim what the answer key has, the parent will be called. Most of the tests are NOT from the book.