

CHEMISTRY SYLLABUS

FOLLOWS Apologia *Exploring Creation With Chemistry, 2nd ed.*, and *The Internet*

Week #	DIVE Assignment	Apologia Module (page # in parentheses) or Internet Site
1	1-Science, God, and You	http://www.answersingenesis.org/articles/ee/what-is-science
2	2-The Scientific Method	http://www.icr.org/article/3749/
3	3-Types of Matter 4-Energy and Phase Changes in Matter	4(99-114)
4	5-Units and Unit Analysis 6-Making and Reporting Measurements 7-Mass, Weight, Volume, and Density	1(1-31)
5	8-Development of the Atomic Model 9-Electron Configuration	7(201-238)
6	10-Counting Atomic Particles	Review 7(201-238)
7	11-The Periodic Table 12-Periodic Trends 13-Family and Series Relationships	3(69-83) 8(258-276)
8	Review for EXAM 1 (Lessons 1-13)	Quarterly Exam 1
9	14-Atomic Bonding 15-Molecular Shapes 16-Polar Bonds and Polar Molecules	Review 8(258-276) 9(285-308)
10	17-Oxidation Numbers and Predicting Formulas 18-Naming Compounds	16(525-534) 3(85-90)
11	19-Working with Moles 20-Empirical Formulas and % Composition	5(145-156) 6(185-190)
12	21-Writing Chemical Equations 22-Balancing Chemical Equations 23-Identifying Types of Reactions	4(115-125) 5(133-144)
13	24-Stoichiometry I 25-Stoichiometry II 26-Stoichiometry III	6(163-184)
14	27-Characteristics of Gases 28-The Combined Gas Law 29-Dalton's Law of Partial Pressures	12(383-408)
15	30-Molar Volume of a Gas 31-Ideal Gas Law	12(394-408)
16	Review for EXAM 2 (Lessons 14-31)	Quarterly Exam 2

Week #	Assignment	Apologia Module (page # in parentheses) Or Internet Site
17	32-Intermolecular Forces 33-Properties of Solids 34-Properties of Liquids	<p>Review 2(37-61) Intermolecular Forces: http://chemed.chem.purdue.edu/genchem/topicreview/bp/intermol/intermol.html Hydrogen Bonding: http://en.wikipedia.org/wiki/Hydrogen_bond Categories of Solids http://chemed.chem.purdue.edu/genchem/topicreview/bp/ch13/category.php Unit Cells http://chemed.chem.purdue.edu/genchem/topicreview/bp/ch13/unitcell.php Heat of Fusion and Vaporization (Skip Box titled "Heat of Fusion Measurement") http://hyperphysics.phy-astr.gsu.edu/Hbase/thermo/phase2.html Water http://www.visionlearning.com/library/module_viewer2.php?mid=57&l=&let1=Che Liquid Phase Changes http://hyperphysics.phy-astr.gsu.edu/Hbase/Kinetic/vappre.html</p>
18	35-Water 36-How Solutes Dissolve	<p>11(353-366) Chemical and Physical Properties http://en.wikipedia.org/wiki/Water#Chemical_and_physical_properties Triple Point of Water http://en.wikipedia.org/wiki/Triple_point#Triple_point_of_water</p>
19	37-Measuring Concentrations 38-Colligative Properties, Colloids	<p>10(334-345) 11(367-375)</p>
20	39-1 st Law of Thermodynamics 40-2 nd Law of Thermodynamics	13(417-445)
21	41-Gibbs Free Energy 42-Factors That Affect Reaction Rates	<p>13(446-449) 14(459-465)</p>
22	43-Chemical Equilibrium 44-Le Chatelier's Principle 45-Equilibria and Solubility	<p>15(491-512) Chemical Equilibrium: http://www.usetute.com.au/equicons.html Le Chatelier's Principle: http://www.usetute.com.au/lechatsp.html Equilibria and Solubility (STOP at "The Role of the Ion Product.") http://chemed.chem.purdue.edu/genchem/topicreview/bp/ch18/ksp.php</p>
23	46-Acid/Base Theory	10(319-332)
24	Review For EXAM 3 (Lessons 32-45, not 46)	Quarterly Exam 3

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25	47-Acid/Base Equilibria 48-Titrations, Buffers	15 (513-518) Acid/Base Equilibria http://chemed.chem.purdue.edu/genchem/topicreview/bp/ch11/conjugat.php Titration (read Titration section only) http://www.chemtutor.com/acid.htm#titr Buffer (Read Intro and Theory): http://en.wikipedia.org/wiki/Buffer_solution
26	49-Identifying Redox Reactions 50-Balancing Redox Reactions	16 (525-534) Oxidation and Reduction: http://chemed.chem.purdue.edu/genchem/topicreview/bp/ch9/redox.php Balancing Redox Reactions: http://www.usetute.com.au/halfeqtn.html
27	51-Electrochemistry	16 (536-545) Galvanic Cells (watch flash tutorial): http://www.usetute.com.au/voltcell.html Electrolytic Cells: http://hyperphysics.phy-astr.gsu.edu/Hbase/chemical/electrolyt.html
28	52-Organic Chemistry, Hydrocarbons 53-Functional Groups	Structure and Nomenclature of Hydrocarbons: http://www.visionlearning.com/library/module_viewer.php?c3=&mid=60&l= Functional Groups (skip oxidation-reduction) http://chemed.chem.purdue.edu/genchem/topicreview/bp/2organic/2org_frame.html
29	54-Organic Reactions	Addition Reaction: http://en.wikipedia.org/wiki/Addition_reaction Substitution Reaction: http://en.wikipedia.org/wiki/Substitution_reaction Combustion: http://en.wikipedia.org/wiki/Combustion Saponification: http://chemistry.about.com/library/weekly/blsapon.htm
30	55-Biochemical Compounds 56-Cell Biochemistry	Carbohydrates: http://www.visionlearning.com/library/module_viewer.php?mid=61&l= Fats and Proteins: http://www.visionlearning.com/library/module_viewer.php?mid=62
31	57-Radioactivity 58-Nuclear Fusion and Fission	Nuclear Chemistry http://www.visionlearning.com/library/module_viewer.php?c3=&mid=59&l
32	QUARTERLY EXAM 4 (Lessons 1-58)	Final Exam

*DIVE Science Lessons do not correlate completely with the Apologia text. Occasionally, they contain more or less information than is in the Apologia chapter they correlate with. Please use the DIVE Chemistry Course as the main course, and supplement it with Apologia's text and the Internet. Remember that the DIVE CD is designed to prepare you for college classes, where you will have to know the textbook information plus the lecture information that may or may not be in the textbook.

YOU DO NOT HAVE TO USE BOTH APOLOGIA TEXTBOOKS TO COMPLETE THIS COURSE. If you are planning to take the CLEP or AP Chemistry exam, then purchase both texts and use our corresponding syllabus. Otherwise, just purchase *Exploring Creation With Chemistry*, and use this syllabus to determine your weekly Apologia and Internet reading assignments. The reading involved with this syllabus will not be as rigorous as using both Apologia Chemistry texts.

The Internet sites listed correlate very well with DIVE Chemistry. To view a site, simply click on the "http://....." link shown in blue, and read about the topic. Please note that some topics come with instructions regarding what section to read. There is no need to click on any other links that may be

present, just read what is on the page that comes up. One exception is that you may want to watch some of the animations on the Vision Learning links.

I tried to find pages that did not require a lot of “clicking around” to find all the information, as that could also lead to clicking on sites you may not want your child to visit. From all indications, the sites I have selected are very professional and/or kid-friendly.

To find Chemistry definitions, try the following Internet glossaries:

<http://chemistry.about.com/od/chemistryglossary/a/glossarya.htm>

<http://antoine.frostburg.edu/chem/senese/101/glossary.shtml>

<http://www.visionlearning.com/library/glossary.php?l>

How to use the syllabus: At the start of a new school week, the first thing you should do is check your syllabus to see what to read and what DIVE Lessons to complete. Do your reading, complete your definitions, watch the lecture(s) and take notes. When you are finished with the lecture, complete the DIVE review questions, and check your answers. Finally, complete your weekly lab activity. Check the syllabus included in the DIVE Chemistry Workbook to determine which lab activity to complete.

If you are having trouble understanding a concept, use an encyclopedia or conduct an Internet search for the topic. If you still don't understand a concept, please email me at diveintomath@sbcglobal.net, and I will help you. God bless, and have a great year!

Dr. Shormann

Proverbs 4:13