

Welcome to AP Chemistry! The textbook for this course is "Chemistry" by Zumdahl, 6th edition, Houghton Mifflin, copyright 2003, ISBN 0618-548-599 or 0618-544-070. Please also keep your sophomore textbook, "Addison-Wesley Chemistry" and all sophomore notes, labs, handouts, etc., for reference.

You should read, go through the examples, do the following assigned homework problems, and study the following chapters of the textbook during the summer. Underline or highlight important parts of the text as you go along. It is not necessary to write separate notes. Study the following chapters in their entirety with the following comments. You should check answers in the back of the book for all odd-numbered problems and put check marks or question marks by the problem numbers. You need to show proper setup whenever appropriate.

- Test 1:** Chapters 1-3 by the third day of class
Test 2: Chapter 4, shortly after Test 1
Test 3: Chapter 5, shortly after Test 2, all in September

Do your work on loose-leaf paper, arrange them by chapter and problems in order, and staple each chapter's work for submission at the beginning of the fall term.

You should spread out the following assignments over several weeks. Do not try to cram them in towards the end of the summer or you will get stressed out before school starts. You may work either individually or in groups; in fact, working in groups is encouraged.

Write down colors of substances on a separate piece of paper as you read along.

Lab Report on Experiments #1, 2.

Chapter 1 Chemical Foundations

Everything in this chapter is basic but important. You may skim through if you find it easy. Learn all of Table 1.1 except last item (luminous intensity) on p. 8 and Table 1.2 (learn only giga through pico) on p. 9.

Learn the names of the apparatus in Fig. 1.7 on p.11.

Pay particular attention to rules for significant figures.

Do problems: p. 32: #20, 25, 29, 31, 43, 47, 49, 57, 67-69, 75-77

Chapter 2 Atoms, Molecules, and Ions

Study all sections except 2.1 but you may read it for pleasure.

For 2.2, pay particular attention to Law of Definite Proportion (same as Law of Definite Composition) and Law of Multiple Proportions

Learn "Elements to Learn" Handout from Honors Chemistry

Learn these tables real well: Tables 2.3-2.8, Fig. 2.22, and acids and anions on p. 72

For scientists' names, need to know only these and what each did, briefly:

Boyle, Dalton, Gay-Lussac, Avogadro, Thompson, Millikan, Rutherford

Note colors of chromates (yellow) and dichromates (orange) as shown on p.65

Do problems: p. 75: 21, 27, 35, 37, 43, 47, 55, 59-72

Chapter 3 Stoichiometry

Study all sections. Try all sample exercises (rough work only, not to hand in).

Know only the general idea of mass spectrophotometer but not the details.

Note mistake on p. 85: 69.09 not 60.09 in calculation. Note Fig. 3.5 on p. 96

p. 96-97: Use our usual gram A to gram B method rather than breaking up a long setup into fragments. For the problem on page 96, convert gram CO_2 (0.1638 g) via mole CO_2 and mole C to gram C. Similarly, convert gram H_2O via mole H_2O and mole H to gram H. Subtract the total of gram C and gram H from the mass of (C, H, N) to get gram N. Then set up a grid table, show work and answers in the blanks:

	C	H	N
Grams	_____	_____	_____
Mole	_____	_____	_____
Ratio: Divide by lowest mole #	_____	_____	_____
Whole Number Ratio:			
multiply by a factor to get all #'s to be whole #'s	_____	_____	_____
That gives you the empirical formula, then find molecular formula using			
$(\text{mw EF}) \times = (\text{mw MF})$	where (mw MF) is molar mass		

If mass percentages are given for each element, assume 100-g sample and do above operations.

p. 100: You may use the format above or the one shown in middle of page.

Use the Mole Map from sophomore chemistry.

p. 110: Steps 1-5 is the same as our gram A \rightarrow mole A \rightarrow mole B \rightarrow gram B scheme.

p. 111: Ex. 3.16 Do not separate into steps; use one long expression.

p. 117 Ex. 3.18 Do not break up work as shown in example. Use sophomore work, i.e., from A find how much B is needed and compare with what's given.

Do problems: p. 123: 21, 23, 49, 51, 56, 63, 65, 67, 69, 71, 73, 74, 75, 77, 89, 91, 95, 97, 99, 101, 105, 107, 108, 109, 111, 113, 117, 121, 123

Chapter 4 Types of Chemical Reactions and Solution Stoichiometry

Study all sections. Try all sample exercises without first looking at the solutions.

Learn Solubility Rules very well, in Table 4.1 on p. 152.

4.10: When you balance redox equations, do not waste time in writing all the steps separately.

Do problems: p. 180: 5, 6, 12, 13, 15, 17, 19, 21, 25, 29, 31, 35, 37, 39, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81

Chapter 5 Gases

5.1	Pressure	25, 27, 29c only
5.2	The Gas Laws of Boyle, Charles, and Avogadro	31
5.3	The Ideal Gas Laws	33, 37, 41, 45, 47
5.4	Gas Stoichiometry	49, 51, 53, 55, 57, 59, 61
5.5	Dalton's Law of Partial Pressures	63, 65, 67, 69, 71
	Include Chemical Impact on P. 210, Air Bags	
5.6	The Kinetic Molecular Theory of Gases	73, 75, 77, 79
5.7	Effusion and Diffusion	21, 81
5.8	Real Gases	85
5.9	Chemistry in the Atmosphere	91
	Include Chemical Impact on P. 226-227, Acid Rain	

Completing the assignment is a requirement prior to start of school and is a sign on your part that you are able and willing to take on the demanding elective course, "AP Chemistry." It should be noted that this is not a guarantee that your schedule will be able to accommodate the course.

I hope you will enjoy the summer and I look forward to working with you again in late Aug.

Dr. Tam