AP Chemistry summer assignment for 2026-2027 school year

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Things to do TODAY -

1) *Join the google classroom:* code for all sections: **thtavai4**
2) Get your textbook from the bookroom (355)
   Textbook: Chemistry A Molecular Approach (Tro) 5th edition

*Sometime in July, a digital textbook will be available - I will post access information when I get it. *

Welcome to AP chemistry! AP Chemistry is a fast-paced college level course. In order for us to complete our curriculum in time for the AP test in early May, we will need to start learning new material on the very first day of school. It is essential that you take the summer work seriously so that you are not behind. Some of the textbook readings and problems that are assigned will be review from the 1st year of chemistry, and some might be brand new to you. If this is your first year chemistry course it will ALL be brand new! **We will NOT be spending class time on these subjects. It's your responsibility to review/learn them on your own this summer.** There will be a summative assessment on this material within the first few days of school.

DO NOT WAIT UNTIL THE LAST MINUTE. You will benefit much more from doing a little bit throughout the summer and letting the concepts have time to sink in.

Your summer assignment is to read, learn, and do practice problems for chapters 1-4 in our textbook : "*Chemistry A Molecular Approach - 5th edition (Tro)*. You will get a physical textbook to take home over the summer and you will have access to a digital textbook (codes at the end of this doc)

Chapter 1: Matter, Measurement and Problem Solving (Suggested completion date: 7/18)

1) Read each section in the digital textbook. Watch the Key Concept videos, and answer the Conceptual Connection questions that appear in the middle of each section.
2) Complete all "For Practice" problems that appear at the end of some of the sections. The answers to these can be found in Appendix IV.
3) Take the "self assessment quiz" at the end of the chapter. Go back and review anything you missed.
4) Complete the following "Exercises" for Chapter 1 - then check your answers with the keys provided to you by your teacher.

   #37, 41, 43, 49, 55, 59, 68, 71, 73, 77, 81, 83, 85, 105, 138

5) If you had trouble with the problems above, watch the "supplemental notes" video I created for Chapter 1.

Chapter 2: Atoms and Elements (Suggested completion date: 7/18)

1) Read each section in the digital textbook. Watch the Key Concept videos, and answer the Conceptual Connection questions that appear in the middle of each section. Watch any "interactive worked example" videos as well.
2) Complete all "For Practice" problems that appear at the end of some of the sections. The answers to these can be found in Appendix IV.
3) Take the "self assessment quiz" at the end of the chapter. Go back and review anything you missed.
4) Complete the following "Exercises" for Chapter 2 - then check your answers with the keys provided to you by your teacher.

#30, 37, 51, 53, 57, 60, 62, 63, 64, 66, 71, 75, 79, 83, 87, 95, 102, 126

6) If you had trouble with the problems above, watch the "supplemental notes" video I created for Chapter 2.

*** special note for #63, 64, 66: the periodic table provided to you for AP chemistry has ONLY the symbols, atomic number and average atomic mass. Therefore, you MUST be able to recognize the elements by name or symbol. For example: If I ask you about Manganese, you must know that it's symbol is Mn in order to find it on the periodic table.*

Here are the most important elements to know spend time learning these:

Atomic #: 1-36 + 37, 38, 46, 47, 48, 50, 52, 53, 54, 55, 56, 78, 79, 80, 82, 87, 88

You do NOT need to memorize the atomic number or average atomic mass. Just be able to match the element symbol with the name and vice versa.

Chapter 3: Molecules and Compounds (Suggested completion date: 8/1)

1) Read each section in the digital textbook. **You should SKIP section 3.11 on organic compounds**. Watch the Key Concept videos, and answer the Conceptual Connection questions that appear in the middle of each section. Watch any "interactive worked example" videos as well.
2) Complete all "For Practice" problems that appear at the end of some of the sections. The answers to these can be found in Appendix IV.
3) Take the "self assessment quiz" at the end of the chapter. Go back and review anything you missed.
4) Complete the following "Exercises" for Chapter 3 - then check your answers with the keys provided to you by your teacher.

#23, 26, 29, 31, 33, 36, 40, 41, 50, 56, 59, 62, 67, 73, 76, 80, 90, 96, 98

5) If you had trouble with the problems above, watch the "supplemental notes" video I created for Chapter 3.

Chapter 4: Chemical reactions and chemical quantities (Suggested completion date: 8/15)

** This is the last chapter, but THE MOST IMPORTANT! Everything we do all year in AP Chemistry is based on stoichiometry. Please go through this chapter carefully and be sure you fully comprehend the concepts and calculations.

1) Read each section in the digital textbook. Watch the Key Concept videos, and answer the Conceptual Connection questions that appear in the middle of each section. Watch any "interactive worked example" videos as well.
2) Complete all "For Practice" problems that appear at the end of some of the sections. The answers to these can be found in Appendix IV.
3) Take the "self assessment quiz" at the end of the chapter. Go back and review anything you missed.
4) Complete the following "Exercises" for Chapter 4- then check your answers with the keys provided to you by your teacher.

7, 15, 17, 23, 25, 27, 31, 33, 35, 37, 41, 43, 47, 52, 59, 61, 64, 76, 77

5) If you had trouble with the problems above, watch the "supplemental notes" videos I created for Chapter 4.

The following polyatomic ions will be frequently used throughout the course, so being familiar with them will prove helpful. While you do not need to memorize ions, you do need to be comfortable using them and writing chemical formulas for ionic compounds. Some commonly used polyatomic ions are below:

hypo- (2 less O)	-ite (1 less O)	-ate	per- (1 more O)
	nitrite NO_2^-	nitrate NO_3^-	
	sulfite SO_3^{2-}	sulfate SO_4^{2-}	
	phosphite PO_3^{3-}	phosphate PO_4^{3-}	
hypochlorite ClO^-	chlorite ClO_2^-	chlorate ClO_3^-	perchlorate ClO_4^-

Odd Companions or No Companion	
hydroxide OH^-	
cyanide CN^-	cyanate CNO^-
acetate $C_2H_3O_2^-$	
carbonate CO_3^{2-}	bicarbonate HCO_3^-
chromate CrO_4^{2-}	dichromate $Cr_2O_7^{2-}$
permanganate MnO_4^-	
peroxide O_2^{2-}	

Cations
Ammonium NH_4^+
hydronium H_3O^+