

Advanced Placement Chemistry Summer Assignment

Due Friday of the 1st Week of School

Summer Remind Group - send a text to: 81010, text this message: @dvapsum, (Office Hours between 10am - 9pm)

Hello! I am excited that you are signed up to take AP Chemistry this coming year! I have created this summer assignment to help you start AP Chem with your best foot forward, prepared for the challenging work we have to start covering immediately when school starts – we have no time to waste!

You will be expected to **know** the information covered in your first year chemistry course (please know that College Prep Chemistry does not cover the same amount and depth as Honors Chemistry). You need to enter AP Chemistry prepared for an assessment (**TEST**) worth up to 15% of your grade given on the second day of school. It is imperative that you know immediately if you have the foundational knowledge and skills to participate fully in the course before the “add drop window” closes. While I know that sounds stressful to have an assessment on the second day of school, it would be more stressful to be in a class you don’t want to be in for the entire school year!

The chapters and topics you see in the next several pages are a review of what you should have learned in Chemistry last year and are foundational to the AP Chemistry program. These chapters may not cover everything you learned, there may be chapters/topics that were not covered by your specific teacher, but you are still expected to have these basics understood so you can fully participate at the start of AP Chem.

The summer program is an important part of the AP course and serves two functions: 1) to keep you active as readers, you have to read the text book or success will be more difficult, and 2) to prepare you for the level of material we will be learning throughout the academic year. If you have gaps in your knowledge of the topics below, you need to self-study them over the summer. Be an engaged, proactive, self-sufficient learner!

Summer Work

REMEMBER	
<input type="checkbox"/>	Everything from Honors Chem! AP Chem mixes all topics together, your background knowledge in the Honors Chem topics is essential because they will appear inside other chapters starting the first week in AP!
<input type="checkbox"/>	All my Honors Chem materials are on the class website! (www.mychemistryclass.net → Honors Chem)
KNOW	
<input type="checkbox"/>	Solubility Rules, Common Ions, VSPER
<input type="checkbox"/>	All Reference Pages are on the class website (www.mychemistryclass.net → AP Chem → Reference Sheets)
REVIEW	
<input type="checkbox"/>	Stoichiometry, Kinetics, Equilibrium, Acid Base – large part of AP CHEMISTRY!
<input type="checkbox"/>	Chapters 1-4 in the Tro online textbook: Instructions on how to access it, must be logged in with school gmail account before clicking! https://tinyurl.com/4yucsc26
LEARN	
<input type="checkbox"/>	A little bit of Redox chemistry. We no longer have time to teach this in the Honors Chem class unfortunately. The practice work linked on the next page will have some resources to help you learn a little about this chapter.
<input type="checkbox"/>	Any topics on the next pages marked with a (*) as these may not have been taught in recent Honors Chem years due to a variety of reasons (like covid).
<input type="checkbox"/>	Any topics on the next pages that you missed due to absences, taking Chemistry at a different school, etc.
PRACTICE	
TURNED IN ON 1ST FRIDAY OF THE YEAR!	
<input type="checkbox"/>	Summer Practice Problems – Link on next page
<input type="checkbox"/>	Print worksheet and complete on binder paper, and correct (answers are linked at the top of the worksheet)
<input type="checkbox"/>	Show work if you want credit!
CHECK	
TURNED IN ON 1ST FRIDAY OF THE YEAR!	
<input type="checkbox"/>	Complete Self-Assessment Quiz for Ch. 1-4. <ul style="list-style-type: none"><input type="radio"/> Link on next page<input type="radio"/> Print and complete. Answers at bottom to check/correct work.<input type="radio"/> Show work for math problems.<input type="radio"/> Annotate non-math problem → show/explain your thought process behind your answer choice.

REMEMBER/KNOW/REVIEW: Topics to Know Before the Start of AP Chem

This list does not cover every single topic/fact. It is just an overview to help guide your self-studying during the summer. Chapter numbers and titles correlate with Mrs. Farmer's Honors Chemistry class order. All PowerPoints, worksheets, etc. can be found on the Honors tab of the class website. Please use them to help your review! www.mychemistryclass.net You may not have Mrs. Farmer next year, but all AP Teachers are using her website for the summer assignment to streamline things. All students have the same summer work regardless of which teacher they end up with. Items marked with a (*) may not have been taught in recent Honors Chem classes due to a variety of reasons. Please self-study them!

BIG PICTURE TOPICS						
1 st Semester Chapters						
1	2	3	4	5	6	7
Basics & Atomic Structure	Nuclear Chemistry*	Electrons	Periodic Table	Bonding & Structure	Reactions	Stoichiometry
<i>Metric system Sig figs Dimensional analysis Types of matter Atomic structure</i>	<i>Writing equations Half life calcs.*</i>	<i>E- configurations of atoms and ions Noble gas configuration Orbital diagrams</i>	<i>Table structure Ions Trends</i>	<i>Types of bonds Naming/Formulas Lewis struct./VSEPR Polarity IMFs</i>	<i>Balancing eqs Types of rxns Predicting products Net ionic</i>	<i>Molar conversions Regular stoich.</i>
2 nd Semester Chapters						
8	9	10	11	12	13	14
Adv. Chemical Ratios	Gas Laws	Thermochem.	Solutions	Kinetics	Equilibrium.	Acid/Base*
<i>Limiting reagent stoichiometry Percent composition Empirical formulas Combustion analysis*</i>	<i>Gas laws Finding density and molar mass Dalton's Law* Collecting gas over water vapor* Gas stoichiometry*</i>	<i>Specific heat Calorimetry Heating curves Molar heats* Heat of rxns* Rxn diagrams Mixed phase calorimetry*</i>	<i>Solution concepts Solution calculations</i>	<i>Rate effecting factors Rate expressions Instantaneous rates Rate laws Rate constant - k Method of initial rates</i>	<i>Le Chatelier's K versus Q ICE Tables 5% Rule*</i>	<i>Properties Types Naming pH calculations Strong/Weak Weak ICE tables* Salts, pH of salts* Titrations*</i>
						15
						Redox Chemistry*
						<i>Assigning oxidation # Writing half reactions Balancing rxns in acidic or basic sol'ns</i>

*Things that may not have been taught in your Honors Chem class depending on the year (covid), your teacher, or which school you attended. Please self-study any topics/chapters that are gaps in your learning, not just the stated ones!

REMEMBER/KNOW/REVIEW: More Detailed Topic Lists

<https://tinyurl.com/yddl4h6>

This list is a general guideline to help you study. It is NOT a definitive list. There are potentially things on here that will not show up on the tests, and there are potentially things not on this list that will show up on the tests. Material that appeared anywhere during the Honors Chem course all have the potential to appear on the test. Pay attention to anything that indicates it was not taught during your school year, you will need to self-study those topics as part of your summer assignment. Remember everything is on the Honors tab of the class website! www.mychemistryclass.net

LEARN: Some Resources for Redox

Here are some resources for you to use to study Redox. If the below is not sufficient information for you to learn this topic, you can use online textbooks, YouTube, the entire internet is at your fingertips! Be careful searching for work on the internet because the intro topic of Redox can sometimes be combined with a more complex topic called Electrochemistry which encompasses many more topics! You do not need to be learning the entire Electrochemistry chapter. Just a little bit about Redox Reactions since they are a type of reaction not typically taught in Honors Chem anymore.

- PDF of an Intro PowerPoint: <https://tinyurl.com/ygy4esv6>
- Packet of Practice: <https://tinyurl.com/yamnuyrf> Answer Keys: <https://tinyurl.com/nnwfcbe8>

PRACTICE: Summer Stoichiometry Problems

<https://tinyurl.com/ydqxymhr>

The skill of dimensional analysis and stoichiometry are foundational to so many topics in chemistry. It has been found that having a very strong foundation in stoichiometry can set students up for more success in AP Chemistry. Stoichiometry and dimensional analysis needs to be second nature to you before you start AP Chemistry. Print the worksheet and do the problems on binder paper. Remember to show work clearly, include units, box answers, etc! **This will be turned in!**

CHECK: Self-Assessment Quizzes for Chapters 1-4

<https://tinyurl.com/y7cx5eec>

Print, do the problems, show work or annotated answers. Correct your work when done. Remember to show work clearly, include units, box answers, etc! **This will be turned in!**