

Welcome to your AP Chemistry Summer Information and Assignment



That's Amadeo Avogadro. He kinda looks like a "mole," doesn't he?

I'm really looking forward to working with you next year in AP Chemistry. It is a very challenging, yet rewarding, course. It is analogous to first year college chemistry. As with most introductory college courses, it is expected that you have adequate background knowledge of basic chemistry in order to be successful in the course.

The purpose of this summer assignment is two fold: 1) To have you review the basics of first year chemistry, and 2) to give you some new information on chemical history that is for rote memorization.

As you look at the "packets", you'll notice that they seem rather large. They're really not. As you look at the set of lectures, you'll notice they are in two columns. The left side has the "student" notes, and the right side has the "teacher" notes. If we were in class, you would see the left side projected in PowerPoint while I am talking about what's on the right side. So it's like I'm there doing this with you 😊!

Each lecture has a set of questions/problems that accompany it. **On separate paper (like a dedicated spiral notebook)**, do only the problems that are NOT crossed out. I will be collecting them on the first day of school.



Meet Dr. AP

You'll notice that there isn't a "Lecture 2." That's O.K. Don't freak out thinking you're missing something.

BEFORE YOU LEAVE FOR SUMMER VACATION—go to the bookroom and check out your book.

Chemistry & Chemical Reactivity AP Edition, 9th ed, Kotz and Treichel

There is not a specific assignment out of the book, but it will be an additional resource for the other work.

The following pages have some information that you need to study over the summer.

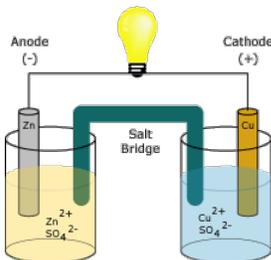
**I recommend starting this around the 1st of August. If you do it all in the first of June, you'll forget most of it by the time school starts.

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Have a great summer! I'll see you August.

AP Chemistry Background knowledge

When you start AP Chemistry I will assume that you have already learned the following. It would be a good idea to look at this information during the summer. Our first test will be the first week of school; you want to be prepared. Please look over this list of concepts that I assume you have mastered. If you need help with any of these, you can find them in your textbook, on-line, or in your notes from first year chemistry. On YouTube, there is a channel by Tyler DeWitt that has AWESOME chemistry videos that re really helpful.

Basic chemistry vocabulary:

element, compound, mixture, atom, molecule, ion, acid, base, salt, electron, proton, neutron, isotope, mole, precision, accuracy, experimental error, uncertainty of measurement, chemical equation, chemical reaction, chemical and physical property and change, atomic mass, atomic number, mass number,

Use of scientific notation

Use of significant figures

Percent error calculation

Any and all stoichiometric calculations

Use of symbols for elements

Formulas of ions (simple and polyatomic)

Writing formulas for compounds

Writing and balancing chemical equations and identifying reaction type

Use of balance, graduated glassware

Safety in the laboratory

Please review the symbols for elements and ions found below and on the next page . This is the language of chemistry. You will not be able to “speak” chemistry fluently unless you have learned the vocabulary words.

Elemental Symbols

You will be held responsible for the following (meaning that these all need to be memorized):

Elements numbered 1-20, Iron, Copper, Zinc, Nickel, Gold, Silver, Bromine, Iodine, Barium, Strontium, Tin, Chromium, Lead, Platinum, Radon, Uranium, and Mercury

Monatomic Ions

Monatomic ions can be read from the periodic table. You are responsible for knowing the name and formula of the following ions: H^+ , Li^+ , Na^+ , K^+ , Mg^{2+} , Ca^{2+} , Ba^{2+} , Fe^{2+} , Fe^{3+} , Cu^+ , Cu^{2+} , Zn^{2+} , Ag^+ , Al^{3+} , Pb^{2+} , Pb^{4+} , N^{3-} , P^{3-} , O^{2-} , S^{2-} , H^- , Hg_2^{2+} , F^- , Cl^- , Br^- , and I^- .

Polyatomic ions

Polyatomic ions are groups of atoms that have a charge. We will be using these ions extensively throughout the year. You will be responsible for knowing the names and how to write the formulas for many of these ions.

Polyatomic ion symbols:

- Combine the symbols for the elements in the ion
- If more than one atom of a single element is present, use a subscript to indicate the total number of atoms needed
- Write the charge as a superscript after the element symbols. The value of the charge is written first followed by the positive or negative symbol

Polyatomic ion name	Symbol
Ammonium	NH_4^+
Chromate	CrO_4^{2-}
Dichromate	$\text{Cr}_2\text{O}_7^{2-}$
Hydronium	H_3O^+
Acetate	CH_3COO^- or $\text{C}_2\text{H}_3\text{O}_2^-$
Hydrogen carbonate	HCO_3^-
Carbonate	CO_3^{2-}
Cyanide	CN^-
Chromate	CrO_4^{2-}
Formate (also called methanoate)	HCOO^- or HCO_2^-
Hydroxide	OH^-
Nitrite	NO_2^-
Nitrate	NO_3^-
Sulfite	SO_3^{2-}
Sulfate	SO_4^{2-}
Permanganate	MnO_4^{1-}
Peroxide	O_2^{2-}
Phosphate	PO_4^{3-}
Propanoate	$\text{C}_2\text{H}_5\text{COO}^-$ or $\text{C}_3\text{H}_5\text{O}_2^-$
Perchlorate	ClO_4^-
Chlorate	ClO_3^-
Chlorite	ClO_2^-

In the first week of school, we will have a quiz on your memorization of this page. I'm not a big fan of memorizing for the sake of memorizing, BUT your AP chemistry life will be much easier if you can pull this page out of your brain at any time.

At this point, there should be four power-point lectures that include worksheets full of review problems for you to do. However, due to copyright issues, they cannot be posted on this web page.

If you need copies of them, you should pick them up in the counseling center at WKHS.