

Dear Students:

You have enrolled in AP Chemistry for the 2013-2014 school year. AP Chemistry is the equivalent of a 1st year college course and is extremely challenging. Due to the fast-paced nature of AP Chemistry, we do not have time to review all the concepts of basic high school chemistry. This summer assignment is a review of these concepts. It is imperative that you complete this summer assignment to review your previous chemistry knowledge.

The first 3 chapters of our AP textbook review this material. You will be provided with the Student Guide for these chapters. The Student Guide for each chapter contains notes and practice exercises with answers. You are to read through the notes and complete the practice exercises. However, the portion you must turn in will be the "Self-Test Questions" at the end of each chapter. **Please complete these *by hand* on a separate sheet of paper.**

The summer assignment will be due on the 1st day back from summer vacation in August. The first day will be used to clarify any questions on the assignment. Therefore, come to class prepared with any questions you may have. **You will have your 1st exam over the material covered in this assignment the on the 2nd day of AP Chemistry class.** This exam will be used as a diagnostic tool to determine your continued enrollment in AP Chemistry.

It is important that you complete your own work and do not copy from another student or copy from the provided answers. If you do so, you will only be doing a disservice to yourself and your overall success in AP Chemistry. However, please do not hesitate to help each other understand concepts if needed.

Lastly, do NOT wait until the last week of before school starts to begin this assignment. You are reviewing a complete year of chemistry, so manage your time wisely.

To access the summer assignment, please go to:

www.rustscience.com → AP Chemistry → Summer Assignment 2013

You will turn in:

1. AP Chem Chapter 1 Self Test Questions 1.1-1.59
 - You must neatly show all your work for problems (including writing the equation if applicable): 1.29, 1.36, 1.37, 1.38, 1.39, 1.40, 1.49, 1.50, 1.52, 1.53, 1.55
2. AP Chem Chapter 2 Self Test Questions 2.1-2.80
 - You must neatly show all your work for problems (including writing the equation if applicable): 2.58
3. AP Chem Chapter 3 Self Test Questions 3.1-3.49
 - You must neatly show all your work for problems (including writing the equation if applicable): 3.18, 3.19, 3.20, 3.24, 3.25, 3.26, 3.27, 3.28, 3.29, 3.30, 3.31, 3.32, 3.33, 3.34, 3.35, 3.36, 3.37, 3.40, 3.41, 3.42, 3.43, 3.44, 3.46, 3.47, 3.48

NOTE: The AP Chemistry Period Table provides chemical symbols but not names. Also, you must know by memory the charges of monatomic and polyatomic ions. **You must know the following list by the second day of class, as it will be required for the first test.**

~Names and Element Symbols for Elements 1-36, Silver, Tin, Iodine, Barium, Platinum, Gold, Mercury, Lead, Radon, & Uranium

~Names, formulas, & charges of the Ions on the following page.

Please email me if you have any questions at rrust@qiss.org.cn or rrust.qiss@hotmail.com.

Ms. Rachel Rust
AP Chemistry Teacher
Qingdao No. 1 International School of Shandong Province

AP Chemistry Ion List

The following ions and their charges should be committed to memory:

I. You should be able to determine main group element charges from their position on the periodic table.

II. Transition Element Charges:

| | | | | |
|----|-----------|----|----------------|---|
| Ag | Silver | 1+ | | |
| Zn | Zinc | 2+ | | |
| Cu | Copper | 1+ | Copper(I) | Cuprous |
| | | 2+ | Copper(II) | Cupric |
| Hg | Mercury | 1+ | Mercury(I) | Mercurous (Exists as Hg_2^{2+}) |
| | | 2+ | Mercury(II) | Mercuric |
| Fe | Iron | 2+ | Iron(II) | Ferrous |
| | | 3+ | Iron(III) | Ferric |
| Mn | Manganese | 2+ | Manganese(II) | Manganous |
| | | 3+ | Manganese(III) | Manganic |
| Co | Cobalt | 2+ | Cobalt(II) | Cobaltous |
| | | 3+ | Cobalt(III) | Cobaltic |
| Au | Gold | 3+ | | |
| Ni | Nickel | 2+ | Nickel(II) | |
| | | 3+ | Nickel(III) | |
| Cr | Chromium | 2+ | Chromium(II) | Chromous |
| | | 3+ | Chromium(III) | Chromic |

III. Polyatomic Ions:

| | | | |
|------------------------------------|----------------------|------------------------------|----------------------------------|
| NH_4^+ | Ammonium | HCO_3^- | Bicarbonate (Hydrogen carbonate) |
| SO_4^{2-} | Sulfate | MnO_4^- | Permanganate |
| SO_3^{2-} | Sulfite | ClO^- | Hypochlorite |
| NO_3^- | Nitrate | ClO_2^- | Chlorite |
| NO_2^- | Nitrite | ClO_3^- | Chlorate |
| PO_4^{3-} | Phosphate | ClO_4^- | Perchlorate |
| HPO_4^{2-} | Hydrogen phosphate | HSO_4^- | Bisulfate (Hydrogen sulfate) |
| H_2PO_4^- | Dihydrogen phosphate | HSO_3^- | Bisulfite (Hydrogen sulfite) |
| OH^- | Hydroxide | $\text{C}_2\text{O}_4^{2-}$ | Oxalate |
| CN^- | Cyanide | CrO_4^{2-} | Chromate |
| $\text{C}_2\text{H}_3\text{O}_2^-$ | Acetate | $\text{Cr}_2\text{O}_7^{2-}$ | Dichromate |
| CO_3^{2-} | Carbonate | MnO_4^- | Permanganate |

IV. Miscellaneous(Post Transition Elements):

| | | | | |
|----|---------|----|----------|----------|
| Sn | Tin | 2+ | Tin(II) | Stannous |
| | | 4+ | Tin(IV) | Stannic |
| Pb | Lead | 2+ | Lead(II) | Plumbous |
| | | 4+ | Lead(IV) | Plumbic |
| Bi | Bismuth | 3+ | | |