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# Falcon High School

Dear AP Chemistry Student & Parents,

I look forward to having you as a part of my AP Chemistry class for the 2010 – 2011 school year. This letter contains information that pertains to your AP Chemistry Summer assignment. Each of the following must be completed. AP Chemistry is a fast-paced course that begins with new material in the very first week. This assignment must be completed so that you do not fall behind at the very beginning of the course.

1. **Memorize Formulas, Charges, and Names for all of the Ions given on the handout**. The list includes both the polyatomic and monatomic ions. Make sure that you know names and formulas. Also, for the monatomic ions make sure you know both the stock and classical names. You must know how to write correct chemical formulas using these ions.
2. **Memorize Solubility Rules for the Soluble and Insoluble Ionic Compounds**. You need to be able to look at the formula for a compound and know if that compound will be soluble or insoluble in a solution.
3. **Memorize Formulas and Names for the Common Acids**:
   1. Hydrochloric Acid – HCl
   2. Sulfuric Acid – H2SO4
   3. Phosphoric Acid – H3PO4
   4. Acetic Acid – HC2H3O2
   5. Carbonic Acid – H2CO3
   6. Nitric Acid – HNO3
4. **Mid- July: Outline Chapters 1 & 2 in your textbook and complete the AP Chemistry Summer Assignment Worksheet** to make sure that you are ready for the quiz on our first day**.**

## You will have a quiz on the first day of class when you return from break. Please do not put this assignment off until the last minute. You will not be able to get it done. A failing grade on this test will tell me that you are not ready to do the work necessary in AP Chemistry and you will be asked to attend mandatory tutoring for the first two weeks of the semester. Please do not hesitate to contact me if you have any questions. I can be reached by e-mail or phone. Thank you in advance for your cooperation and hard work. I look forward to having you in class! It will be a blast…sometimes quite literally!

Sincerely,

Jennifer Gray

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**Chemistry Study Sheet**

**Ions and Ionic Substances**

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| --- |
| **Cations**  Aluminum  Ammonium  Antimony (III) (V)  Arsenic (III) (V)  Barium  Bismuth (III) (V)  Calcium  Cadmium  Chromium (II) (III)  Cobalt (II) (III)  Copper (I) (II)  Hydrogen  Iron (II) (III)  Lead (II) (IV)  Lithium  Magnesium  Manganese (II) (IV)  Mercury (I) (II)  Nickel (II) (III)  Potassium  Silver  Sodium  Strontium  Tin (II) (IV)  Zinc  **Anions**  Acetate  Arsenate  Bicarbonate(carbonic acid)  Binoxalate  Bisulfate (sulfuric acid)  Bisulfide(Hydrosulfuric acid)  Bisulfite(sulfurous acid)  Borate  Bromide  Carbonate  Chlorate  Chloride  Chlorite  Chromate  Cyanide  Dichromate  Dihydrogen phosphate  Ferrocyanide  Ferricyanide  Fluoride  Hydroxide  Hypochlorite  Iodide  *Mono*hydrogen phosphate  Nitride  Nitrate  Nitrite  Oxalate  Oxide  Perchlorate  Permanganate  Peroxide  Phosphate  Phosphide  Silicate SiO32-  Sulfate  Sulfide  Sulfite  Thiocyanite |

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Solubility Rules

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| Rule | Ion(s) | Rule | Exceptions |
| 1 | Cl-, Br- , I- | Most chlorides, bromides, and iodides are soluble. | AgCl, AgBr, AgI, Hg2Cl2, Hg2Br2, Hg2I2, PbCl2, PbBr2, PbI2 (silver, mercury and lead) |
| 2 | F- | Most fluorides are soluble | MgF2, CaF2, SrF2, BaF2, PbF2  (magnesium, lead, calcium, strontium, and barium) |
| 3 | SO42- | Most sulfates are soluble | CaSO4, SrSO4, BaSO4, Ag2SO4, Hg2SO4, and PbSO4  (silver, mercury and lead, calcium, strontium, and barium) |
| 4 | CO32- | Most carbonates are **insoluble** | Group 1A and ammonium carbonates |
| 5 | PO43- | Most phosphates are **insoluble** | Group 1A and ammonium phosphates |
| 6 | S2- | Most sulfides are **insoluble** | Group 1A and ammonium sulfides |
| 7 | OH- | Most hydroxides are **insoluble** | Group 1A hydroxides and Ca(OH)2, Sr(OH)2, and Ba(OH)2  (calcium, strontium, barium) |
| 8 | Li+, Na+, K+, NH4+ | Group 1A and ammonium compounds are soluble  (Alkali metals and ammonium) | none |
| 9 | C2H3O2, NO3-, ClO3-, ClO4- | Acetates, nitrates, chlorates, and perchlorates are soluble | none |