

Haddonfield Memorial High School
Summer Assignment Cover Sheet

Course: AP Chemistry

Teacher(s): Dr. Sohn

Due Date(s): 9/7/10

Grade Weight (%) of Quarter 1: Quiz Grade - 5%

NJ Core

Curriculum Standards:

5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based model-building enterprise that continually extends, refines, and revises knowledge.

Description of Assignment:

Master given formulas

Purpose of Assignment:

The information included is vital basic content in the course and will help to promote success in the course.

Specific Expectations:

Students will know the required information before the course begins.

Potential Help Sources:

Teacher email

Summer Assignment—AP Chemistry 2010-2011

Congratulations on selecting AP Chemistry next year. I hope you will find this course a rewarding challenge. As I'm sure you are aware, this course is the equivalent of two semesters of introductory college chemistry and requires a considerable amount of effort. In order to give us a running start, I am requiring that you memorize some information over the summer. I will give you a quiz on this material on the day after you return to school. Previous HMHS students have found this work, especially memorizing the solubility rules, to be ESSENTIAL to future success.

1. Memorize the names and formulas (including charges) for these polyatomic ions

COMMON POLYATOMIC IONS (Table 2.5)

ION	NAME	ION	NAME
NH_4^+	Ammonium	SCN^-	Thiocyanate
NO_2^-	Nitrite	CO_3^{2-}	Carbonate
NO_3^-	Nitrate	HCO_3^-	Hydrogen Carbonate (bicarbonate)
SO_3^{2-}	Sulfite	ClO^-	Hypochlorite
SO_4^{2-}	Sulfate	ClO_2^-	Chlorite
HSO_4^-	Hydrogen sulfate (Bisulfate)	ClO_3^-	Chlorate
OH^-	Hydroxide	ClO_4^-	Perchlorate
CN^-	Cyanide	$\text{C}_2\text{H}_3\text{O}_2^-$	Acetate
PO_4^{3-}	Phosphate	MnO_4^-	Permanganate
HPO_4^{2-}	Hydrogen Phosphate	$\text{Cr}_2\text{O}_7^{2-}$	Dichromate
H_2PO_4^-	Dihydrogen Phosphate	CrO_4^{2-}	Chromate
Hg_2^{2+}	Mercury(I)	O_2^{2-}	Peroxide
$\text{C}_6\text{H}_5\text{COO}^-$	Benzoate	$\text{C}_2\text{O}_4^{2-}$	Oxalate

Note that bromate (BrO_3^-) and iodate (IO_3^-) follow the same pattern as the chlorate series listed above. For instance, IO_4^- is periodate and BrO^- is hypobromite.

2. Memorize the solubility rules listed below. The exceptions are just as important as the rules themselves.

Simple Rules for the Solubility of Salts in Water (Table 4.1)

1. Nitrate (NO_3^-) salts are soluble.
2. Salts containing alkali metal ions (Li^+ , Na^+ , K^+ , Cs^+ , Rb^+) and the ammonium (NH_4^+) ion are soluble.
3. Chloride, bromide and iodide salts are soluble. Exceptions are salts of the ions Ag^+ , Pb^{2+} , and Hg_2^{2+} .
4. Most sulfate salts are soluble. Notable exceptions are BaSO_4 , PbSO_4 , HgSO_4 and CaSO_4 .
5. Most hydroxide salts are not soluble, but alkali metal (group 1) hydroxides (LiOH , NaOH , KOH , RbOH , CsOH) are soluble. The alkaline earth (Group 2) hydroxides ($\text{Ca}(\text{OH})_2$, $\text{Mg}(\text{OH})_2$ etc.) are marginally soluble, which means that they will be treated as insoluble unless they are in very dilute solution. Hydroxides can be made soluble by the addition of acid.
6. Most sulfide (S^{2-}), carbonate (CO_3^{2-}), chromate (CrO_4^{2-}) and phosphate (PO_4^{3-}) salts are not soluble.

3. Memorize the six strong acids, which dissociate completely in aqueous solution:

HCl – hydrochloric acid

HBr – hydrobromic acid

HI – hydroiodic acid

H_2SO_4 – sulfuric acid (only the first dissociation is strong)

HNO_3 – nitric acid

HClO_4 – perchloric acid

4. Our Textbook: Zumdahl, Chemistry, 6th edition, Houghton-Mifflin

You may choose to purchase your own text to facilitate highlighting and note-taking. You may find your own copy of the book especially useful if you go on to take other chemistry courses in college. The ISBN number for your text is **0-618-26505-8**, and if you choose to purchase your own copy, you must buy the 6th edition. **Please let me know if you choose this option.**

I look forward to seeing you in September. Have a great summer and contact me if you have any questions.

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