

AP CHEMISTRY: SUMMER WORK

Read and study the first three chapters of the text that we will be using next fall. Much of what is covered in these chapters will be review from your high school chemistry course, but there are some new things that you are required to know about. The student should review and have memorized the charges of some monatomic ions and polyatomic ions before the first day of class. The required ions are listed on the third page of this notice. Some of the concepts that should be reviewed and mastered include:

- Classifications of matter
- Physical and chemical properties of matter
- Physical and chemical changes in matter
- Techniques for separating mixtures
- The SI system and conversion of units
- Density calculations
- Significant figures in the answers of calculations
 - Experiments that give evidence of atomic structure
- Isotopes and average atomic mass
- Structure of the periodic table
- Writing names and formulas for ionic compounds
- Writing names and formulas for common laboratory acids
- Writing names and formulas for binary molecular compounds
- Writing names and formulas for alkanes and alcohols
- Have memorized the names and oxidation numbers of the polyatomic ions and monatomic ions in table 1.
- Writing and balancing chemical equations.
- Types of chemical reactions
- Percent composition of compounds
- Mole conversions
- Empirical formulas and molecular formulas from analysis
- Stoichiometry
- Limiting reactants and percent yield

The following problems must be completed to be turned in on the first day of class in the fall. These are taken from the text; **Chemistry: The Central Science (13th edition)**, by Brown, LeMay, and Bersten. This is the text that we will be using next year. ISBN 13: 978- 0321910417

- Pp 34-39 # 13,19,22,24,30,32,41,42,47,56,76,83
- Pp 73-79 #1-8,
17,18,19,26,27,33,36,39,45,49,53,58,59,61,66,71,74,76,78,81
- 86,92,95,96,100,103,109,111
- Pg 112-120 # 1-8, 12,16,18-
21,25,35,37,39,41,45,49,51,53,55,57,63,65,67,68,71,72,77,79,83,85,
87,88,90,93,95

All work must be shown, and failure to turn in this summer work is grounds for dropping a student from AP Chemistry.

Also, the polyatomic ions listed on the last page must be memorized and understood by the student on the first day of class.

Silver	Ag^{+1}
Cadmium	Cd^{+2}
Zinc	Zn^{+2}
Hydride	H^{-1}
Acetate	$\text{C}_2\text{H}_3\text{O}_2^-$
Chlorate	ClO_3^-

Chlorite	ClO_2^-
Cyanide	CN^-
Hydroxide	OH^-
Hypochlorite	ClO^-
Iodate	IO_3^-
Nitrate	NO_3^-
Nitrite	NO_2^-
Perchlorate	ClO_4^-
Permanganate	MnO_4^-
Carbonate	CO_3^{2-}
Chromate	CrO_4^{2-}
Dichromate	$\text{Cr}_2\text{O}_7^{2-}$
Oxalate	$\text{C}_2\text{O}_4^{2-}$
Peroxide	O_2^{2-}
Silicate	SiO_3^{2-}
Sulfate	SO_4^{2-}
Dihydrogen phosphate	H_2PO_4^-
Hydrogen carbonate (bicarbonate)	HCO_3^-
Hydrogen sulfite	HSO_3^-

Thiocyanate	SCN
Hydrogen phosphate	HPO_4^{2-}
Ammonium	NH_4^+
Arsenate	AsO_4^{3-}
Phosphate	PO_4^{3-}
Sulfite	SO_3^{2-}
Tartrate	$\text{C}_4\text{H}_4\text{O}_6^{2-}$
Tetraborate	$\text{B}_4\text{O}_7^{2-}$
Thiosulfate	$\text{S}_2\text{O}_3^{2-}$
Hydrogen sulfate (bisulfate)	HSO_4^{2-}