

AP Chemistry Summer Work

- Memorize all of the ions on the common ion sheet below. Some people accomplish this through flash cards or a quizlet; some people find an on-line resource (see below). **Expect to have a quiz on the common ions within the first few days back.** For the quiz, I will give you the ion name and ask you to write the correct symbol and charge. For ions with alternative names, I have highlighted in yellow the one(s) to learn.
- It is also required that you review the following topics from Chapters 1-3 and 7-9 in your *Modern Chemistry* textbook (or any standard chemistry textbook or on-line resource), so we can get off to a quick start in August:
 - Matter and its properties (chemical vs. physical, extensive vs. intensive)
 - Elements vs. compounds vs. mixtures
 - Chemical vs. physical change
 - Periodic table – arrangement, groups, periods, etc.
 - Units of measurement and conversions
 - Significant figures
 - Atomic structure; isotopes and notation
 - Avogadro's number and the mole; mole conversion problems
 - Chemical names and formulas
 - Oxidation numbers
 - % composition, empirical formulas and molecular formulas
 - Writing and balancing chemical equations
 - Types of chemical reactions (synthesis, decomposition, etc.)
 - Stoichiometry – including mass-mass problems, limiting reactants, and % yield
- A great on-line resource is “Science Geek,” which can be found at <http://www.sciencegeek.net/APchemistry/APtaters/directory.shtml> The multiple choice quizzes in UNIT 1 (only) will help you brush up on many of the topics above. The quizzes in Chapters 1 and 2 are particularly effective in helping you review ions, naming and formula-writing, and balancing equations. For the topics involving calculations, such as empirical formulas, % composition, stoichiometry, and limiting reactant problems, your textbook or another on-line resource such as Khan Academy might be preferable.

AP Common Ions



CATIONS (+ve)		ANIONS (-ve)	
Aluminum	Al^{3+}	Arsenate	AsO_4^{3-}
Ammonium	NH_4^+	Bromide	Br^-
Arsenic (III)	As^{3+}	Bromate (I) (Hypobromite)	BrO^-
Arsenic (V)	As^{5+}	Bromate (III) (Bromite)	BrO_2^-
Barium	Ba^{2+}	Bromate (V) (Bromate)	BrO_3^-
Bismuth (III)	Bi^{3+}	Bromate (VII) (Perbromate)	BrO_4^-
Bismuth (V)	Bi^{5+}	Carbonate	CO_3^{2-}
Cadmium	Cd^{2+}	Chlorate (I) (Hypochlorite)	ClO^-
Calcium	Ca^{2+}	Chlorate (III) (Chlorite)	ClO_2^-
Chromium (II)	Cr^{2+}	Chlorate (V) (Chlorate)	ClO_3^-
Chromium (III)	Cr^{3+}	Chlorate (VII) (Perchlorate)	ClO_4^-
Cobalt (II)	Co^{2+}	Chloride	Cl^-
Cobalt (III)	Co^{3+}	Chromate	CrO_4^{2-}
Copper (I) (Cuprous)	Cu^+	Cyanide	CN^-
Copper (II) (Cupric)	Cu^{2+}	Dichromate	$\text{Cr}_2\text{O}_7^{2-}$
Hydrogen	H^+	Dihydrogen Phosphate	H_2PO_4^-
Hydronium	H_3O^+	Ethanoate (Acetate)	$\text{C}_2\text{H}_3\text{O}_2^-$ or CH_3COO^-
Iron (II) (Ferrous)	Fe^{2+}	Fluoride	F^-
Iron (III) (Ferric)	Fe^{3+}	Hydride	H^-
Lead (II) (Plumbous)	Pb^{2+}	Hydrogen Carbonate (Bicarbonate)	HCO_3^-
Lead (IV) (Plumbic)	Pb^{4+}	Hydrogen Oxalate (Binoxalate)	HC_2O_4^-
Lithium	Li^+	Hydrogen Phosphate	HPO_4^{2-}
Magnesium	Mg^{2+}	Hydrogen Sulfate (Bisulfate)	HSO_4^-
Manganese (II)	Mn^{2+}	Hydrogen Sulfide (Bisulfide)	HS^-
Manganese (IV)	Mn^{4+}	Hydrogen Sulfite (Bisulfite)	HSO_3^-
Mercury (I) (Mercurous)	Hg_2^{2+}	Hydroxide	OH^-
Mercury (II) (Mercuric)	Hg^{2+}	Iodate (I) (Hypoiodite)	IO^-
Nickel (II)	Ni^{2+}	Iodate (III) (Iodite)	IO_2^-
Potassium	K^+	Iodate (V) (Iodate)	IO_3^-
Silver	Ag^+	Iodate (VII) (Periodate)	IO_4^-
Sodium	Na^+	Iodide	I^-
Strontium	Sr^{2+}	Manganate (VII) (Permanganate)	MnO_4^-
Tin (II) (Stannous)	Sn^{2+}	Nitrate	NO_3^-
Tin (IV) (Stannic)	Sn^{4+}	Nitride	N^{3-}
Zinc	Zn^{2+}	Nitrite	NO_2^-
		Oxalate (Ethandioate)	$\text{C}_2\text{O}_4^{2-}$
		Oxide	O^{2-}
		Peroxide	O_2^{2-}
		Phosphate	PO_4^{3-}
		Phosphide	P^{3-}
		Phosphite	PO_3^{3-}
		Sulfate	SO_4^{2-}
		Sulfite	SO_3^{2-}
		Thiosulfate	$\text{S}_2\text{O}_3^{2-}$
		Thiocyanate	SCN^-
		Sulfide	S^{2-}

POLYATOMIC IONS

+1	-1	-2	-3
NH_4^+	BrO^-	CO_3^{2-}	AsO_4^{3-}
	BrO_2^-	$\text{C}_2\text{O}_4^{2-}$	PO_3^{3-}
	BrO_3^-	CrO_4^{2-}	PO_4^{3-}
	BrO_4^-	$\text{Cr}_2\text{O}_7^{2-}$	
	$\text{C}_2\text{H}_3\text{O}_2^-$ or CH_3COO^-	HPO_4^{2-}	
	ClO^-	SO_3^{2-}	
	ClO_2^-	SO_4^{2-}	
	ClO_3^-	$\text{S}_2\text{O}_3^{2-}$	
	ClO_4^-		
	CN^-		
	HCO_3^-		
	HC_2O_4^-		
	H_2PO_4^-		
	HS^-		
	HSO_3^-		
	HSO_4^-		
	IO^-		
	IO_2^-		
	IO_3^-		
	IO_4^-		
	MnO_4^-		
	NO_2^-		
	NO_3^-		
	OH^-		
	SCN^-		