

CHEMICAL NAMES & FORMULAS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 H 1.008																	1 He 4.003
3 Li 6.941	4 Be 9.012											13 Al 26.982	14 Si 28.086	15 P 30.974	16 S 32.06	17 Cl 35.45	18 Ar 39.948
11 Na 22.990	12 Mg 24.305											19 K 39.098	20 Ca 40.078	21 Sc 44.956	22 Ti 47.88	23 V 50.942	24 Cr 51.996
19 K 39.098	20 Ca 40.078	21 Sc 44.956	22 Ti 47.88	23 V 50.942	24 Cr 51.996	25 Mn 54.938	26 Fe 55.845	27 Co 58.933	28 Ni 58.69	29 Cu 63.546	30 Zn 65.38	31 Ga 69.723	32 Ge 72.64	33 As 74.922	34 Se 78.96	35 Br 79.904	36 Kr 83.8
37 Rb 85.468	38 Sr 87.62	39 Y 88.906	40 Zr 91.224	41 Nb 92.906	42 Mo 95.94	43 Tc 98	44 Ru 101.07	45 Rh 102.905	46 Pd 106.42	47 Ag 107.868	48 Cd 112.411	49 In 114.818	50 Sn 118.710	51 Sb 121.757	52 Te 127.6	53 I 126.905	54 Xe 131.29
55 Cs 132.905	56 Ba 137.327	57 La 138.905	58 Ce 140.12	59 Pr 140.908	60 Nd 144.24	61 Pm 145	62 Sm 150.36	63 Eu 151.965	64 Gd 157.25	65 Tb 158.925	66 Dy 162.50	67 Ho 164.930	68 Er 167.259	69 Tm 168.934	70 Yb 173.054	71 Lu 174.967	72 Hf 178.49
87 Fr [223]	88 Ra [226]	89 Ac [227]	90 Th 232.0377	91 Pa [231]	92 U 238.02891	93 Np [237]	94 Pu [244]	95 Am [243]	96 Cm [247]	97 Bk [247]	98 Cf [251]	99 Es [252]	100 Fm [257]	101 Md [258]	102 No [259]	103 Lr [262]	104 Rf [261]
101 Fr [223]	102 Ra [226]	103 Ac [227]	104 Th 232.0377	105 Pa [231]	106 U 238.02891	107 Np [237]	108 Pu [244]	109 Am [243]	110 Cm [247]	111 Bk [247]	112 Cf [251]	113 Es [252]	114 Fm [257]	115 Md [258]	116 No [259]	117 Lr [262]	118 Rf [261]

Monatomic Ions

- Monatomic ion – ions formed from a single atom.
- Naming
 - Monatomic cations are identified by the element's name. Ca^{2+} Calcium ion, Li^{+} Lithium
 - Monatomic anions are named by dropping the ending of the element's name and adding -ide to the root name.
 - Fluorine Fluoride F^{-} Br^{-} Bromide
 - Sulfur Sulfide S^{2-} C^{4-} Carbide

Binary Compounds

- Binary Compounds- compounds composed of two different elements.
- Binary ionic compounds – metal and a nonmetal. No prefixes
- Binary molecular compounds – 2 nonmetals
Prefixes

Steps for determining subscripts in formulas for ionic compounds.

- Write the symbols for the ions side by side. Cations first.
- Post the charges.
- Cross and drop the charges.
- Check the subscripts and simplify.

Example

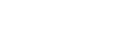
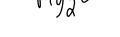
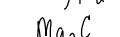
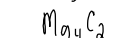
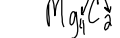
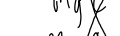
aluminum & oxygen

Aluminum and oxygen



aluminum oxide

Carbon & magnesium



Stock System of Nomenclature

- The purpose is to distinguish between cations of elements with different charges.



iron (II)



iron (III)



- The roman numeral is enclosed in parentheses and is placed immediately after the metal name.

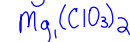
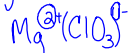
iron (III) oxide

Cool!
 You know you see
 me on the smartboard

Polyatomic Ions

- Oxyanions – polyatomic ions containing oxygen.

magnesium & chlorate



magnesium chlorate

copper(II) & carbonate



copper(II) carbonate

CW/HW

Element	Element	Cation	Anion	Cross-drop	Chemical Formula	Chemical Name
potassium	chlorine	K^{1+}	Cl^{1-}	K_2Cl_2	KCl	potassium chloride
selenium	lithium					
bromine	Lead (IV)					
silver	iodine					
carbon	magnesium					

Chemical Name	Cation	Anion	Chemical Formula
Cobalt (III) chloride			
Aluminum sulfide			
			CaS
			PbO

Ion Name	Element	Cation	Anion	Cross-drop	Chemical Formula	Chemical Name
hydroxide	sodium					
phosphate	lithium					
carbonate	Lead (IV)					
ammonium	chlorine	$(\text{NH}_4)^{1+}$	Cl^{1-}	$(\text{NH}_4)\text{Cl}$	NH_4Cl	ammonium chloride
					$\text{Be}(\text{ClO}_4)_2$	
					$\text{Ba}(\text{NO}_3)_2$	