1 H 1.008																	2 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 19.00	10 Ne 20.18
11 Na 22.99	12 Mg 24.31											13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95
19 K 39.20	20 Ca 40.08	21 Sc 44.96	22 Ti 47.88	23 V 50.94	24 Cr 52.00	25 Mn 54.94	26 Fe 55.85	27 Co 58.93	28 Ni 58.69	29 Cu 63.55	30 Zn 65.39	31 Ga 69.72	32 Ge 72.61	33 As 74.92	34 Se 78.96	35 Br 79.90	36 Kr 83.80
37 Rb 85.47	38 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc (98)	44 Ru 101.0	45 Rh 102.9	46 Pd 106.4	47 Ag 107.8	48 Cd 112.4	49 In 114.8	50 Sn 118.7	51 Sb 121.7	52 Te 127.6	53 I 126.9	54 Xe 131.2
55 Cs 132.9	56 Ba 137.3	57 La 138.9	72 Hf 178.5	73 Ta 180.1	74 W 183.9	75 Re 186.2	76 Os 190.2	77 Ir 192.2	78 Pt 195.1	79 Au 197.0	80 Hg 200.6	81 Tl 204.4	82 Pb 207.2	83 Bi 209.0	84 Po (209)	85 At (210)	86 Rn (222)
87 Fr 223.0	88 Ra 226.0	89 Ac 227.0	104 Rf (261)	105 Db (262)	106 Sg (263)	107 Bh (262)	108 Hs (265)	109 Mt (266)	110 Ds (281)	111 Rg (272)	112 Uub (285)	113 Uut (284)	114 Uuq (289)	115 Uup (288)	116 Uuh (292)		

Polyatomic ions (PAIs)

Acetate	$C_2H_3O_2^-$	Thiocyanate	SCN^-
Bromate	BrO_3^-	Cyanide	CN^-
Carbonate	CO_3^{2-}	Peroxide	O_2^{2-}
Chlorate	ClO_3^-	Azide	N_3^-
Chromate	CrO_4^{2-}	Hydroxide	OH^-
Iodate	IO_3^-	Ammonium	NH_4^+
Manganate	MnO_3^-	Hydronium	H_3O^+
Nitrate	NO_3^-		
Phosphate*	PO_4^{3-}		
Sulfate*	SO_4^{2-}		

* The root for phosphate is phosphor- and the root for sulfate is sulfur-

Examples of naming rules and categories

Category 1: Blue + Red
(Representative metal or Ammonium + Nonmetal or Polyatomic ion)

Rep. M + NM
Lithium oxide, Li_2O

Rep. M + PAI
Calcium hydroxide, $Ca(OH)_2$

NH_4^+ + NM
Ammonium chloride, NH_4Cl

NH_4^+ + PAI
Ammonium phosphate, $(NH_4)_3PO_4$

(Ionic bonding)

Category 2: Green + Red
(Transition metal + Nonmetal or Polyatomic ion)

Trans. M + NM
Copper (II) sulfide, CuS

Trans. M + PAI
Iron (III) chlorate, $Fe(ClO_3)_3$

1	**I**
2	**II**
3	**III**
4	**IV**
5	**V**

(Ionic bonding)

Category 3: Red + Red
(Nonmetal + Nonmetal)

NM + NM
Trinitrogen difluoride, N_3F_2
Disilicon monosulfide, Si_2S
Carbon monoxide, CO

1	**mono**	6	**hexa**
2	**di**	7	**hepta**
3	**tri**	8	**octa**
4	**tetra**	9	**nona**
5	**penta**	10	**deca**

(Covalent bonding)

Acids: H + Red
(Hydrogen + Nonmetal or Polyatomic ion)

Hydrogen + NM
Hydrobromic acid, HBr

Hydrogen + PAI
Sulfuric acid, H_2SO_4

hydrogen __ate ➡ __ic acid

hydrogen __ite ➡ __ous acid

hydrogen __ide ➡ hydro__ic acid

(Special ionic bonding)

Category Color code	**Category 1** Blue + Red	**Category 2** Green + Red	**Category 3** Red + Red	**Acids** H + Red
What is it made of?	Representative metal or Ammonium + Nonmetal or Polyatomic ion	Transition metal + Nonmetal or Polyatomic ion	Nonmetal + Nonmetal	Hydrogen + Nonmetal or Polyatomic ion
Bonding type	Ionic bonding	Ionic bonding	Covalent bonding	(Special ionic bonding)
I know the formula:	• Write the name of the metal and the nonmetal • Change the ending of the nonmetal to "-ide"	• Write the name of the metal and the nonmetal • Change the ending of the nonmetal to "-ide" • Use subscripts and the charge of the nonmetal to determine the charge on the metal; write this as a Roman numeral between the two names	• Write the name of both nonmetals • Change the ending of the second nonmetal to "-ide" • Use subscripts to determine the correct prefixes for each nonmetal and add them to the beginning of their names	• Use Category 1 rules first • Drop "hydrogen" • Find the root of the nonmetal name and change it according to the pattern: -ate to -ic -ite to -ous -ide to hydro-___-ic
I know the name:	• Write the symbol of the metal and the nonmetal • Use charges to determine the subscripts	• Write the symbol of the metal and the nonmetal • Use the charge of the nonmetal and the Roman numeral as the charge of the metal to determine the subscripts	• Write the symbol of both nonmetals • Use prefixes to determine the subcripts	• Use the pattern to determine the name according to Category 1 rules • Write the symbol for hydrogen and the nonmetal • Use charges to determine the subscripts

Most common / most useful polyatomic ions (PAIs)

Chlorate	ClO_3^-
Nitrate	NO_3^-
Carbonate	CO_3^{2-}
Sulfate*	SO_4^{2-}
Phosphate*	PO_4^{3-}
Acetate	$C_2H_3O_2^-$
Hydroxide	OH^-
Ammonium	NH_4^+

* The root for phosphate is phosphor- and the root for sulfate is sulfur-

More with polyatomic ions (PAIs)

Prefix or suffix	**Number of oxygens**	**Example PAI**		**Example compound**	
__ate	original, from list	chlor**ate**	ClO_3^-	$HClO_3$	chloric acid
per__ate	original **+1**	**per**chlor**ate**	ClO_4^-	$NaClO_4$	sodium perchlorate
__ite	original **–1**	chlor**ite**	ClO_2^-	$Ca(ClO_2)_2$	calcium chlorite
hypo__ite	original **–2**	**hypo**chlor**ite**	ClO^-	HClO	hypochlorous acid