

Alkali		Alkali Earth		naming										Chalcogen				Halogen	NobleGas		
IA +1	←			TER ACID Name = A > I > O / Bin = IC only HClO <sub>3</sub> = Chloric Acid HClO <sub>2</sub> = Chlorous Acid BIN ACID = Hydro+ic & acid HCl = hydrochloric acid														VIIA -1	VIIIA		
1 +1 H 1.01	Oxidation states & monoatomic charges	Electron affinity → +		subscript indicates naming of polyatomic ions ex > ClO <sub>4</sub> <sup>-1</sup> per+ate ClO <sub>3</sub> <sup>-1</sup> = ate ClO <sub>2</sub> <sup>-1</sup> = ite ClO <sub>1</sub> <sup>-1</sup> = Hypo+ite										All to the right of Metalloid are NON metals				1 -1 H 1.01 4	2 He 4.00		
IIA +2	←			NM+NM = Greek / monatomic anion = IDE CO <sub>2</sub> = carbon dioxide										IIIA +3	IVA -4	VA -3	VIA -2				
3+1 Li 6.94	4+2 Be 9.01	Metal → +		M+NM = Roman # (XX) after Cation FeCl <sub>3</sub> = iron(III) chloride										5 -3 B 10.81 4	6 -2 C 12.01 3	7 -1 N 14.01 2/3	8 -2 O 16.00 3/4	9 -1 F 19.00	10 Ne 20.18		
in # order - mono, di tri, tetra, penta, hexa, hepta, octa, nona, deca		Reactivity → --		Group A = Representative										Metalloid →							
11+1 Na 22.99	12+2/4 Mg 24.31	Electronegativity → -		Group B = Transition																	
Metals ↓		Ionic charges →		+2/3		+2/3		+2/3		+2/3				+2							
				IIIB		IVB		VB		VIB		VIIB		VIIIB		IB		IIB			
19+1 K 39.10	20+2 Ca 40.08	21 Sc 44.96	22 Ti 47.88	23 V 50.94	24 -2 Cr 52.00 2	25 -1 Mn 54.94 4	26 Fe 55.85	27 Co 58.93	28+2 Ni 58.69	29+1/2 Cu 63.55	30 Zn 65.39	31+3 Ga 69.72	M Ge 72.61	33 -3 As 74.92 3/4	34 -2 Se 78.96 3/4	35 -1 Br 79.90 2/3	36 Kr 83.80				
37+1 Rb 85.47	38+2 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc 98.91	44 Ru 101.07	45 Rh 102.91	46 Pd 106.42	47+1 Ag 107.87	48 Cd 112.41	49+3 In 114.82	50+2/4 Sn 118.71	51 -3 Sb 121.76 3/4	52 -2 Te 127.60 3/4	53 -1 I 126.90 2/3	54 Xe 131.29				
55 Cs 132.91	56+2 Ba 137.33	57 La 138.91	72 Hf 178.49	73 Ta 180.95	74 W 183.85	75 Re 186.21	76 Os 190.23	77 Ir 192.22	78 Pt 195.08	79+1/3 Au 196.97	80 Hg 200.59	81+3 Tl 204.38	82+2/4 Pb 207.20	83 Bi 208.93 3/4	84 Po 208.98	85 At 209.99	86 Rn 222.02				
87 Fr 223.02	88 Ra 226.03	89 Ac 227.03	104 Rf 261.11	105 Db 262.11	106 Sg 263.12	107 Bh 262.12	108 Hs (265)	109 Mt (266)	110 Ds (269)	111 Uuu (272)	112 Uub (277)	113	114	115	116	117	118				
1-7 s		(ref: top - bottom) 3-6 d elec subshells = s,p,d,f s=1sphere/2 p=3orbitals/6 d=5orbitals/10 f=7orbitals/14										2-6 p (He = 1s)									

← Reactivity ← Metal ← ← Electronegativity ← ← Radii ← ← Electron Affinity

**Lanthanides (Inner Transition)** \*IONS are only found in compounds / All elements in natural state = 0 charge

58 Ce 140.115	59 Pr 140.91	60 Nd 144.24	61 Pm 144.91	62 Sm 150.36	63 Eu 151.97	64 Gd 157.25	65 Tb 158.93	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.04	71 Lu 174.97
90 Th 232.038	91 Pa 231.04	92 U 238.03	93 Np 237.05	94 Pu 244.06	95 Am 243.06	96 Cm 247.07	97 Bk 247.07	98 Cf 251.08	99 Es 252.08	100 Fm 257.10	101 Md 258.10	102 No 259.10	103 Lr 260.11

16 -2 S	-Atomic # + charge of poly ion -Element name
32.07 3/4	-Avg Atomic mass # of oxygen / polyatomic anion

**Actinides (Inner Transition)**

Q#s  $n = 123..shell \# / l = (n-1) 1,2,3...subshell / m = (2l+1)0 \pm 1 \pm 2... orbital\#$