



# Chem!stry

Name: ..... ( )

Class: .....

Date: ..... / ..... / .....

## Valency Table

**Definition of valency:** The number of electrons lost by a metal or gained by a non-metal when it reacts to obtain the electronic configuration of a noble gas. **Note:** The charges on the ions are written for reference and should *not* be included in the final formula, e.g.  $\text{NaCl}$  *not*  $\text{Na}^+\text{Cl}^-$ .

	Valency = 1	Valency = 2	Valency = 3
<b>Cations:</b>	Ammonium – $\text{NH}_4^+$ Hydrogen – $\text{H}^+$ Lithium – $\text{Li}^+$ Potassium – $\text{K}^+$ Silver – $\text{Ag}^+$ Sodium – $\text{Na}^+$ Group 1 metals and any transition metal whose name is followed by (I), e.g. <i>copper(I) oxide</i> .	Calcium – $\text{Ca}^{2+}$ Lead – $\text{Pb}^{2+}$ Magnesium – $\text{Mg}^{2+}$ Zinc – $\text{Zn}^{2+}$ Group 2 metals and any transition metal whose name is followed by (II), e.g. <i>copper(II) sulfate</i> .	Aluminium – $\text{Al}^{3+}$ Group 13 metals and any transition metal whose name is followed by (III), e.g. <i>iron(III) chloride</i> .

	Valency = 1	Valency = 2	Valency = 3	Valency = 4
<b>Anions:</b>	Bromide – $\text{Br}^-$ Chloride – $\text{Cl}^-$ Ethanoate – $\text{CH}_3\text{COO}^-$ Fluoride – $\text{F}^-$ Hydride – $\text{H}^-$ Hydroxide – $\text{OH}^-$ Iodide – $\text{I}^-$ Manganate(VII) – $\text{MnO}_4^-$ Nitrate – $\text{NO}_3^-$ Nitrite – $\text{NO}_2^-$	Carbonate – $\text{CO}_3^{2-}$ Dichromate(VI) – $\text{Cr}_2\text{O}_7^{2-}$ Oxide – $\text{O}^{2-}$ Sulfate – $\text{SO}_4^{2-}$ Sulfide – $\text{S}^{2-}$ Sulfite – $\text{SO}_3^{2-}$	Nitride – $\text{N}^{3-}$ Phosphate $\text{PO}_4^{3-}$ Phosphide – $\text{P}^{3-}$	Carbide – $\text{C}^{4-}$ Silicide – $\text{Si}^{4-}$ <b>Note:</b> These anions are rarely – if ever – seen in nature and their symbols are only given for guidance to help you write chemical formulae.

Periodic Table of the Chemical Elements (2017)

		Group																			
1	2															13	14	15	16	17	18
		<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">1 H hydrogen 1.0</div> <div style="border: 1px solid black; padding: 2px;">                     atomic number atomic symbol relative atomic mass                 </div> </div>																			
3 Li lithium 6.9	4 Be beryllium 9.0	5 B boron 10.8	6 C carbon 12.0	7 N nitrogen 14.0	8 O oxygen 16.0	9 F fluorine 19.0	10 Ne neon 20.2	11 Na sodium 23.0	12 Mg magnesium 24.3	13 Al aluminium 27.0	14 Si silicon 28.1	15 P phosphorus 31.0	16 S sulfur 32.1	17 Cl chlorine 35.5	18 Ar argon 39.9						
19 K potassium 39.1	20 Ca calcium 40.1	21 Sc scandium 45.0	22 Ti titanium 47.9	23 V vanadium 50.9	24 Cr chromium 52.0	25 Mn manganese 54.9	26 Fe iron 55.8	27 Co cobalt 58.9	28 Ni nickel 58.7	29 Cu copper 63.5	30 Zn zinc 65.4	31 Ga gallium 69.7	32 Ge germanium 72.6	33 As arsenic 74.9	34 Se selenium 79.0	35 Br bromine 79.9	36 Kr krypton 83.8				
37 Rb rubidium 85.5	38 Sr strontium 87.6	39 Y yttrium 88.9	40 Zr zirconium 91.2	41 Nb niobium 92.9	42 Mo molybdenum 95.9	43 Tc technetium —	44 Ru ruthenium 101.1	45 Rh rhodium 102.9	46 Pd palladium 106.4	47 Ag silver 107.9	48 Cd cadmium 112.4	49 In indium 114.8	50 Sn tin 118.7	51 Sb antimony 121.8	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe xenon 131.3				
55 Cs caesium 132.9	56 Ba barium 137.3	57–71 lanthanoids	72 Hf hafnium 178.5	73 Ta tantalum 180.9	74 W tungsten 183.8	75 Re rhenium 186.2	76 Os osmium 190.2	77 Ir iridium 192.2	78 Pt platinum 195.1	79 Au gold 197.0	80 Hg mercury 200.6	81 Tl thallium 204.4	82 Pb lead 207.2	83 Bi bismuth 209.0	84 Po polonium —	85 At astatine —	86 Rn radon —				
87 Fr francium —	88 Ra radium —	89–103 actinoids	104 Rf rutherfordium —	105 Db dubnium —	106 Sg seaborgium —	107 Bh bohrium —	108 Hs hassium —	109 Mt meitnerium —	110 Ds darmstadtium —	111 Rg roentgenium —	112 Cn copernicium —	114 Fl flerovium —	116 Lv livermorium —	—	—	—	—				
lanthanoids		57 La lanthanum 138.9	58 Ce cerium 140.1	59 Pr praseodymium 140.9	60 Nd neodymium 144.2	61 Pm promethium —	62 Sm samarium 150.4	63 Eu europium 152.0	64 Gd gadolinium 157.3	65 Tb terbium 158.9	66 Dy dysprosium 162.5	67 Ho holmium 164.9	68 Er erbium 167.3	69 Tm thulium 168.9	70 Yb ytterbium 173.1	71 Lu lutetium 175.0					
actinoids		89 Ac actinium —	90 Th thorium 232.0	91 Pa protactinium 231.0	92 U uranium 238.0	93 Np neptunium —	94 Pu plutonium —	95 Am americium —	96 Cm curium —	97 Bk berkelium —	98 Cf californium —	99 Es einsteinium —	100 Fm fermium —	101 Md mendelevium —	102 No nobelium —	103 Lr lawrencium —					