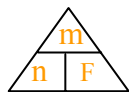
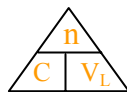


# PERIODIC CHEAT SHEET



$m$  = mass you measure, g  
 $n$  = number of moles, mols  
 $F$  = Formula mass, g/mol



$n$  = number of moles, mols  
 $C$  = Concentration, mol/L  
 $V_L$  = Volume in Litres, L

Key

Atomic Number	11	Symbol of element
Number of protons	Na	Electron configuration
Atomic Weight	22.99	Name of element
Number of protons + neutrons, averaged over all isotopes	Sodium	

1	H
1.008	Hydrogen

$V = 22.7L$  at 0 °C (STP)  
 $= 24.8L$  at 25 °C (RTP)

Codeword: OIL RIG

No Study Pain  
 No Exam Gain

Transition metals, have multiple valencies, one is always 2+ (Ag = 1+)

Group 1 Lose 1e <sup>-</sup> Cations, 1+	Group 2 Lose 2e <sup>-</sup> Cations, 2+	Group 3 Lose 3e <sup>-</sup> Cations, 3+	Group 4 Share 4e <sup>-</sup> Covalent Bonds	Group 5 Share 5e <sup>-</sup> Covalent Bonds	Group 6 Gain 2e <sup>-</sup> Anions, 2-	Group 7 Gain 1e <sup>-</sup> Anions, 1-	Group 8 Do Not React!
3 Li 6.941 Lithium	4 Be 9.012 Beryllium	5 B 10.81 Boron	6 C 12.01 Carbon	7 N 14.01 Nitrogen	8 O 16 Oxygen	9 F 19 Flourine	10 Ne 20.18 Neon
11 Na 22.99 Sodium	12 Mg 24.31 Magnesium	13 Al 26.98 Aluminium	14 Si 28.09 Silicon	15 P 30.97 Phosphorus	16 S 32.06 Sulfur	17 Cl 35.45 Chlorine	18 Ar 39.95 Argon
19 K 39.1 Potassium	20 Ca 40.08 Calcium	21 Sc 44.96 Scandium	22 Ti 47.9 Titanium	23 V 50.94 Vanadium	24 Cr 52 Chromium	25 Mn 54.94 Manganese	26 Fe 55.85 Iron
27 Co 58.93 Cobalt	28 Ni 58.71 Nickel	29 Cu 63.55 Copper	30 Zn 63.38 Zinc	31 Ga 69.72 Gallium	32 Ge 72.59 Germanium	33 As 74.92 Arsenic	34 Se 78.96 Selenium
37 Rb 85.47 Rubidium	38 Sr 87.62 Strontium	39 Y 88.91 Yttrium	40 Zr 91.22 Zirconium	41 Nb 92.91 Niobium	42 Mo 95.94 Molybdenum	43 Tc 98.91 Technetium	44 Ru 101.1 Ruthenium
45 Rh 102.9 Rhodium	46 Pd 106.4 Palladium	47 Ag 107.9 Silver	48 Cd 112.4 Cadmium	49 In 114.8 Indium	50 Sn 118.7 Tin	51 Sb 121.8 Antimony	52 Te 127.6 Tellurium
53 I 126.9 Iodine	54 Xe 131.3 Xenon	55 Cs 132.9 Cesium	56 Ba 137.3 Barium	57 La 138.9 Lanthanum	58 Ce 140.1 Cerium	59 Pr 140.9 Praseodymium	60 Nd 144.2 Neodymium
61 Pm 145 Promethium	62 Sm 150.4 Samarium	63 Eu 152 Europium	64 Gd 157.3 Gadolinium	65 Tb 158.9 Terbium	66 Dy 162.5 Dysprosium	67 Ho 164.9 Holmium	68 Er 167.3 Erbium
69 Tm 168.9 Thulium	70 Yb 173 Ytterbium	71 Lu 175 Lutetium	72 Hf 178.5 Hafnium	73 Ta 180.9 Tantalum	74 W 183.9 Tungsten	75 Re 186.2 Rhenium	76 Os 190.2 Osmium
77 Ir 192.2 Iridium	78 Pt 195.1 Platinum	79 Au 197 Gold	80 Hg 200.6 Mercury	81 Tl 204.4 Thallium	82 Pb 207.2 Lead	83 Bi 209 Bismuth	84 Po 209 Polonium
85 At 210 Astatine	86 Rn 222 Radon	87 Fr 223 Francium	88 Ra 226 Radium	89 Ac 227 Actinium	90 Th 232 Thorium	91 Pa 231 Protactinium	92 U 238 Uranium
93 Np 237 Neptunium	94 Pu 244 Plutonium	95 Am 243 Americium	96 Cm 247 Curium	97 Bk 249 Berkelium	98 Cf 251 Californium	99 Es 254 Einsteinium	100 Fm 257 Fermium
101 Md 258 Mendelevium	102 No 259 Nobelium	103 Lr 260 Lawrencium	104 Rf 261 Rutherfordium	105 Db 262 Dubium	106 Sg 266 Seaborgium	107 Bh 264 Bohrium	108 Hs 269 Hassium
109 Mt 268 Meitnerium	110 Uun 269 Ununilium	111 Uuu 272 Unununium	112 Uub 277 Ununbium	113 Uut 284 Ununtrium	114 Uuq 289 Ununquadium	115 Uup 288 Ununpentium	116 Uuh 289 Ununhexium
117 Uus 289 Ununseptium	118 Uuo 293 Ununoctium	119 Uuh 294 Ununennium	120 Uuq 295 Ununquadium	121 Uut 296 Ununtrium	122 Uuq 297 Ununquadium	123 Uut 298 Ununtrium	124 Uuq 299 Ununquadium

Electronegativity : Tendency to attract electrons. Flourine is the most electronegative, extra e<sup>-</sup> in 2<sup>nd</sup> shell, tightly held

Oxidant: oxidises something else and is reduced itself, and are strong electron takers

Reductant: reduces something else and is oxidised itself, tend to be weak electron holders

Balancing redox equations: Main atom, O with H<sub>2</sub>O, H with H<sup>+</sup>, e<sup>-</sup> on positive side

DISSOCIATION: Seperation of ions

ASSOCIATION: Joining of ions

IONISATION: Making ions (from covalent substances)

Halogens  
(ions called halides)

Noble gases

If your study is brief  
 Exam results cause you grief

57 La 138.9 Lanthanum	58 Ce 140.1 Cerium	59 Pr 140.9 Praseodymium	60 Nd 144.2 Neodymium	61 Pm 145 Promethium	62 Sm 150.4 Samarium	63 Eu 152 Europium	64 Gd 157.3 Gadolinium	65 Tb 158.9 Terbium	66 Dy 162.5 Dysprosium	67 Ho 164.9 Holmium	68 Er 167.3 Erbium	69 Tm 168.9 Thulium	70 Yb 173 Ytterbium	71 Lu 175 Lutetium
89 Ac 227 Actinium	90 Th 232 Thorium	91 Pa 231 Protactinium	92 U 238 Uranium	93 Np 237 Neptunium	94 Pu 244 Plutonium	95 Am 243 Americium	96 Cm 247 Curium	97 Bk 249 Berkelium	98 Cf 251 Californium	99 Es 254 Einsteinium	100 Fm 257 Fermium	101 Md 258 Mendelevium	102 No 259 Nobelium	103 Lr 260 Lawrencium

Strong Acids

Strong Alkalis

NO<sub>3</sub><sup>-</sup> = Nitrate

CO<sub>3</sub><sup>2-</sup> = Carbonate

SO<sub>4</sub><sup>2-</sup> = Sulfate

NH<sub>4</sub><sup>+</sup> = Ammonium

OH<sup>-</sup> = Hydroxide

PO<sub>4</sub><sup>3-</sup> = Phosphate

MnO<sub>4</sub><sup>-</sup> = Permanganate

CrO<sub>4</sub><sup>2-</sup> = Chromate

Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup> = Dichromate

HNO<sub>3</sub> = Nitric acid

HCl = Hydrochloric acid

H<sub>2</sub>SO<sub>4</sub> = Sulfuric acid

H<sub>3</sub>PO<sub>4</sub> = Orthophosphoric acid

H<sub>2</sub>SO<sub>3</sub> = Sulfurous acid

NaOH = Sodium hydroxide

KOH = Potassium hydroxide

Pussy Cats

are

Positive



Anions

are

Negative

Ask a  
 Chemist  
 They have  
 Solutions

BONDING  
 Elements Compounds  
 COVALENT METALLIC COVALENT IONIC

M → e<sup>-</sup> → NM  
 metals are losers non - metals are greedy