Electron Configuration

Valance electrons	Number of electrons in outermost shell.
shell -> subshells -> orbitals	
shell	K, L, M, N — n=1, 2, ...
subshell	s, p, d, f, g — 1s, 2s, 2p, 3s, ...
orbital	s, p_x, p_y, p_z — 1s, 2s, $2p_x$, $2p_y$, $2p_z$
Element is classified as s, p, d and f block element	depending on the orbital filled by the last electron.

Quantitative Reasoning

Mole (Avagadro's constant)	It is a unit for telling the count, just like dozen.	1 mole = 6.02 x 10^{23} units
Standard Temperature and Pressure (STP)		
Avagadro's Hypothesis	Volume occupied by 1 mole of ideal gas at STP is 22.41 litres	
Mass of neutron	1.0087 u	
Mass of proton	1.0073 u	
Mass of electron	0.00055 u	

Periodic Table Groups

Group 1	Alkali Metals	Valency +1	~ium
Group 2	Alkali Earth Metals	Valency +2	~ium
Group 17	Halogens	Valency -1	~ine

Periodic Table Groups (cont)

Group 18	Inert (Nobel) Gases	Valency 0	~on
Diatomic nonmetals	H, Halogens, C, and O		
s-block	Group 1, 2		
p-block	Group 13 to 18		
d-block	Group 3 to 12		

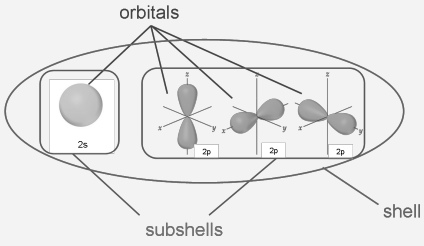
Group 1 (Alkali Metals): +1

Hydrogen (Exception: Non-metal)	H	1 (atomic number)	1x=1 u or amu
Lithium	Li	3	2x+1=7
Sodium	Na	3+8=11	2x+1=23
Potassium	K	11+8=19	2x+1=39
Rubidium	Rb	19+18=37	2x+11=85
Caesium	Cs	37+18=55	2x+23=133
Francium	Fr	55+32=87	2x+49=223

Group 2 (Alkali Earth Metals): +2

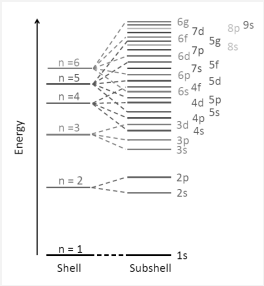
Beryllium	Be	4
Magnesium	Mg	4+8=12
Calcium	Ca	12+8=20
Strontium	Sr	20+18=38
Barium	Ba	38+18=56
Radium	Ra	56+32=88

Shell, Subshell and Orbital



Electron Configuration - Filling Shells

Energy levels of Orbitals

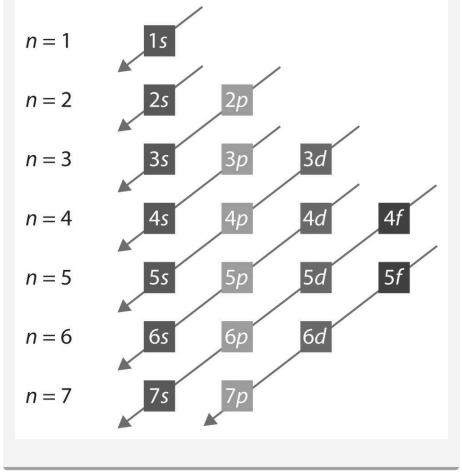


Group 17 (Halogens): -1

Fluorine	F	9
Chlorine	Cl	9+8=17
Bromine	Br	17+18=35
Iodine	I	35+18=53
Astatine (Exception: Metalloid)	At	53+32=85
Ununseptium (Artificial Element)	Uus	85+32=117

Group 18 (Inert or Noble Gases): 0

Helium	He	2
Neon	Ne	2+8=10
Argon	Ar	10+8=18
Krypton	Kr	18+18=36
Xeon	Xe	36+18=54
Radon	Rn	54+32=86
Ununoctium	UUo	86+32=118



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