PERIODIC TABLE OF THE ELEMENTS

	1 I A	2 II A	3 III B	( )	4 IV B	5 V B	6 VI B	7 VII B	8	9 VIII B	10	11 I B	12 II B	13 III A	14 IV A	15 V A	16 VI A	17 VII A	18 VIII A
	s		*d*	*f*	*d*									*p*					
1 K	1 H $1s^1$																		2 He $1s^2$
2 L	3 Li $2s^1$	4 Be $2s^2$												5 B $2s^2 2p^1$	6 C $2s^2 2p^2$	7 N $2s^2 2p^3$	8 O $2s^2 2p^4$	9 F $2s^2 2p^5$	10 Ne $2s^2 2p^6$
3 M	11 Na $3s^1$	12 Mg $3s^2$												13 Al $3s^2 3p^1$	14 Si $3s^2 3p^2$	15 P $3s^2 3p^3$	16 S $3s^2 3p^4$	17 Cl $3s^2 3p^5$	18 Ar $3s^2 3p^6$
4 N	19 K $4s^1$	20 Ca $4s^2$	21 Sc $4s^2 3d^1$		22 Ti $4s^2 3d^2$	23 V $4s^2 3d^3$	24 Cr $4s^1 3d^5$	25 Mn $4s^2 3d^5$	26 Fe $4s^2 3d^6$	27 Co $4s^2 3d^7$	28 Ni $4s^2 3d^8$	29 Cu $4s^1 3d^{10}$	30 Zn $4s^2 3d^{10}$	31 Ga $4s^2 3d^{10} 4p^1$	32 Ge $4s^2 3d^{10} 4p^2$	33 As $4s^2 3d^{10} 4p^3$	34 Se $4s^2 3d^{10} 4p^4$	35 Br $4s^2 3d^{10} 4p^5$	36 Kr $4s^2 3d^{10} 4p^6$
5 O	37 Rb $5s^1$	38 Sr $5s^2$	39 Y $5s^2 4d^1$		40 Zr $5s^2 4d^2$	41 Nb $5s^1 4d^4$	42 Mo $5s^1 4d^5$	43 Tc $5s^2 4d^5$	44 Ru $5s^1 4d^7$	45 Rh $5s^1 4d^8$	46 Pd $4d^{10}$	47 Ag $5s^1 4d^{10}$	48 Cd $5s^2 4d^{10}$	49 In $5s^2 4d^{10} 5p^1$	50 Sn $5s^2 4d^{10} 5p^2$	51 Sb $5s^2 4d^{10} 5p^3$	52 Te $5s^2 4d^{10} 5p^4$	53 I $5s^2 4d^{10} 5p^5$	54 Xe $5s^2 4d^{10} 5p^6$
6 P	55 Cs $6s^1$	56 Ba $6s^2$	57 La $6s^2 5d^1$	58 Ce $6s^2 4f^1 5d^1$ 59 Pr $6s^2 4f^3$ 60 Nd $6s^2 4f^4$ 61 Pm $6s^2 4f^5$ 62 Sm $6s^2 4f^6$ 63 Eu $6s^2 4f^7$ 64 Gd $6s^2 4f^7 5d^1$ 65 Tb $6s^2 4f^9$ 66 Dy $6s^2 4f^{10}$ 67 Ho $6s^2 4f^{11}$ 68 Er $6s^2 4f^{12}$ 69 Tm $6s^2 4f^{13}$ 70 Yb $6s^2 4f^{14}$ 71 Lu $6s^2 4f^{14} 5d^1$		72 Hf $6s^2 4f^{14} 5d^2$	73 Ta $6s^2 4f^{14} 5d^3$	74 W $6s^2 4f^{14} 5d^4$	75 Re $6s^2 4f^{14} 5d^5$	76 Os $6s^2 4f^{14} 5d^6$	77 Ir $6s^2 4f^{14} 5d^7$	78 Pt $6s^1 4f^{14} 5d^9$	79 Au $6s^1 4f^{14} 5d^{10}$	80 Hg $6s^2 4f^{14} 5d^{10}$	81 Tl $6s^2 4f^{14} 5d^{10} 6p^1$	82 Pb $6s^2 4f^{14} 5d^{10} 6p^2$	83 Bi $6s^2 4f^{14} 5d^{10} 6p^3$	84 Po $6s^2 4f^{14} 5d^{10} 6p^4$	85 At $6s^2 4f^{14} 5d^{10} 6p^5$	86 Rn $6s^2 4f^{14} 5d^{10} 6p^6$
7 Q	87 Fr $7s^1$	88 Ra $7s^2$	89 Ac $7s^2 6d^1$	90 Th $7s^2 6d^2$ 91 Pa $7s^2 5f^2 6d^1$ 92 U $7s^2 5f^3 6d^1$ 93 Np $7s^2 5f^4 6d^1$ 94 Pu $7s^2 5f^6$ 95 Am $7s^2 5f^7$ 96 Cm $7s^2 5f^7 6d^1$ 97 Bk $7s^2 5f^9$ 98 Cf $7s^2 5f^{10}$ 99 Es $7s^2 5f^{11}$ 100 Fm $7s^2 5f^{12}$ 101 Md $7s^2 5f^{13}$ 102 No $7s^2 5f^{14}$ 103 Lr $7s^2 5f^{14} 6d^1$		104 Rf $7s^2 5f^{14} 6d^2$	105 Db $7s^2 5f^{14} 6d^3$	106 Sg $7s^2 5f^{14} 6d^4$	107 Bh $7s^2 5f^{14} 6d^5$	108 Hs $7s^2 5f^{14} 6d^6$	109 Mt $7s^2 5f^{14} 6d^7$	110 Ds $7s^2 5f^{14} 6d^8$	111 Rg $7s^1 5f^{14} 6d^{10}$	112 Cn $7s^2 5f^{14} 6d^{10}$	113 Uut $7s^2 5f^{14} 6d^{10} 7p^1$	114 Fl $7s^2 5f^{14} 6d^{10} 7p^2$	115 Uup $7s^2 5f^{14} 6d^{10} 7p^3$	116 Lv $7s^2 5f^{14} 6d^{10} 7p^4$	117 Uus $7s^2 5f^{14} 6d^{10} 7p^5$	118 Uuo $7s^2 5f^{14} 6d^{10} 7p^6$

Alkali Metals	Alkaline Earth Metals	Lanthanides/Actinides	Transition Metals	Basic Metals	Semi Metals	Non Metals	Halogens	Noble Gases

K (2 elements)	L (8 elements)	M (8 elements)	N (18 elements)	O (18 elements)	P (32 elements)	Q (32 elements)
1*s*	2*s*, 2*p*	3*s*, 3*p*	4*s*, 3*d*, 4*p*	5*s*, 4*d*, 5*p*	6*s*, 4*f*, 5*d*, 6*p*	7*s*, 5*f*, 6*d*, 7*p* …
$2 \times 1^2 = 2\ e^-$	$2 \times 2^2 = 8\ e^-$	$2 \times 3^2 = 18\ e^-$	$2 \times 4^2 = 32\ e^-$	$2 \times 5^2 = 50\ e^-$	$2 \times 6^2 = 72\ e^-$	$2 \times 7^2 = 98\ e^-$

Atomic orbitals	*s* = 2 electrons (e^-)	*p* = 6 e^-	*d* = 10 e^-	*f* = 14 e^-
	1. and 2. main group (IA, IIA)	3. to 8. main group (IIIA – VIIIA)	8 (or 10) subgroups (IB – VIIIB)	Lanthanides / Actinides