

Periodic Table of elements

With orbitals and ground state configurations

1,00784 H 1 Hydrogen	4,00250 He 2 Helium
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IA	1	IIA	2	IIIA	13	IVA	14	VA	15	VIA	16	VIIA	17	0	18
6,941	9,0122	10,811	12,011	14,007	15,999	18,998	20,180								
Li 3 Lithium	Be 4 Beryllium	B 5 Boron	C 6 Carbon	N 7 Nitrogen	O 8 Oxygen	F 9 Fluorine	Ne 10 Neon								

22,989	24,305	26,982	28,086	30,974	32,065	35,453	39,948								
Na 11 Sodium	Mg 12 Magnesium	Al 13 Aluminium	Si 14 Silicon	P 15 Phosphorus	S 16 Sulphur	Cl 17 Chlorine	Ar 18 Argon								

39,098	40,078	69,723	72,64	74,922	78,96	79,904	83,80								
K 19 Potassium	Ca 20 Calcium	Ga 31 Gallium	Ge 32 Germanium	As 33 Arsenic	Se 34 Selenium	Br 35 Bromine	Kr 36 Krypton								

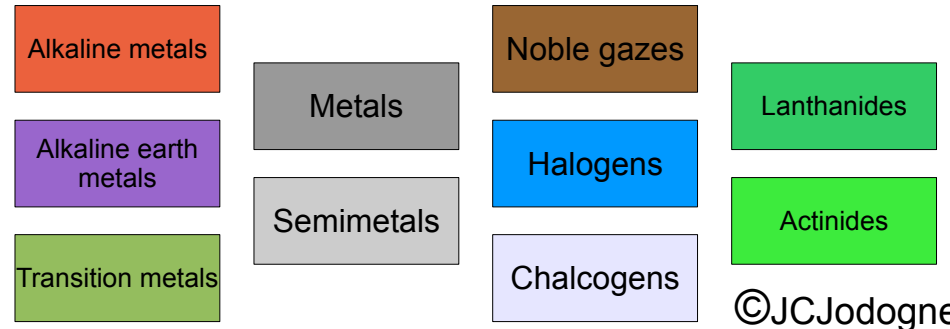
85,468	87,62	114,82	118,71	121,76	127,60	126,90	131,29								
Rb 37 Rubium	Sr 38 Strontium	In 49 Indium	Sn 50 Tin	Sb 51 Antimony	Te 52 Tellurium	I 53 Iodine	Xe 54 Xenon								

132,905	137,33	204,383	207,2	208,980	(209)	(210)	(222)								
Cs 55 Caesium	Ba 56 Barium	Tl 81 Thallium	Pb 82 Lead	Bi 83 Bismuth	Po 84 Polonium	At 85 Astatine	Rn 86 Radon								

(223)	(226)														
Fr 87 Francium	Ra 88 Radium														

Uut 113 Ununtrium	F1 114 Flerovium	Uup 115 Ununpentium	Uuh 116 Ununhexium	117	Lv 118 Livermorium
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Quantum rule: $l \leq n-1$
 Notation = s p d f
 $l = 0 \ 1 \ 2 \ 3$
 $2(2l+1) = 2 \ 6 \ 10 \ 14$
 $\sum_{\text{same } n} = 2 \ 8 \ 18 \ 32$
 $\sum = 2 \ 10 \ 28 \ 60$



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Mean Atomic Mass
Symbol
Z
Name

III B	3	IV B	4	VB	5	VIB	6	VIIB	7	VIII B	8	9	10	IB	11	IIB	12
44,956	47,867	50,942	51,996 (Ar)3d ⁴ 4s ¹	54,938	55,845	58,933	58,693	63,546	65,39								
Sc 21 Scandium	Ti 22 Titanium	V 23 Vanadium	Cr 24 Chromium	Mn 25 Manganese	Fe 26 Iron	Co 27 Cobalt	Ni 28 Nickel	Cu 29 Copper	Zn 30 Zinc								

88,906	91,224	92,906 (Kr)4d ⁴ 5s ¹	95,94 (Kr)4d ⁵ 5s ¹	(98)	101,07 (Kr)4d ⁵ 5s ¹	102,91 (Kr)4d ⁵ 5s ¹	106,42 (Kr)4d ¹⁰	107,868	112,41
Y 39 Yttrium	Zr 40 Zirconium	Nb 41 Niobium	Mo 42 Molybdenum	Tc 43 Technecium	Ru 44 Ruthenium	Rh 45 Rhodium	Pd 46 Palladium	Ag 47 Silver	Cd 48 Cadmium

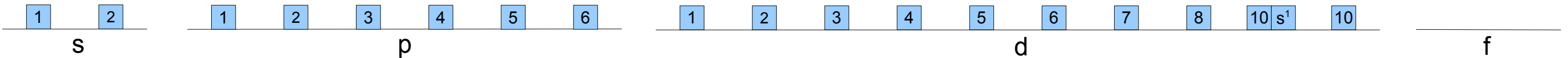
174,967	178,49	180,95	183,84	186,21	190,23	192,22	195,08 (Yb)5d ⁹ 6s ¹	196,97	200,59
Lu 71 Lutetium	Hf 72 Hafnium	Ta 73 Tantalum	W 74 Tungsten	Re 75 Rhenium	Os 76 Osmium	Ir 77 Iridium	Pt 78 Platinum	Au 79 Gold	Hg 80 Mercury

(262)	(262)	(262-265)	(266)	(264)	(277)	(268-276)	(281)	(272-280)	(285)
Lr 103 Lawrencium	Rf 104 Rutherfordium	Db 105 Dubnium	Sg 106 Seaborgium	Bh 107 Bohrium	Hs 108 Hassium	Mt 109 Meitnerium	Ds 110 Darmstadtium	Rg 111 Roentgenium	Cn 112 Copernicium

La 57	→	Yb 70
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Ac 89	→	No 102
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period



Lanthanides: Actinides:

138,905 (Ba)5d ¹	140,12 (Ba)4f ¹ 5d ¹	140,908	144,24	(145)	150,35	151,96	157,25 (Ba)4f ⁷ 5d ¹	158,925	162,50	164,934	167,26	168,934	173,04	(227) (Ra)6d ¹	232,038 (Ra)6d ²	231,036 (Ra)5f ⁶ d ¹	238,029 (Ra)5f ⁶ d ¹	237,048 (Ra)5f ⁶ d ¹	(244)	(243)	(247) (Ra)5f ⁶ d ¹	(247)	(251)	(254)	(257)	(258)	(252-254)
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No
Lanthanum	Cerium	Praseodymium	Neodymium	Promethium	Samarium	Europium	Gadolinium	Terbium	Dysprosium	Holmium	Erbium	Thulium	Ytterbium	Actinium	Thorium	Protactinium	Uranium	Neptunium	Plutonium	Americium	Curium	Berkelium	Californium	Einsteinium	Fermium	Mendelevium	Nobelium