



Periodic Table Structure and Trends



Modern Periodic Table

s-block
1 New Designation
IA Original Designation

s-block
18
VIIIA

Atomic #

Symbol

Atomic Mass

Non-Metals

13 14 15 16 17
IIIA IVA VA VIA VIIA

3 4 5 6 7 8 9 10 11 12
IIIB IVB VB VIB VIIB VIIIB IB IIB

d-block
Transition Metals

p-block

1 2
H 1.0094 He 4.00260

3 4
Li 6.941 Be 9.0122

11 12
Na 22.990 Mg 24.305

19 20 21 22 23 24 25 26 27 28 29 30
K 39.098 Ca 40.08 Sc 44.956 Ti 47.88 V 50.942 Cr 51.996 Mn 54.938 Fe 55.847 Co 58.933 Ni 58.69 Cu 63.546 Zn 65.39

31 32 33 34 35 36
Ga 69.72 Ge 72.59 As 74.922 Se 78.96 Br 79.904 Kr 83.80

37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54
Rb 85.468 Sr 87.62 Y to 71 Zr 91.224 Nb 92.906 Mo 95.94 (98) Tc 101.07 Ru 102.91 Rh 106.42 Pd 107.87 Ag 112.41 Cd 114.82 In 118.71 Sn 121.75 Sb 127.60 Te 126.91 I 131.29 Xe 131.29

55 56 57 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86
Cs 132.91 Ba 137.33 to 71 Hf 178.49 Ta 180.95 W 183.85 Re 186.21 Os 190.2 Ir 192.22 Pt 195.08 Au 196.97 Hg 200.59 Tl 204.38 Pb 207.2 Bi 208.98 Po (209) At (210) Rn (222)

87 88 89 104 105 106 107 108 109 110
Fr (223) Ra 226.03 to 103 Unq (261) Unp (262) Unh (263) Uns (262) Uno (265) Uue (266) Uun (267)

(Mass Numbers in Parentheses are from the most stable of common isotopes.)

Phases
Solid
Liquid
Gas

Metals

Rare Earth Elements

Lanthanide Series

Actinide Series

d-block

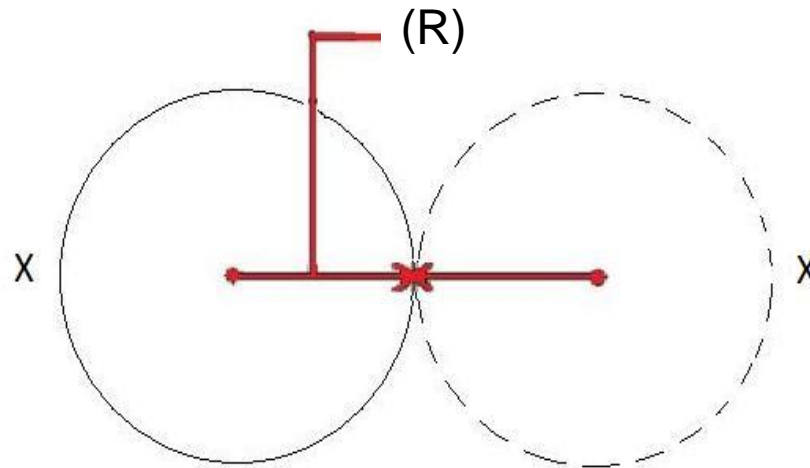
f-block

57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
138.91	140.12	140.91	144.24	(145)	150.36	151.96	157.25	158.93	162.50	164.93	167.26	168.93	173.04	174.97
89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr
227.03	232.04	231.04	238.03	237.05	(244)	(243)	(247)	(247)	(251)	(252)	(257)	(258)	(259)	(260)

The arrangement of the elements in order of increasing atomic number in which elements with similar properties are grouped in columns.

Periodic table trends: Atomic radius

- Atomic radius: Half the distance between the nuclei of two atoms.
- R is the radius of the atom.

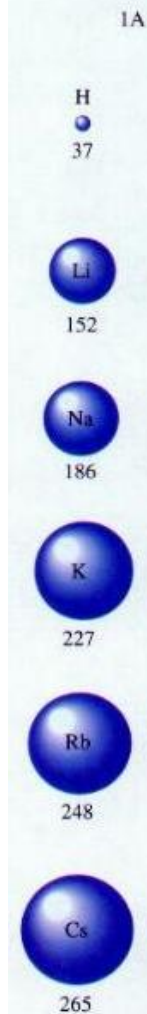


Variation of atomic radii (pm)

In a column

Across a row

Atomic radius increases ↓



Atomic radius decreases →



Sample questions

Q. Which atom has greater atomic radius

1. C or N?

2. O or S?