

The Periodic Table of the Elements

140 Ce Cerium 58	141 Pr Praseodymium 59	144 Nd Neodymium 60	Pm Promethium 61	150 Sm Samarium 62	152 Eu Europium 63	157 Gd Gadolinium 64	159 Tb Terbium 65	162 Dy Dysprosium 66	165 Ho Holmium 67	167 Er Erbium 68	169 Tm Thulium 69	173 Yb Ytterbium 70	175 Lu Lutetium 71
232 Th Thorium 90	Pa Protactinium 91	238 U Uranium 92	Np Neptunium 93	Pu Plutonium 94	Am Americium 95	Cm Curium 96	Bk Berkelium 97	Cf Californium 98	Es Einsteinium 99	Fm Fermium 100	Md Mendelevium 101	No Nobelium 102	Lr Lawrencium 103

Key

$\overset{a}{\underset{b}{X}}$

 a = relative atomic mass
 X = atomic symbol
 b = proton (atomic) number

GROUPS IN THE PERIODIC TABLE

Group
→ Vertical column of elements on the Periodic table
→ There are 8 groups on the periodic table

- group I
- group II
- group III
- group IV
- group V
- group VI

- group VII
- group 0

Group number

→ Number of electrons in the outermost shell
Places the element in the group

e.g. Lithium $3\text{Li} \Rightarrow 2, 1$ in group I

$4\text{Be} \Rightarrow 2, 2$ in group II

$5\text{B} \Rightarrow 2, 3$ in group III

$6\text{C} \Rightarrow 2, 4$ in group IV

$7\text{N} \Rightarrow 2, 5$ in group V

$8\text{O} \Rightarrow 2, 6$ in group VI

$9\text{F} \Rightarrow 2, 7$ in group VII

$10\text{Ne} \Rightarrow 2, 8$ in group 0

Some Groups have special names

Group	Special Name
Group I	Alkali metals
Group II	Alkaline earth metals
Group VII	Halogens
Group 0	Noble gases / inert gases / Rare gases

Properties of a group from top to bottom (down the group)

1. Metallic nature increases down the group
2. Atomic number increases down the group

A
Z

A = mass number or nucleon number
Z = atomic number or proton number

3. Elements in the same group have similar chemical properties
4. Elements in the same group have the same number of outermost shell electrons

5. metals - number of outermost electrons is equal to the valence
i.e. valence, 1, 2, 3

6. Non metals - 8 minus the number of outermost electrons is equal to the valence.

e.g. $SO \Rightarrow 2, 6$ ← outermost electrons

$$\text{valence} = 8 - 6 = 2$$

→ why is hydrogen placed between group I and group II?

→ Because it behaves like group I and group II elements.