Non-metallic Oxides:

Na_2O Mg_2O Al_2O_3 SiO_2 P_2O_5 SO_2 Cl_2O_7

Na_2O, Mg_2O: Basic oxides

Al_2O_3: Amphoteric oxides

SiO_2, P_2O_5, SO_2, Cl_2O_7: Acidic oxides

→ Out of 118 elements more than 90 are metals.

→ Metals on left and bottom of periodic table. Top right has non-metals. And metalloids are steps of stairs in between.

• Melting Point & B.P. :-

M.P is a temperature and is [illegible] applied for solids "Temp at which solid converts into liquid". "Temp at which [illegible] along [illegible] liquid state of a substance co-exist together"

"Temp at which liquid converts into vapours is called B.P.". "Temp at which V.P of liquid become equal to external P."

Solid $\xrightarrow{M.P.}$ Liquid $\xrightarrow{B.P.}$ Gas

• How strong particles are bound is given by "M.P."

M.P & B.P ∝ Strength of attractive forces.

M.P ise decided by → Strength of attractive forces
→ Structure of lattice.

Exception of M.P:-
In 2A: only B.P. (6A > 5A) O > N
In 3rd period: both M.P & B.P. of (6A > 5A) $S_8 > P_4$

These are linear, discrete, Non-polar, small molecules.

(N≡N) > (O=O) > (F–F) > Ne

Size going to dec. L.D.F ↓, M.P ↓

Exception in B.P.:- N_2 = (−196 °C) ↓, O_2 = (−183°C) ↑

- For metal, M.P/B.P. decrease in group ($\frac{1}{size}$ ↑, M.P ↓)
- For non-metal, M.P/B.P. increase in group (LDF ↑, size ↑, MP ↑).

{6A > 5A} ↑

Period 3:	IA	IIA	IIIA	IVA	VA	VIA	VIIA	VIIIA
	Na	Mg	Al	Si	P	S	Cl	Ar
MP (°C)	98	649	660	1430	44	113	-101.5	-189.2

- M.P gonna increase • M.P gonna decrease •

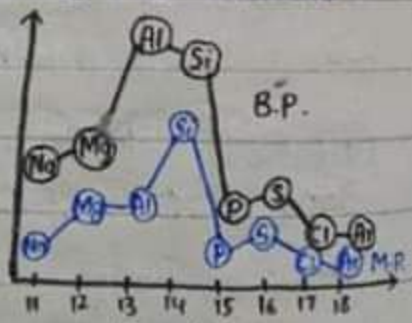
Exception :- $S_8 > P_4$

• Silicon :- Giant structure similar to diamond. Face-centered cubic and octahedral structure like diamond.

Non-metals exist as P_4, S_8, Cl_2, Ar

S_8 has smaller size than P_4

So; L.D.F ↑ & M.P also ↑.



Period-3

Down the Group:-

IA	IIA
Li	Be
Na	Mg
K	Ca
Rb	Sr
Cs	Ba
Fr	Ra

∴ M.P & B.P in these decrease from top to bottom as charge/size tells that size ↑ so, M.B ↓ and M.P ↓ in 1A.

- In elemental form "zero" O.S. They form di-positive ions in their comp. $M \longrightarrow M^{2+} + 2e^-$.
- Alkali metals are called Photo-metals but IIA are not called it bcoz IA has low I.E.

- Ionization Energy :

In period : I.E E.A E.N. increases
- So: I.E of IIA is greater than IA.

Reactivity $\propto$ 1/Ionization Energy

- IA, IIA are most reactive in whole P.T. But I.E of IIA is greater than IA So; reactivity of IA > IIA
- High Reactivity and "Reducing agent strength" but comparitevly less than alkali metals
→ I.E decreases down the group.
→ IA have highest 2nd I.E and IIA have highest 3rd I.E.

- Electronegativity :-

Metals have low E.N. values.

Be (1.5), Mg (1.2), Ca (1), Sr (1), Ba (0.9)

- Be has greatest E.N., having smallest radius and highest E.N. and I.E. If E.N ↑, covalent character ↑

- M.P. & B.P. :-

- Generally, M.P & B.P decrease down the