

## Physical Properties

- Atomic radii/Ionic radii: Increases with increase in atomic no.
- Ionization energy: Decreases down the group.
- Density increases down the group.

- General electronic configuration: (Noble gas)  $ns^1$
- Belong to group 1 of the periodic table

- Flame colour: Li: Crimson red, Na: Yellow, K: Violet, Rb: Red violet, Cs: Blue
- hw M.P and B.P
- Forms ionic compounds

### Anomalous behaviour of Li is due to:

- Exceptionally small size of its atom and ion.
- Absence of d orbital.
- High polarizing power.

### Biological importance of Na and K

- Sodium ions participate in nuclear signals transmission, regular flow of water across cell membranes.
- K ions active many enzymes and oxidation of glucose to produce ATP.

### USES

- Li used to make alloys.
- KCl is used as fertilizer.
- Cs is used in darsing photoelectric cell.
- Liquid Na metal is used as coolant in nuclear reactors.

## Alkali Metals

Li	Na	K	Rb	Cs	Fr
3	11	19	37	55	87

### Sodium Chloride (NaCl)

- Obtained from sea water.
- Used in the preparation of  $Na_2O_2$ ,  $NaOH$  and  $Na_2CO_3$ .

### Sodium bicarbonate ( $NaHCO_3$ )

- Commonly known as baking soda.
- Prepared by saturating a solution of  $Na_2CO_3$  with  $CO_2$ .
- Used in fire extinguishers and baking of cake.

### Importance Compounds of Sodium

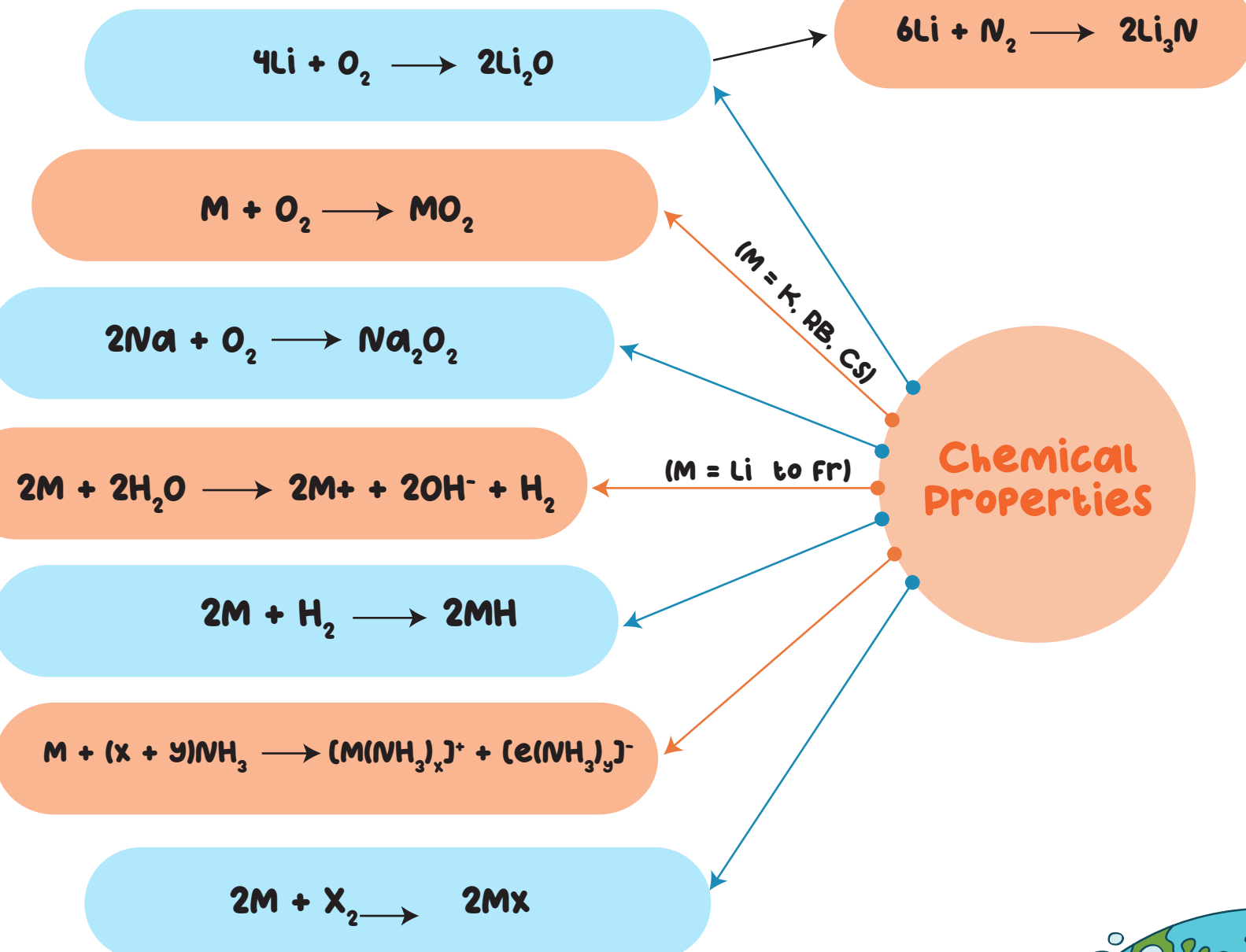
- Commonly known as washing soda.
- Prepared by solvay process.
- Used in water for washing, cleaning etc.

### Sodium carbonate ( $Na_2CO_3 \cdot 10H_2O$ )

- Commonly known as caustic soda.
- Prepared by electrolysis of brine solution.
- Used in preparation of soap, paper etc.

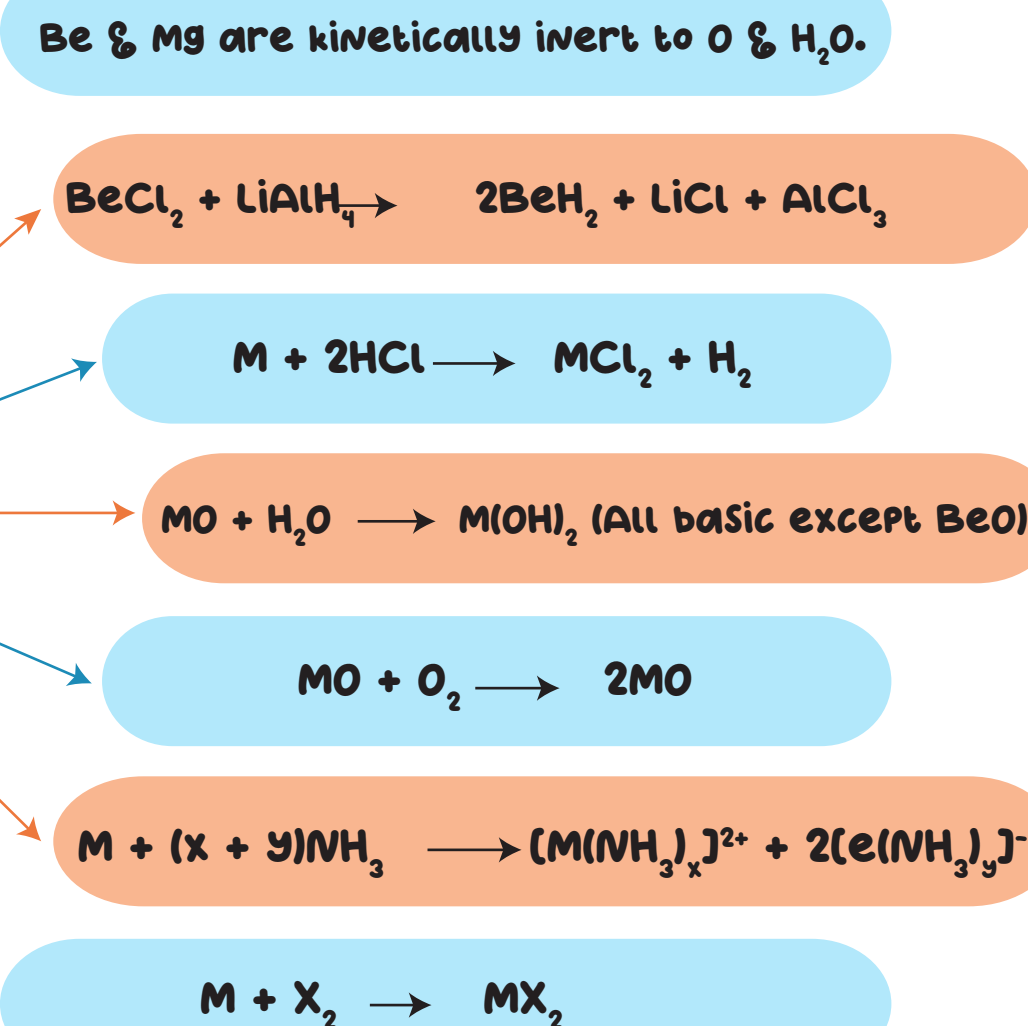
### Sodium hydroxide (NaOH)

## Chemical Properties



## The S-Block Elements

## Chemical Properties



## Alkaline Earth Metals

Be	Mg	Ca	Sr	Ba	Ra
4	12	20	38	56	88

### Calcium Sulphate hemihydrate ( $CaSO_4 \cdot \frac{1}{2}H_2O$ )

- Commonly known as plaster of Paris (POP).
- Prepared by heating gypsum at 393 K.
- Used as protective coating walls etc.

### Calcium Oxide (CaO)

- Commonly known as quick lime.
- Prepared by heating lime stone.
- Used to manufacture cement and dye stuff.

### Importance Compounds of Calcium

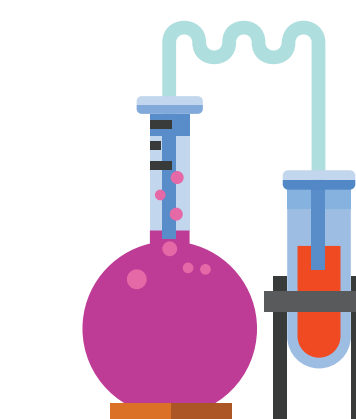
- Commonly known as lime stone.
- Prepared by passing  $CO_2$  through slaked lime.
- Used to manufacture paper etc.

### Calcium carbonate ( $CaCO_3$ )

- Commonly known as slaked lime.
- Prepared by adding water to quick lime.
- Used in white washing etc.

### Calcium hydroxide ( $Ca(OH)_2$ )

### Forms ionic compounds except (Be)



### Uses

- Be is used to manufacture alloys.
- Ca in extraction of metals.
- Mg-Al alloys are used in aircraft construction.
- Ra is used in radio therapy.