

CHEMISTRY



Board – CBSE

Class – 10th

Topic – Acids, Bases and Salts

INDICATORS

Natural
E.g. litmus

Olfactory
E.g. onion

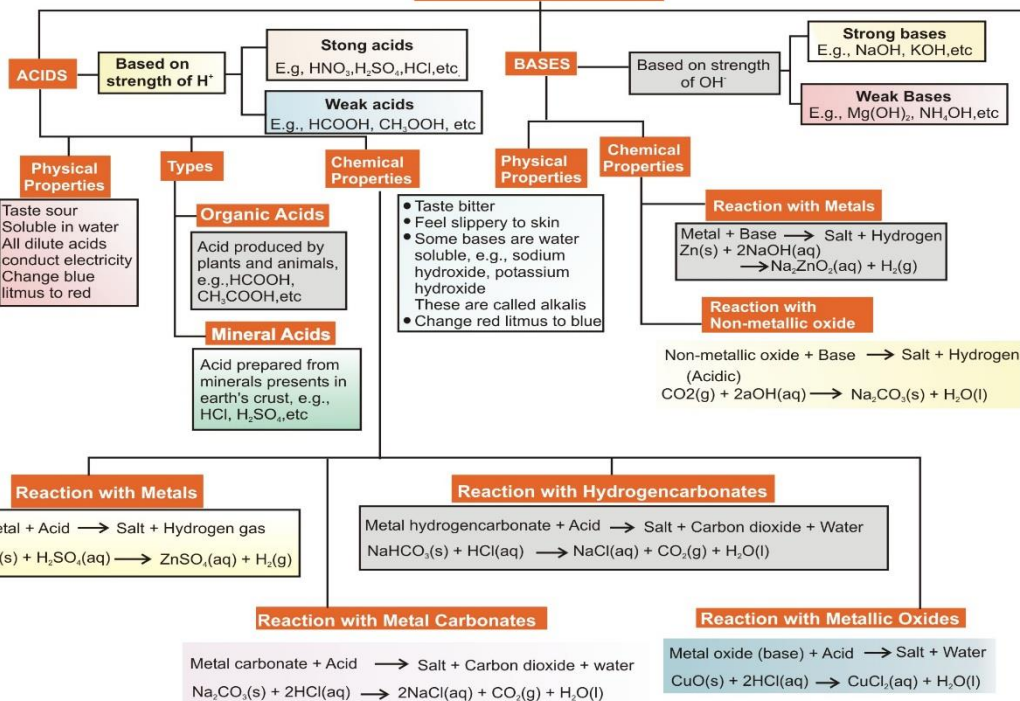
Synthetic
E.g. phenolphthalein

Indicator	Colour in Acid	Colour in Alkali
Litmus	Red	Blue
Methyl orange	Pinkish red	Yellow
Phenolphthalein	Colourless	Pink

pH Scale

Scale for measuring hydrogen ion concentration in a solution
For acidic solution, pH < 7
For neutral solution, pH = 7
For basic solution, pH > 7

CHEMICAL SUBSTANCES



Salts

Formed by neutralisation reaction
 Acid + Base → Salt + Water
 HA + MOH → MA + HOH
 NaOH(aq) + HCl(aq) → NaCl(aq) + H₂O(l)
 HNO₃(l) + KOH(aq) → KNO₃(aq) + H₂O(l)

Important Compounds	Chemical name	Chemical formula	Preparation	Uses
Common Salt	Sodium chloride	NaCl	By combination reaction of sodium hydroxide and hydrochloric acid $NaOH(aq) + HCl(aq) \rightarrow NaCl(aq) + H_2O(l)$	(i) As raw material for making many chemicals (ii) In cooking food
Caustic Soda	Sodium hydroxide	NaOH	By passing electricity through concentrated sodium chloride (brine) solution $2NaCl(aq) + 2H_2O(l) \rightarrow 2NaOH(aq) + Cl_2(g) + H_2(g)$	(i) In detergents and soaps (ii) In paper making (iii) In bleach manufacture (iv) In bauxite purification to extract aluminium
Washing Soda	Sodium carbonate decahydrate	Na ₂ CO ₃ · 10H ₂ O	By recrystallisation of sodium carbonate in water $Na_2CO_3 + 10H_2O \rightarrow Na_2CO_3 \cdot 10H_2O$	(i) Softening hard water (ii) In washing clothes (iii) In paper, paint and textile industry (iv) Manufacturing glass, borax and caustic soda extract
Baking Soda	Sodium hydrogen carbonate	NaHCO ₃	On reacting cold concentrated sodium chloride (brine) solution with ammonia and carbon dioxide $NaCl + NH_3 + CO_2 + H_2O \rightarrow NaHCO_3 + NH_4Cl$	(i) Preparing baking powder (ii) Manufacture of soda water (iii) In fire extinguishers (iv) As an antacid in medicine
Bleaching Powder	Calcium oxychloride	CaOCl ₂	By passing chlorine gas over dry slaked lime $Ca(OH)_2 + Cl_2 \rightarrow CaOCl_2 + H_2O$	(i) For bleaching cotton textile (ii) For disinfecting drinking water (iii) As an oxidising agent in chemical industry (iv) Manufacturing chloroform
Plaster of Paris	Calcium sulphate hemihydrate	CaSO ₄ · $\frac{1}{2}$ H ₂ O	By heating gypsum at 373K $CaSO_4 \cdot 2H_2O \xrightarrow{373K} CaSO_4 \cdot \frac{1}{2} H_2O + \frac{3}{2} H_2O$	(i) For making statues, models, toys, etc (ii) For making fireproof materials (iii) For setting fractured bones