CBSE

DISASTER CLASSES

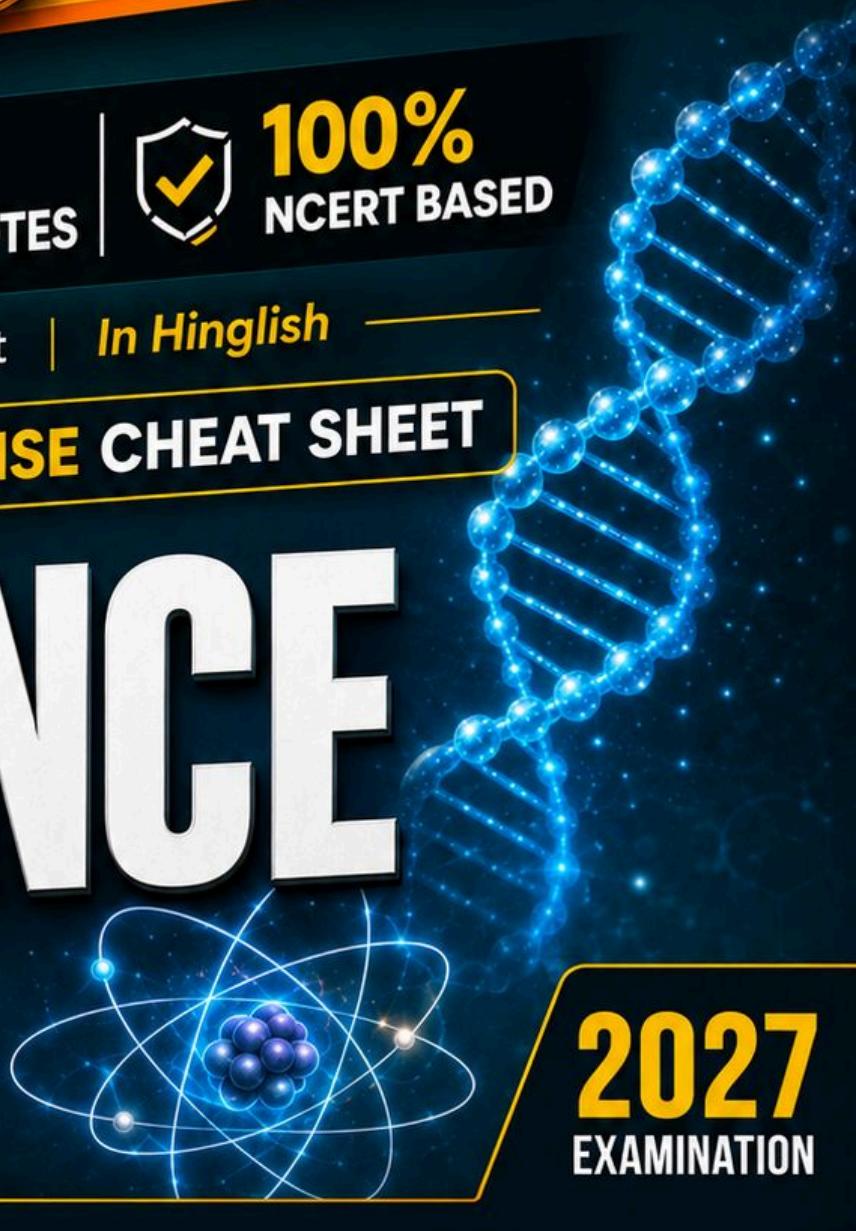
100 SCORE MANTRA

CONCEPTS + EXAM ORIENTED NOTES | 100% NCERT BASED

Revision Format | *In Hinglish*

WITH CHAPTER WISE CHEAT SHEET

SCIENCE



2027 EXAMINATION

Note:-

This is just
A demo of the
Powerful content
we provide

If you need full book
please DM Us on telegram

@disaster_classes

CBSE Class 10 Science — Chapter 2

Acids, Bases and Salts (Complete Structured Notes)

Chapter Overview

Is Chapter Me Hum Padhenge:

- Acids & Bases Basics
- Chemical Properties
- Neutralization Reaction
- Bleaching Powder, Baking Soda
- Indicators (Natural & Olfactory)
- The pH Scale & Importance
- Common Salt & Derivatives
- Washing Soda & POP

1 Acids and Bases — Introduction

Acids

Definition: Substances jo aqueous solution me H^+ ions produce karte hain.

Properties of Acids:

- ✅ **Taste:** Sour (Khatta)
- 🍋 *Examples:* Lemon juice, Vinegar, Tamarind (Imli).
- ✅ **Blue Litmus → Red**
- ✅ Reacts with metals to evolve Hydrogen gas.

Bases

Definition: Substances jo aqueous solution me OH^- ions produce karte hain.

Properties of Bases:

- ✅ **Taste:** Bitter (Kadwa)
- 🧼 **Feel:** Soapy / Slippery feel.
- ✅ **Red Litmus → Blue**
- ✅ Examples: NaOH, KOH, Soap water.

Quick Memory Trick

Acid

🔵 Blue Litmus → 🔴 Red

👉 *Acid Blue ko Red karta hai.*

Base

🔴 Red Litmus → 🔵 Blue

👉 *Base Red ko Blue karta hai.*

2 Indicators

B. Acid + Metal Carbonate / Hydrogen Carbonate

Acid + Metal Carbonate / Hydrogen Carbonate → Salt + H_2O + CO_2 ↑

Metal Carbonate Example:

$Na_2CO_3 + 2HCl \rightarrow 2NaCl + H_2O + CO_2\uparrow$

Metal Hydrogen Carbonate Example:

$NaHCO_3 + HCl \rightarrow NaCl + H_2O + CO_2\uparrow$

Lime Water Test

Carbon Dioxide (CO_2) Test: Passing CO_2 through Lime Water turns it **MILKY** due to Calcium Carbonate formation.

$CO_2 + Ca(OH)_2$ (Lime Water) $\rightarrow CaCO_3\downarrow$ (White Ppt) $+ H_2O$

5 Chemical Properties of Bases

Base + Metal → Salt + Hydrogen Gas

Example: $2NaOH + Zn \rightarrow Na_2ZnO_2 + H_2\uparrow$

🔑 Highly Important Compound: **Na_2ZnO_2 (Sodium Zincate)**.

6 Neutralization Reaction

Jab Acid aur Base react karke salt aur water banate hain, to use **Neutralization Reaction** kehte hain.

Acid + Base → Salt + Water

Example: $HCl + NaOH \rightarrow NaCl$ (Common Salt) $+ H_2O$

7 Metal Oxides and Acids

Metal Oxides react with Acids to form Salt and Water.

CuO (Black Copper Oxide) $+ 2HCl \rightarrow CuCl_2$ (Blue-Green Solution) $+ H_2O$

👉 Conclusion: **Metal Oxides are Basic in Nature.**

17 Bleaching Powder

Formula: $CaOCl_2$

Prep: Passing Cl_2 over dry slaked lime.

$$Ca(OH)_2 + Cl_2 \rightarrow CaOCl_2 + H_2O$$

Uses:

- ✅ Bleaching cotton and wood-pulp.
- ✅ Disinfecting drinking water.

18 Baking Soda

Formula: $NaHCO_3$

Prep: Solvay/Ammonia-Soda process.

$$NaCl + NH_3 + CO_2 + H_2O \rightarrow NaHCO_3 + NH_4Cl$$

Uses:

- ✅ Making Baking Powder (+ Tartaric Acid).
- ✅ Fire extinguishers & Antacids.

19 Washing Soda & Crystallization

Formula: $Na_2CO_3 \cdot 10H_2O$

Definition: Fixed molecules of water in a salt crystal structure.

👉 *Examples:*

- 🔷 $CuSO_4 \cdot 5H_2O$ (Blue Copper Sulphate)
- 🔷 $Na_2CO_3 \cdot 10H_2O$ (Washing Soda)

Uses: Cleansing, laundry, glass manufacturing, softening hard water.

21 Plaster of Paris (POP)

Formula: $CaSO_4 \cdot \frac{1}{2}H_2O$

Prep: Heating Gypsum at 373K (100°C).

$$CaSO_4 \cdot 2H_2O \text{ (Gypsum)} \rightarrow CaSO_4 \cdot \tfrac{1}{2}H_2O + 1\tfrac{1}{2}H_2O$$

Uses:

- ✅ Plastering fractured bone alignments.
- ✅ Statues, ceiling decorations, smooth coatings.

🚀 Cheat Sheet!

One-Page Revision Matrix

Acids	Bases	Neutralization
Sour, Blue → Red, releases H^+	Bitter, Red → Blue, releases OH^-	Acid + Base → Salt + Water

$NaCl$: Common Salt	**$NaHCO_3$: Baking Soda**	**$Na_2CO_3 \cdot 10H_2O$: Washing**
$CaOCl_2$: Bleach	**$CaSO_4 \cdot \frac{1}{2}H_2O$: POP**	**$CaSO_4 \cdot 2H_2O$: Gypsum**

🧬 Ch-5: Life Processes — Hinglish Notes

1 Living vs Non-Living — Kaise Pehchane?

- Movement ho raha ho — ya toh growth-related (jaise plant grow ho raha) ya ordinary (jaise dauna, bolna, jump karna).
- Agar visible movement nahi dikh raha, toh invisible molecular movement hona chahiye (jaise pani aur minerals ka root se leaves tak jaana).

> Virus Controversy!
>
> Virus jab tak **body ke bahar rehta hai, tab tak inactive** (non-living jaisa) hota hai. Lekin jaise hi kisi cell/host body mein enter karta hai, tabhi **active ho jata hai (breathe & reproduce karta hai)**. Isliye science mein iske living ya non-living hone par debate chalti aa rahi hai.

Molecular movement zaroori kyun hai?

- Har living organism ek well-organized structure hai jo environment ki wajah se continuously breakdown (tutta-phutta) rehta hai.
- Is breakdown ko theek rakhne ke liye body mein continuous repair aur maintenance chahiye — aur yeh repairing hi molecular movement ki help se hoti hai.

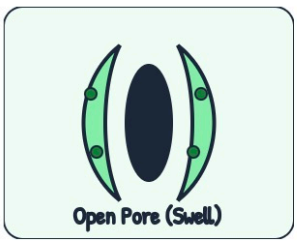
2 Life Processes — Kya Hote Hain?

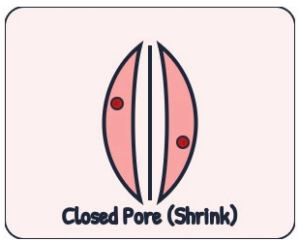
Wo saare basic processes jo body ki maintenance & survival job ko complete karte hain, unhe Life Processes kehte hain.

> Memory Trick 💡 Just remember: **RENT**

Stomata (Gaseous Exchange)

Stomata leaves ki surface pe present tiny pores hote hain jo gas exchange aur transpiration mein help karte hain.





- **Mechanism:** Guard cells ke andar pani enter hota hai toh wo **swell (pool) ho jate hain** aur pore khul jata hai. Jab pani nikal jata hai, toh **shrink hokar** close ho jate hain.
- **Drawback:** CO_2 uptake ke time bahut saara water-vapor transpirational pull se loss ho jata hai.

How do Plants absorb Nitrogen?

Plants direct atmospheric Nitrogen use nahi kar sakte. Unke pass 2 options hote hain:

1. Soil se direct Nitrates/Nitrites (inorganic salt) absorb karte hain.
2. Root nodules ke pass symbiotic bacteria (like Rhizobium) atmospheric nitrogen ko organic urea/compounds mein convert karte hain.

Heterotrophic Nutrition Types

Type	Kaise (Mechanism)	Examples
Saprophytic	Body ke bahar hi complex food ko decay/break karke direct simple nutrients absorb karte hain.	Fungi, Yeast, Mushroom, Bread molds.
Holozoic	Complex organic materials ko body ke andar ingest karte hain, fir enzymes use karke digest karte hain.	Humans, Dogs, Amoeba.
Parasitic	Bina host ko kill kiye, direct host ki body se derived values/nutrition choose karte hain.	Cuscuta (Amarbel), Lice, Ticks, Tapeworm.

Absorption & Large Intestine

- **Villi:** Small intestine ki inner walls pe millions of tiny microscopic finger-like projections hote hain, jise **Villi** kehte hain. Yeh absorption surface area badhate hain aur isme rich network of blood vessels hota hai jo food absorb karke tissue cells tak deliver karta hai.
- **Large Intestine:** Unabsorbed/waste materials large intestine mein bhej diye jate hain. Yahan ki walls extra remaining water ko absorb kar leti hain. Baaki waste material (Faeces) anal sphincter muscle complex contraction control se **Anus ke through eliminate** ho jata hai.

5 RESPIRATION 🫁

Definition: Ingested nutritive food chemical molecule (Glucose) ko complex oxidation step down breakdown sequence se active biochemical cellular energy (ATP form) release karne ki technique ko Respiration kehte hain.

Pathway of Glucose Breakdown (3 Pathways):

💡 *Step 1: Glucose (C_6) cytoplasm mein breakdown hokar Pyruvate (C_3) + Energy deta hai. (Common step for all pathways).*

Pathway	Location	Condition	End Products
Fermentation	Yeast Cells (Cytoplasm)	Anaerobic (O_2 absent)	Ethanol + CO_2 + Energy (2 ATP)
Aerobic	Mitochondria (Powerhouse)	Aerobic (O_2 present)	CO_2 + H_2O + Energy (36-38 ATP)
Lactic Acid	Human Muscle Cells	O_2 Deficiency (Kami)	Lactic Acid + Energy (Cramps cause)

Cramps Alert! ⚡

Achanak physical work (fast running) karne par muscle cells oxygen deficiency scenario generate karti hain. Wahan pyruvate lactic acid (C_3 compound) banata hai. Is lactic acid buildup se muscles mein sharp pain/cramps aate hain.

📝 QUICK CHEAT SHEET (Revision Checklist)

✅ **4 Life Processes:** RENT (Respiration, Excretion, Nutrition, Transportation)

✅ **Living test:** Growth-related/Ordinary movement (visible or invisible molecular)

✅ **Photosynthesis Raw Material:** CO_2 + H_2O + Sunlight + Chlorophyll

✅ **Storage elements:** Starch in Plants, Glycogen in Animals

✅ **Starch Test:** Starch + Iodine turns Blue-black color

✅ **Guard cells swell:** pore opens; shrink: pore closes

✅ **Saliva:** Salivary Amylase breaks complex starch to maltose sugar

✅ **Gastric elements:** HCl (acidic), Pepsin (protein), Mucus (linings safety shield)

✅ **Bile (liver):** Alkaline pH setup and Fat Emulsification (large to micro globule split)

✅ **Pancreatic Enzymes:** Trypsin (protein digestion) & Lipase (emulsified fat digest)

✅ **Glucose breakdown locations:** Cytoplasm common step pyruvate; Yeast (Ferment); Mito (Aerobic); Muscle (Lactic acid)

✅ **Oxygen Carrier pigment:** Hemoglobin in RBC; CO_2 carried dissolved in Plasma layer

✅ **Heart sections:** 4 Chambers separated by Septum barrier; Double loop circulation

✅ **Vessels:** Artery (thick, elastic), Veins (thin walls, valves gate check flow back)

✅ **Xylem:** Water (Transpirational suction/Root pressure); **Phloem:** Translocation (Active energy sucrose load)

✅ **Nephron filtration unit:** Glomerulus cup Bowman & reabsorption tubules

✅ **Excretory loop sequence:** Kidney → Ureters → Bladder → Urethra exit

🎯 **"Bas isi cheat sheet ko revise karo – poora chapter clear ho jayega!"** 💪

📝 QUICK CHEAT SHEET (Revision Checklist)

✅ **4 Life Processes:** RENT (Respiration, Excretion, Nutrition, Transportation)

✅ **Living test:** Growth-related/Ordinary movement (visible or invisible molecular)

✅ **Photosynthesis Raw Material:** CO_2 + H_2O + Sunlight + Chlorophyll

✅ **Storage elements:** Starch in Plants, Glycogen in Animals

✅ **Starch Test:** Starch + Iodine turns Blue-black color

✅ **Guard cells swell:** pore opens; shrink: pore closes

✅ **Saliva:** Salivary Amylase breaks complex starch to maltose sugar

✅ **Gastric elements:** HCl (acidic), Pepsin (protein), Mucus (linings safety shield)

✅ **Bile (liver):** Alkaline pH setup and Fat Emulsification (large to micro globule split)

✅ **Pancreatic Enzymes:** Trypsin (protein digestion) & Lipase (emulsified fat digest)

✅ **Glucose breakdown locations:** Cytoplasm common step pyruvate; Yeast (Ferment); Mito (Aerobic); Muscle (Lactic acid)

✅ **Oxygen Carrier pigment:** Hemoglobin in RBC; CO_2 carried dissolved in Plasma layer

✅ **Heart sections:** 4 Chambers separated by Septum barrier; Double loop circulation

✅ **Vessels:** Artery (thick, elastic), Veins (thin walls, valves gate check flow back)

✅ **Xylem:** Water (Transpirational suction/Root pressure); **Phloem:** Translocation (Active energy sucrose load)

✅ **Nephron filtration unit:** Glomerulus cup Bowman & reabsorption tubules

✅ **Excretory loop sequence:** Kidney → Ureters → Bladder → Urethra exit

🎯 **"Bas isi cheat sheet ko revise karo – poora chapter clear ho jayega!"** 💪

Other Important Resources

