

✓ Study
✓ Understand
✓ Apply
✓ Succeed

NCERT

Be curious
Be bright
Be you

Science Class 10

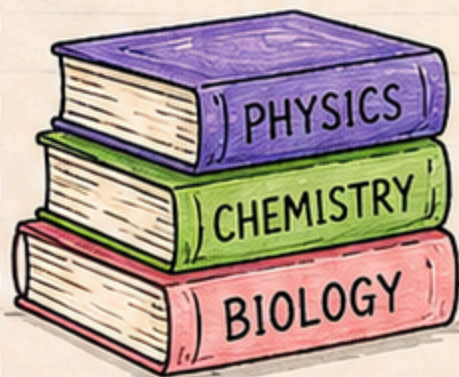
Handwritten Notes

Complete Notes • Quick Revision • Exam Ready

Science is
not just a subject,
it's a way to
understand the
world around us.

Includes:

- ★ All Chapters
- ★ Mind Maps
- ★ Key Points
- ★ Practice Questions
- ★ Exam Tips



Learn • Understand • Excel

@DiagramDidi



- ✓ Study Smart
- ✓ Work Hard
- ✓ Dream Big
- ✓ Achieve More

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NCERT Science Class 10



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Science is not just a subject, it's a way to understand the world around us.

- ★ Complete Notes
- ★ Important Definitions
- ★ Diagrams & Flowcharts
- ★ Intext Questions
- ★ Exam Ready!

Includes:

- ✓ All Chapters
- ✓ Mind Maps
- ✓ Key Points
- ✓ Practice Questions
- ✓ Exam Tips

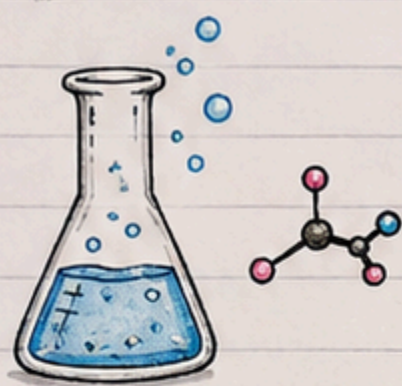
♥ Total Chapters : 13
♥ Total Notes Pages : 199

Study
• Understand
• Apply
• Succeed ♥

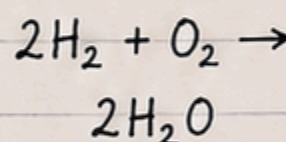
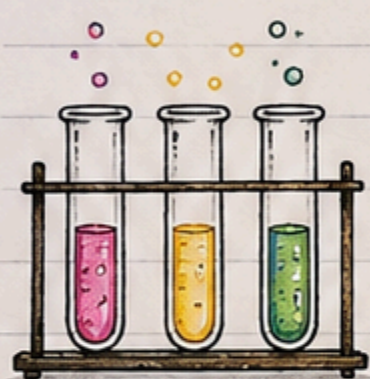
~ Chapter 1 ~



Be curious
Be bright
Be you ♥



Chemical Reactions and Equations

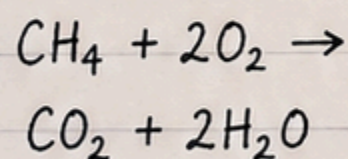
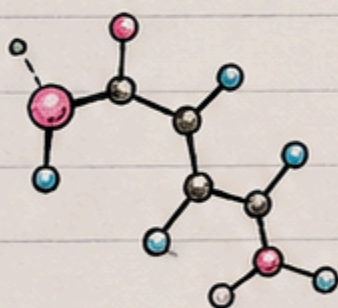


Class 10 Science

Reactants
→ Products
A change,
a discovery! ♥

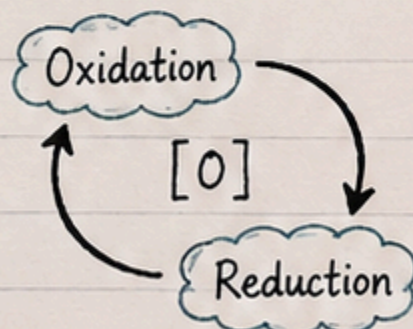
- Chemical Reactions
- Balanced Equations
- Types of Reactions
- Oxidation & Reduction
- Corrosion & Rancidity

Remember:
Balance isn't
Just in Life,
It's in
Equations too! ♥



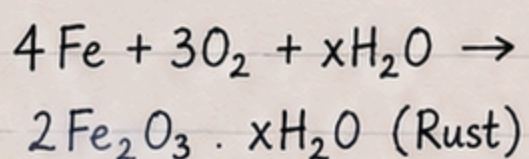
Observe
Question
Learn
Repeat

“ Every chemical reaction tells a story of change ✨ ”



Types of Reactions

- Combination
- Decomposition
- Displacement
- Double Displacement
- Redox Reaction





Introduction to Chemical Reactions



In Daily Life

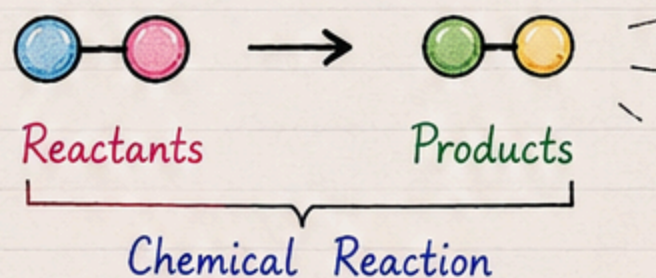
Chemical reactions occur all around us in our daily life.

- Milk left at room temperature → It turns sour due to the formation of lactic acid.
- Rusting of iron → Iron reacts with oxygen and moisture to form rust.
- Fermentation of grapes → Natural sugars in grapes are converted into alcohol.
- Cooking food → Raw food changes in taste, texture and becomes edible.
- Digestion → Complex food is broken down into simpler substances in our body.
- Respiration → Glucose reacts with oxygen in cells to release energy.

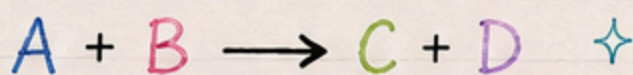
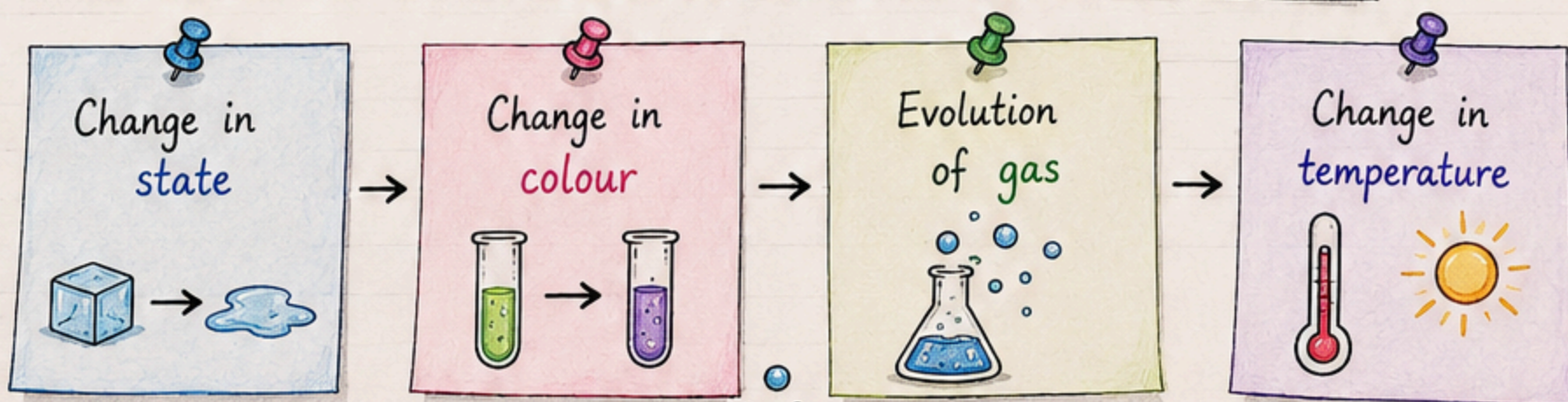


Definition

Chemical reactions involve changes in the nature and identity of one or more substances to form new substances.



Observations determining a chemical reaction





Acids, Bases and Salts



Important MCQs

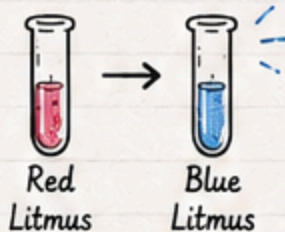
- 1 A solution turning red litmus blue likely has pH:

☐ 1

☐ 4

☐ 5

☒ 10



- 2 Medicine used for indigestion:

☐ Antibiotic

☐ Analgesic

☒ Antacid

☐ Antiseptic



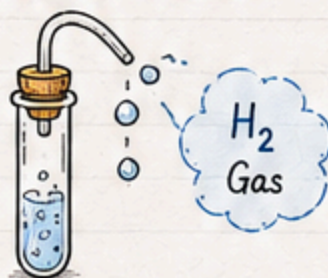
- 3 Gas evolved when acid reacts with metal:

☐ Oxygen

☒ Hydrogen

☐ Nitrogen

☐ Chlorine



One-Liner Revision

★ Acids produce H^+ ions.



★ Bases produce OH^- ions.



★ Neutralisation forms salt + water.



★ pH below 7 → acidic.



★ pH above 7 → basic.

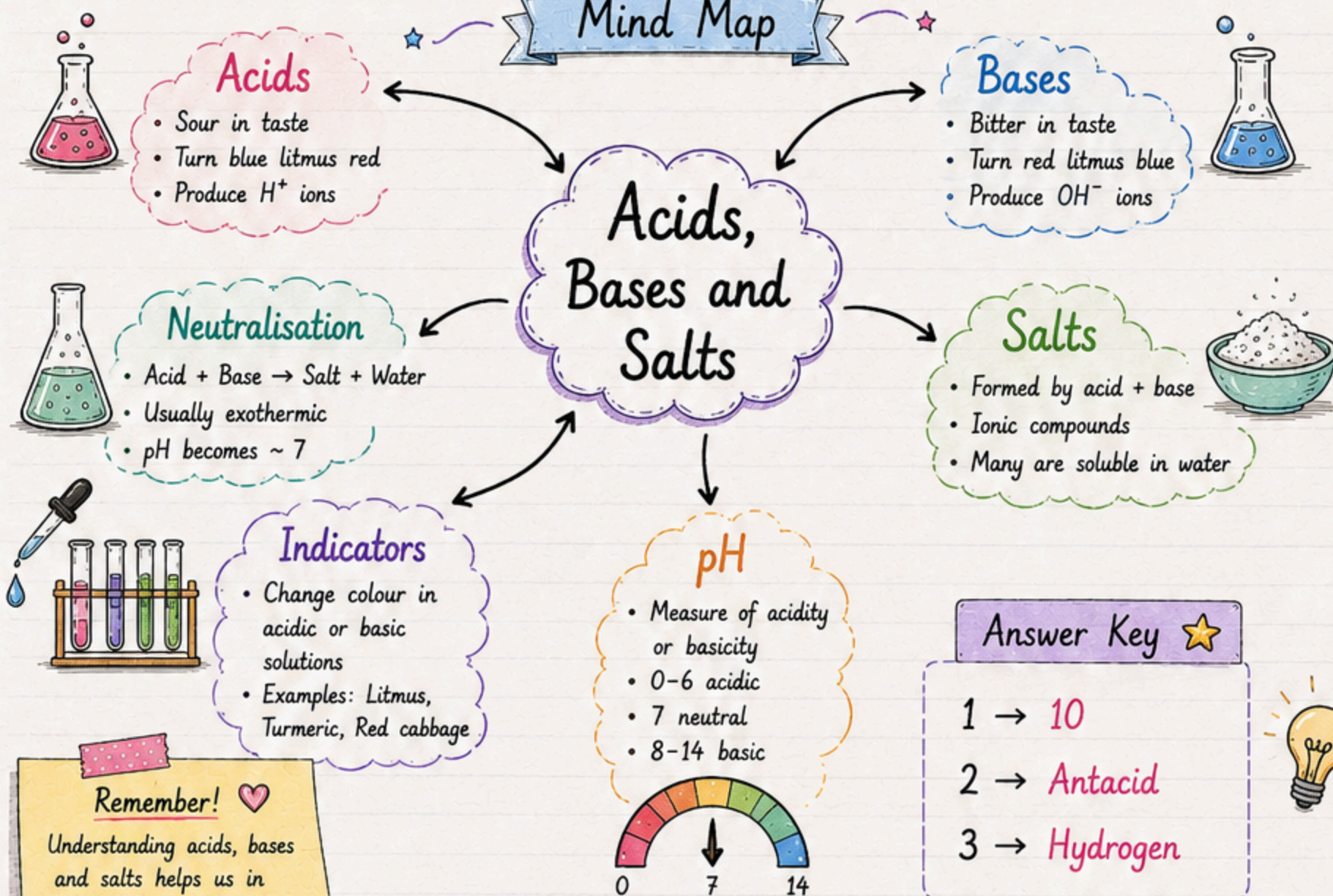
★ Baking soda used in antacids.



★ Washing soda removes hardness of water.



Mind Map



Remember! ♥

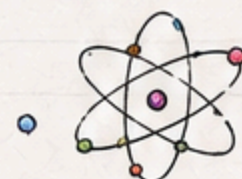
Understanding acids, bases and salts helps us in everyday life and many scientific applications! 😊

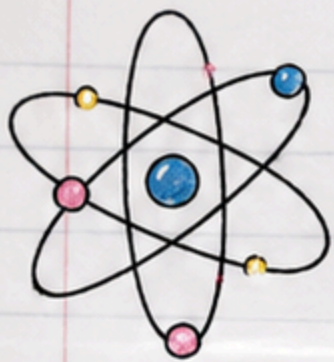
Answer Key ★

1 → 10

2 → Antacid

3 → Hydrogen

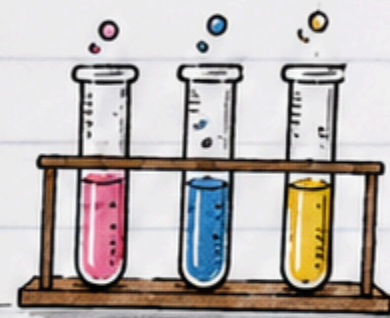




66 Matter is made up of elements,
and elements tell the story of everything. 99

26 Fe Iron	29 Cu Copper
13 Al Aluminium	

Chapter 3: Metals and Non-metals



Metal
Oxides
(Basic)

Quick Revision Notes

Non-metal
Oxides
(Acidic)

Physical
Properties



Chemical
Reactions



Reactivity
Series

K	Ca	Na	Mg	Al	Zn	Fe	Cu	Ag	Au
---	----	----	----	----	----	----	----	----	----

Most reactive → Least reactive

Corrosion



Metallurgy



Understand → Remember → Revise → Excel



Physical Properties



of Metals and Non-metals

1. Metals



- **Lustrous** → shining surface called **metallic lustre**.

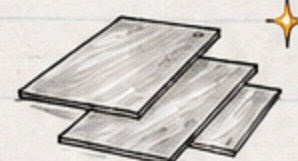


- **Hardness** varies.



- **Malleability** → beaten into thin sheets.

- Gold and silver most malleable.



- **Ductility** → drawn into wires.

- Gold most ductile.



- Good **conductors of heat**.

- Silver and copper best conductors.



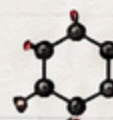
- Good **conductors of electricity**.



- **Sonorous**. (())

2. Non-metals

- **Examples**: carbon, sulphur, iodine, oxygen, hydrogen.



- Mostly **solids or gases**.



- Bromine is **liquid**.



Metals vs Non-metals

Property	Metals	Non-metals
Appearance	Lustrous (shiny) ✨ ✨	Usually dull 
Physical state	Mostly solids 	Solids or gases 
Malleability	Malleable (can be beaten into sheets) 	Non-malleable (brittle) 
Ductility	Ductile (can be drawn into wires) 	Non-ductile ✗
Conductivity	Good conductors of heat and electricity 	Poor conductors of heat and electricity 
Sonorous	Sonorous (ringing sound) 	Non-sonorous ✗



Exceptions



Physical Properties

Exceptions are Important for Exams! ♥

1 Mercury

→ only liquid metal at room temperature.



2 Gallium and Caesium

→ low melting points.



3 Iodine

→ lustrous non-metal.



Quick Comparison ♥

Property	Exception
Liquid at room temp.	Mercury
Low melting point	Gallium, Caesium
Lustrous (non-metal)	Iodine
Hardest natural substance	Diamond (a form of carbon)
Conductor (non-metal)	Graphite (a form of carbon)
Soft metals	Lithium, Sodium, Potassium

4 Carbon allotropes

Diamond

→ hardest natural substance.

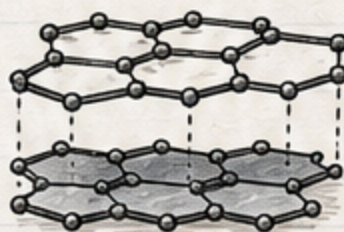


Why?

Strong covalent bonds in a 3D network.

Graphite

→ conductor of electricity.



Why?

Delocalized electrons can move freely.

5 Alkali metals

- Lithium, sodium, potassium are soft enough to cut with knife.
- Low density and low melting points.

Examples

Li → 180.5 °C

Na → 97.8 °C

K → 63.5 °C

(melting points) ♥

Soft enough to cut!



Sodium can be cut smoothly with a knife.

"ML GGI CLP"

- M → Mercury (liquid)
- L → Low melting (Ga, Cs)
- G → Gallium
- G → Graphite (conductor)
- I → Iodine (lustrous)
- C → Carbon allotropes
- L → Lithium, Sodium,
- P → Potassium (soft)

Key Takeaway

These exceptions help us understand that nature has amazing surprises! ✨

@DiagramDidi



Chemical Properties of Metals



Metals show various chemical properties due to their tendency to lose electrons and form positive ions.

Most metal oxides are basic in nature. ♥

1 Reaction with Oxygen

Metal
(M)

+

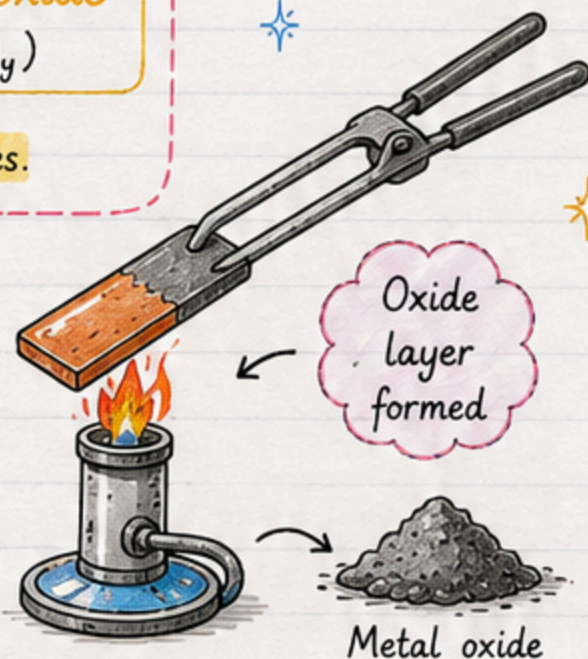
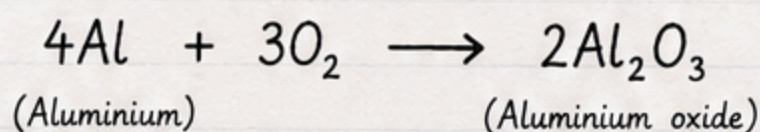
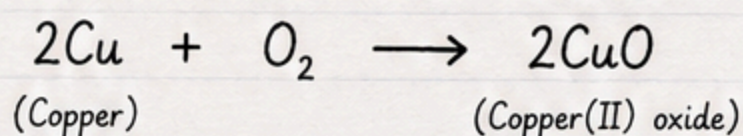
Oxygen
(O₂)

→

Metal oxide
(M_xO_y)

★ Metals combine with oxygen on heating to form metal oxides.

Examples:



2 Amphoteric Oxides

★ Some metal oxides react with both acids and bases.

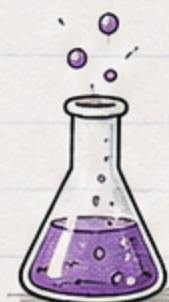
Examples

- Aluminium oxide (Al₂O₃)
- Zinc oxide (ZnO)



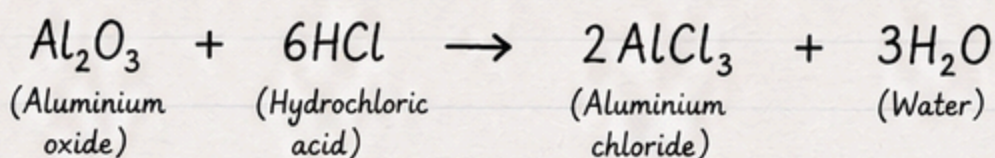
Definition

React with both acids and bases. ♥

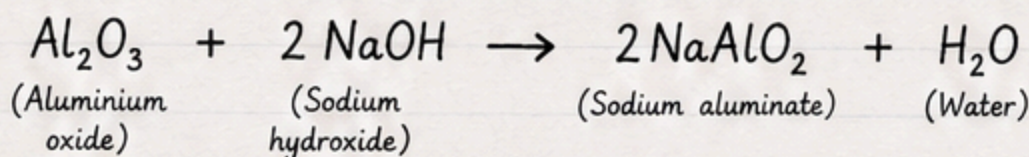


Reactions:

With acids



With bases



How metals react with oxygen?

Metal is heated in presence of oxygen.

Oxygen reacts with the metal surface.



A layer of metal oxide is formed.



Oxide layer may protect the metal from further reaction.



Tip!
Amphoteric oxides are usually of Aluminium, Zinc, Lead, Tin, etc. ★

Key Takeaway

★ Metals react with oxygen to form metal oxides.
Some oxides are **amphoteric**. (reacts with both acids and bases). ♥