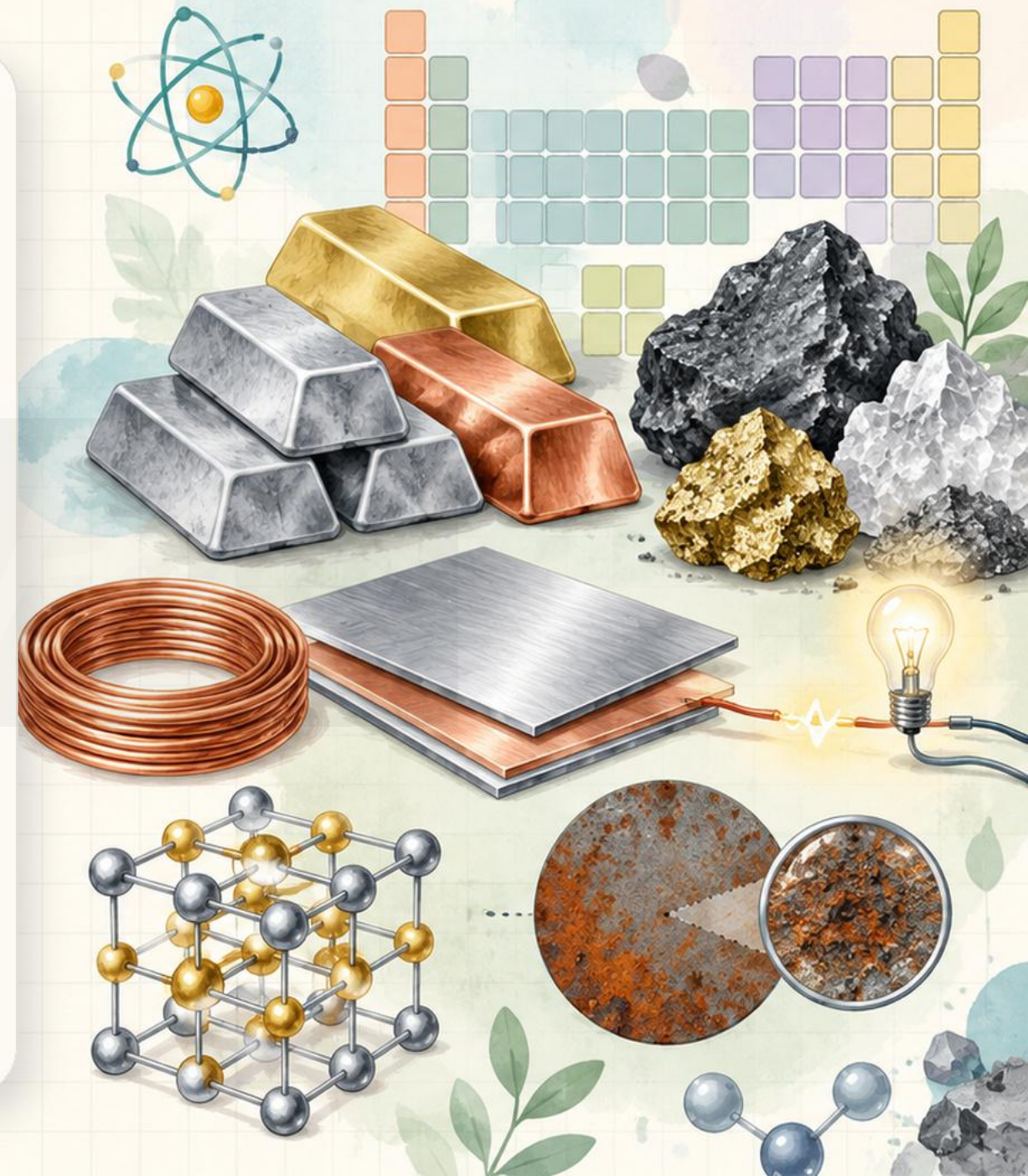


SCIENCE • CLASS 10

CHAPTER 3

Metals and Non-metals

NCERT SOLUTIONS



METAL DISPLACEMENT

Exercise 1 — Which pair will give a displacement reaction?

- (a) NaCl solution and copper metal (b) MgCl₂ solution and aluminium metal
(c) FeSO₄ solution and silver metal (d) AgNO₃ solution and copper metal

Solution: Copper is more reactive than silver, so it displaces silver from its salt solution.



The other metals cannot displace the metal in the given salt because they are less reactive.

Answer: (d) Silver nitrate solution and copper.

PROTECTIVE METAL COATINGS

Exercise 2 —

Which method is suitable for preventing an iron frying pan from rusting?

- (a) Applying grease
- (b) Applying paint
- (c) Applying a coating of zinc
- (d) All of the above

Zinc coating, called galvanisation, protects iron from rusting.

Food-safety note: zinc-coated surfaces should not contact acidic food.
Use suitable food-safe cookware.

Textbook answer: (c) A coating of zinc.

Exercise 4 —

Why are food cans coated with tin, not zinc?

- (a) Zinc is costlier than tin.
- (b) Zinc has a higher melting point.
- (c) Zinc is more reactive than tin.
- (d) Zinc is less reactive than tin.

Tin is less likely to react with acids in food than zinc.

Answer: (c) Zinc is more reactive than tin.

METAL OXIDES

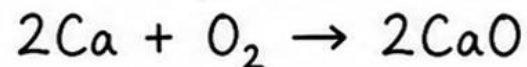
Exercise 3 –

An element reacts with oxygen to give a high-melting compound described as soluble in water. Identify the element.

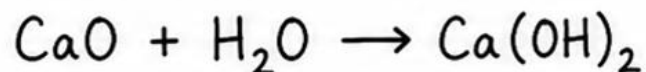
- (a) Calcium (b) Carbon
(c) Silicon (d) Iron

Answer: (a) Calcium.

Calcium forms calcium oxide, an ionic solid with a high melting point.



Clarification: calcium oxide reacts with water; the calcium hydroxide formed is only sparingly soluble.



Exercise 6 –

What are amphoteric oxides?
Give two examples.

Amphoteric oxides react with both acids and bases to form salt and water.

Examples:

- Aluminium oxide — Al_2O_3
- Zinc oxide — ZnO

TESTING METALS AND NON-METALS

Exercise 5 — You have a hammer, battery, bulb, wires and switch.

- (a) How can you distinguish metal and non-metal samples?
- (b) How useful are these tests?

(a) Hammer test

Gently hammer a suitable sample.

A metal usually flattens into a sheet:
it is malleable.

A solid non-metal usually breaks:
it is brittle.

(a) Electrical test

Connect the battery, bulb, switch and sample
in one complete series circuit using wires.

Close the switch. A glowing bulb shows that
the sample conducts electricity.

Metals generally conduct well;
most non-metals do not.

(b) Usefulness and limits

Use both tests together. They are useful clues, not absolute rules.

Graphite is a non-metal that conducts electricity. Some metals are brittle.

Use only suitable samples supplied by a teacher and a low-voltage battery.



FREE PREVIEW

[Click here to visit our website](#)

SCHOOL NOTES & NCERT SOLUTIONS

Complete notes and
NCERT solutions are
available on
FirstHope app only.



[Scan or click here](#)

Click here to get the app



Available on Google Play

JOIN THE FIRSTHOPE COMMUNITY

Join our Telegram channel

Click here to join Telegram



[Scan or click here](#)

@FirstHope_CBSE_Notes

Instagram

@firsthope.school

[Click here to follow >](#)

YouTube channel

@firsthope.school

[Click here to watch >](#)

FirstHope website

firsthope.co.in

[Click here to visit our website >](#)

CBSE / Class 9 / Class 10 / Class 11 / Class 12

Preview notes and NCERT solutions. Full PDFs in the FirstHope app.