

CLASS 7

SCIENCE

EXTRA QUESTIONS

Extra Questions for Class 7 Science Chapter 4: The World of Metals and Non-metals

Fresh practice questions for Class 7 Science Chapter 4 "The World of Metals and Non-metals", designed to build deeper conceptual understanding beyond the textbook exercises.

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Q1.

Why are cooking vessels usually made of metals like aluminium and copper rather than non-metals?

Answer: Metals are good conductors of heat, allowing food to cook evenly and efficiently, whereas most non-metals are poor conductors of heat and would not transfer heat effectively to the food.

Q2. Assertion-Reason

Assertion (A): Sodium metal is stored in kerosene oil.

Reason (R): Sodium reacts vigorously with air and water, and kerosene prevents this contact.

Answer: Both A and R are true, and R correctly explains A.

Q3. Spot the error

A student wrote: “Non-metal oxides are basic in nature and turn red litmus blue.” Identify and correct the error.

Answer: This is incorrect. Non-metal oxides are generally acidic and turn blue litmus paper red (e.g., sulphur dioxide forms sulphurous acid). It is metal oxides that are basic and turn red litmus blue.

Q4.

Classify the following as metal or non-metal based on their properties: (a) lustrous, malleable, sonorous (b) dull, brittle, poor conductor (c) graphite — non-lustrous but a good conductor of electricity.

Answer: (a) Metal (b) Non-metal (c) Graphite is a non-metal but is exceptional in being a good conductor of electricity, which is why it is used in pencils and dry-cell batteries.

Q5.

Design a simple test to check whether an unknown solid is a metal or non-metal using materials available at home.

Answer: Test for (a) lustre — check if it shines when polished; (b) malleability — try gently hammering a small piece to see if it flattens or breaks; (c) sonority — tap it and listen for a ringing sound; (d) electrical conductivity — connect it in a simple circuit with a cell and bulb to see if the bulb lights up. Metals typically pass all four tests; non-metals typically fail most of them (except graphite for conductivity).

Q6.

Why is gold, and not iron, traditionally preferred for making jewellery despite iron being cheaper and stronger?

Answer: Gold is highly resistant to corrosion and does not react with air or moisture, so it retains its lustre indefinitely. Iron rusts readily when exposed to air and water, which would damage jewellery over time.

Q7. Real-world application

Electricians wear rubber gloves and stand on rubber mats while working with electrical wiring. Explain why, using concepts from this chapter.

Answer: Rubber is a non-metal and a poor conductor (insulator) of electricity. Wearing rubber gloves and standing on a rubber mat prevents electric current from passing through the electrician's body to the ground, protecting them from electric shock.

Q8. HOTS

A farmer notices that adding a certain fertiliser makes his plants grow greener and healthier. Which non-metal is most likely a key component of this fertiliser, and why?

Answer: Nitrogen. Nitrogen is a non-metal essential for plant growth (it's a key component of chlorophyll and proteins), so fertilisers rich in nitrogen compounds promote healthier, greener plant growth.

Q9.

Two unlabelled metal strips are given: one is magnesium, one is copper. Both are burnt and the ash is dissolved in water, then tested with litmus paper. How can you identify which is which?

Answer: Magnesium burns to form magnesium oxide (a basic oxide), which turns red litmus paper blue when dissolved in water. Copper does not burn as readily and does not produce this basic-oxide reaction, so the strip whose ash turns red litmus blue is magnesium.

Q10.

Explain why iron nails are often coated with a thin layer of zinc (galvanisation) rather than sulphur to prevent rusting.

Answer: Zinc forms a protective, adherent metallic layer over iron that physically blocks air and moisture from reaching the iron surface, and even if scratched, zinc corrodes preferentially, protecting the iron underneath. Sulphur, while unreactive with water, does not bond to form a protective coating and offers no such barrier or sacrificial protection.

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