

Electricity, Magnets, Water and Air

Science · Class 6 · Topic-wise Practice Worksheet

TIME 45 minutes	QUESTIONS 18	TOTAL MARKS 24	MAX. SCORE ___ / 24
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Name: _____ Class/Sec: _____ Date: _____

INSTRUCTIONS

- There are **18 questions** in this worksheet. All questions are compulsory.
- Each question has four options (A), (B), (C) and (D). Exactly **one** option is correct.
- Questions 1–15 carry **1 mark** each. Questions 16–18 (Achievers Section) carry **3 marks** each.
- There is no negative marking. Study every diagram and table carefully.

Section A — Scientific Reasoning

Q1–Q8 · 1 mark each

- An electric circuit is said to be **closed** when _____.
 (A) The path is complete and current can flow
 (B) There is a gap in the path
 (C) The cell is removed
 (D) The bulb is fused
- Which of these is a good **conductor** of electricity?
 (A) Rubber
 (B) Dry wood
 (C) Glass
 (D) Copper
- The ends of a magnet where its attracting power is **strongest** are called its _____.
 (A) Poles
 (B) Axes
 (C) Fields
 (D) Domains
- A freely suspended bar magnet always comes to rest pointing _____.
 (A) East-west
 (B) Up-down
 (C) North-south
 (D) In a random direction
- Like poles of two magnets _____ each other.
 (A) Attract
 (B) Melt
 (C) Have no effect on
 (D) Repel
- Which of these materials is **not** attracted by a magnet?
 (A) Aluminium
 (B) Nickel
 (C) Cobalt
 (D) Iron
- Roughly what percentage of the earth's water is fresh water fit for use?
 (A) About 25%
 (B) Less than 3%
 (C) About 50%
 (D) About 71%
- Which gas makes up about 78% of the air?
 (A) Oxygen
 (B) Carbon dioxide
 (C) Nitrogen
 (D) Argon

9. Look at the circuit shown. Will the bulb glow?

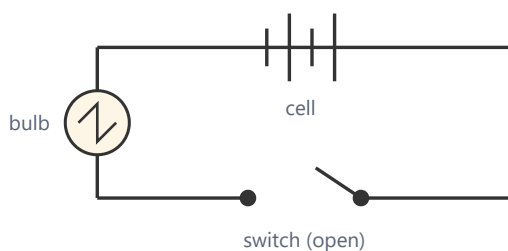


Fig. 9.1 — A simple circuit

- (A) Yes, because the cell is connected
 (B) No, because the bulb is too far from the cell
 (C) Yes, because the bulb is not fused
 (D) No, because the switch is open and the circuit is incomplete

10. In the table below, which row is **incorrectly** matched?

Row	Material	Behaviour with electricity
(A)	Aluminium	Conductor
(B)	Plastic	Insulator
(C)	Pure distilled water	Good conductor
(D)	Graphite	Conductor

Table 10.1

- (A) Row (A)
 (B) Row (B)
 (C) Row (C)
 (D) Row (D)
11. A bar magnet is broken into two pieces. What will each piece have?
 (A) Both a north and a south pole
 (B) Only a south pole
 (C) Only a north pole
 (D) No poles at all
12. Why should electrical repairs never be done with wet hands?
 (A) Water makes the tools slippery
 (B) Water with dissolved salts conducts electricity, so current can pass through the body
 (C) Water damages the wires
 (D) Water makes the current weaker
13. A magnet is brought near a heap containing iron nails, plastic buttons and wooden beads. What will happen?
 (A) All three will be attracted
 (B) Only the iron nails will be attracted
 (C) Only the plastic buttons will be attracted
 (D) Nothing will be attracted
14. Why does an empty bottle pushed mouth-first into water take in very little water at first?
 (A) The bottle is too narrow
 (B) Water is too heavy
 (C) The bottle is already full of air, which occupies space
 (D) Glass repels water
15. Which process returns water vapour from the air to the earth as liquid water?
 (A) Evaporation
 (B) Sublimation
 (C) Transpiration
 (D) Condensation and precipitation

16. Consider the following statements.

- (i) A magnet attracts all metals.
- (ii) The earth behaves like a giant magnet.
- (iii) Air exerts pressure in all directions.

Which of the statements is/are correct?

- (A) (i) and (ii) only
- (B) (ii) and (iii) only
- (C) (i) and (iii) only
- (D) All three

17. A student wants to test whether an unmarked iron bar is a magnet. Which single test gives a **definite** answer?

- (A) Bring each end near a known magnet's north pole and see if either end is repelled
- (B) Bring it near iron filings and see if they stick
- (C) See whether it is heavy
- (D) See whether it is shiny

18. Water is a good solvent and dissolves many substances. Why is this both useful and a problem?

- (A) It tastes better but costs more
- (B) It carries nutrients to living things, but it also carries pollutants into rivers and groundwater
- (C) It boils faster but freezes slower
- (D) It is heavier but easier to store

Answer Key

1	A	2	D	3	A	4	C	5	D
6	A	7	B	8	C	9	D	10	C
11	A	12	B	13	B	14	C	15	D
16	B	17	A	18	B				

Solutions

1. **Answer: (A)** The path is complete and current can flow

A circuit is closed when **the path is complete and current can flow** all the way from one terminal of the cell, through the components, back to the other terminal. An open circuit has a gap and no current flows.

2. **Answer: (D)** Copper

Copper is a metal and lets current pass easily, which is why wires are made of it. Rubber, glass and dry wood are insulators.

3. **Answer: (A)** Poles

A magnet's pull is strongest at its two **poles** and weakest in the middle. This is easily shown by dipping a bar magnet in iron filings.

4. **Answer: (C)** North-south

A freely suspended magnet turns until it points **north-south**, because the earth itself behaves like a huge magnet. This property is the basis of the compass.

5. **Answer: (D)** Repel

Like poles (north-north or south-south) **repel**, while unlike poles attract. Repulsion is the sure test of magnetism, because a magnet can attract an unmagnetised piece of iron but only another magnet is repelled.

6. **Answer: (A)** Aluminium

Only iron, nickel and cobalt (and their alloys, such as steel) are magnetic. **Aluminium** is a metal but is not attracted by a magnet.

7. **Answer: (B)** Less than 3%

About 97% of the earth's water is salty sea water, and most of the remaining fresh water is locked up as ice. So **less than 3%** is fresh, and only a tiny part of that is readily usable.

8. **Answer: (C)** Nitrogen

Air is about 78% **nitrogen** and about 21% oxygen, with carbon dioxide, argon and water vapour making up the rest.

9. **Answer: (D)** No, because the switch is open and the circuit is incomplete

The switch arm is lifted away from its contact, leaving a gap in the path. Current cannot cross a gap, so the circuit is open and the bulb will not glow — **the switch is open and the circuit is incomplete**. Closing the switch would complete the path.

10. **Answer: (C)** Row (C)

Pure distilled water is a poor conductor — it is ordinary tap water, with its dissolved salts, that conducts. This is why wet hands are dangerous near electricity. The other three rows are correct; graphite is the one non-metal that conducts well.

11. **Answer: (A)** Both a north and a south pole

However many times a magnet is broken, every piece is a complete magnet with **both a north and a south pole**. A single isolated pole cannot be obtained.

12. **Answer: (B)** Water with dissolved salts conducts electricity, so current can pass through the body

Tap water and sweat contain dissolved salts, so they **conduct electricity**. With wet hands the current can pass through the body and cause a severe or fatal shock.

13. **Answer: (B)** Only the iron nails will be attracted

Only magnetic materials are attracted, so **only the iron nails** will stick to the magnet. This is exactly how a magnet is used to separate iron from a mixture.

14. **Answer: (C)** The bottle is already full of air, which occupies space

The bottle only looks empty — **it is already full of air, which occupies space**. The trapped air has nowhere to escape, so it keeps the water out until the bottle is tilted and bubbles escape.

15. Answer: (D) Condensation and precipitation

Rising vapour cools and **condenses** into tiny droplets that form clouds, and when the droplets grow heavy enough they fall as **precipitation** — rain, snow or hail. Evaporation and transpiration send water the other way, upward.

16. Answer: (B) (ii) and (iii) only

Statement (i) is false — only iron, nickel, cobalt and their alloys are attracted; copper, aluminium and gold are not. Statement (ii) is true, which is why a compass needle points north. Statement (iii) is true; this is why a rubber sucker sticks to a smooth wall. Hence **(ii) and (iii)**.

17. Answer: (A) Bring each end near a known magnet's north pole and see if either end is repelled

Attraction proves nothing on its own, because an ordinary unmagnetised iron bar is also attracted by a magnet. Only **repulsion** is a sure test — a plain iron bar is never repelled, so if either end is pushed away by the known north pole, the bar must itself be a magnet.

18. Answer: (B) It carries nutrients to living things, but it also carries pollutants into rivers and groundwater

Because so much dissolves in it, water **carries nutrients and minerals to living things** — plants take up dissolved minerals and our blood is mostly water. The same property means that fertilisers, industrial waste and sewage also dissolve and are **carried into rivers and groundwater**, spreading pollution far from its source.