

Chapter 4: Exploring Magnets

Worksheet 1 — MCQs, Fill in the Blanks, True/False, Short Answers & Short Notes (3 Practice Sets with Answers)

SET C — Objective & Short Answer Worksheet

Name: _____ Date: _____

Class: _____ Section: _____

Section 1 — Multiple Choice Questions (10 × 1 = 10 Marks)

Tick (✓) the correct option.

1. Lodestones were discovered in: [1 Mark]
(a) modern times (b) ancient times (c) the last decade (d) the 21st century
2. The materials attracted towards a magnet are called: [1 Mark]
(a) non-magnetic materials (b) magnetic materials (c) plastic materials (d) glass materials
3. A magnet should NOT be kept near: [1 Mark]
(a) wood (b) mobile phones (c) a plastic box (d) paper
4. To store a pair of bar magnets safely, they should be kept: [1 Mark]
(a) with like poles together (b) with unlike poles on the same side (c) far apart in the open (d) heated first
5. The dial of a magnetic compass has: [1 Mark]
(a) numbers only (b) directions marked on it (c) pictures of magnets (d) nothing marked
6. When a magnet is broken into smaller pieces: [1 Mark]
(a) only North poles remain (b) only South poles remain (c) each piece still has both poles (d) the poles disappear
7. A magnetic effect can pass through: [1 Mark]
(a) only iron (b) only other magnets (c) non-magnetic materials like wood and glass (d) nothing at all
8. The compass needle is itself a: [1 Mark]
(a) piece of wood (b) small magnet (c) non-magnetic material (d) battery
9. Which of these metals, along with iron, is magnetic? [1 Mark]
(a) Aluminium (b) Nickel (c) Brass (d) Copper

10. A ring magnet has the shape of a: [1 Mark]
 (a) straight bar (b) circle with a hole (c) letter U (d) triangle

Section 2 — Fill in the Blanks (10 × 1 = 10 Marks)

Fill in the blanks with the correct word(s).

1. A bar magnet, a U-shaped magnet, and a _____ magnet are examples of magnets of different shapes. [1 Mark]
2. The magnetic effect of a magnet can act through _____ materials such as wood and glass. [1 Mark]
3. When the North pole of a bar magnet is brought near the North pole of a compass needle, the needle moves _____. [1 Mark]
4. When the South pole of a bar magnet is brought near the North pole of a compass needle, the needle moves _____. [1 Mark]
5. A piece of wood placed between a magnet and a compass needle causes _____ change in the deflection of the needle. [1 Mark]
6. Two pieces of _____ are placed across the ends of stored magnets to protect their poles. [1 Mark]
7. A magnet must not be heated, dropped, or _____. [1 Mark]
8. In olden days, sailors used the _____ to find directions when stars were not visible. [1 Mark]
9. The needle of a magnetic compass indicates the _____ direction. [1 Mark]
10. Apart from natural lodestones, magnets can also be made from _____ pieces of iron. [1 Mark]

Section 3 — True or False (10 × 1 = 10 Marks)

Write True or False in the space provided.

1. A magnet can pick up steel pins even through a piece of cardboard. [True / False]
2. Magnets should be stored with their like poles kept together. [True / False]
3. Matsya-yantra was an ancient Indian navigation device using a magnet. [True / False]
4. Ring magnet, bar magnet and U-shaped magnet are shapes of magnets. [True / False]
5. Heating or hammering a magnet is a safe way to store it. [True / False]
6. A magnetic compass helps us find directions. [True / False]
7. All metals are attracted by a magnet. [True / False]

8. The South pole of a magnet is also called the South-seeking pole. [True / False]
9. Two like poles of magnets, when brought close, attract each other. [True / False]
10. Placing a piece of wood between a magnet and a compass needle blocks the magnetic effect completely. [True / False]

Section 4 — Answer in Two Lines (10 × 2 = 20 Marks)

1. What is the difference between a magnetic material and a magnetic pole? [2 Marks]

2. Why should magnets not be kept near mobile phones? [2 Marks]

3. What do you understand by 'the Earth behaves like a giant magnet'? [2 Marks]

4. Give two examples of items around us that use magnets. [2 Marks]

5. What happens when a bar magnet is rolled over a heap of iron filings? [2 Marks]

6. Name the parts of a magnetic compass. [2 Marks]

7. Why is a piece of soft iron placed across the ends of stored magnets? [2 Marks]

8. Can the magnetic effect pass through a glass sheet? Explain in one line. [2 Marks]

9. What is the use of the dial in a magnetic compass? [2 Marks]

10. How did sailors find directions before the magnetic compass was invented? [2 Marks]

Section 5 — Short Notes: 5 to 8 Lines (5 × 3 = 15 Marks)

1. Describe the story of Reshma and how she got interested in magnets and magnetic compasses. [3 Marks]

2. Explain the difference between magnetic and non-magnetic materials with examples. [3 Marks]

3. Describe matsya-yantra and its historical importance. [3 Marks]

4. Explain how the Earth behaves like a giant magnet and how this helps a compass work. [3 Marks]

5. Describe any three fun activities that can be done using magnets (from the 'Fun with Magnets' section). *[3 Marks]*

✓ ANSWER KEY — Set C**Section 1: Multiple Choice Questions**

1. (b) 2. (b) 3. (b) 4. (b) 5. (b) 6. (c) 7. (c) 8. (b) 9. (b) 10. (b)

Section 2: Fill in the Blanks

1. ring
2. non-magnetic
3. away
4. closer (towards it)
5. no appreciable
6. soft iron
7. hammered
8. magnetic compass
9. north-south
10. artificial

Section 3: True or False

1. True 2. False 3. True 4. True 5. False 6. True 7. False 8. True 9. False
10. False

Section 4: Answer in Two Lines

1. A magnetic material is a substance attracted by a magnet, while a magnetic pole is the region near the ends of a magnet where its force is strongest.
2. Magnets can affect and damage the working of mobile phones and other electronic devices.
3. It means the Earth has its own magnetic field with North and South poles, which makes a freely suspended magnet align in the north-south direction.

4. Pencil boxes and purses with magnetic clasps, and refrigerator door magnets are common examples.
5. More filings stick near the two ends (poles) of the magnet than near its middle.
6. A magnetic compass has a magnetised needle, a pin on which it rotates, a dial with directions, and a transparent cover.
7. It helps to complete the magnetic circuit and preserve the strength of the stored magnets.
8. Yes, the magnetic effect passes through a glass sheet with no appreciable change in the compass needle's deflection.
9. The dial has directions marked on it, which are read against the needle to know all directions at that place.
10. They used the positions of stars in the night sky to find directions.

Section 5: Short Notes

1. Reshma, who lived in a coastal town of Kerala, was writing a story about a spice-trading ship for her grandmother's birthday. In her story, sailors got caught in a storm with an overcast sky, so they could not use the stars to find directions. While researching how sailors managed this, Reshma learnt about the magnetic compass, a device used for finding directions. She also recalled that her pencil box, purse, and school writing board all had magnets in them, but she had never looked at them carefully before. This made her curious to learn more about magnets and how magnetic compasses work.
2. Magnetic materials are substances that get attracted towards a magnet, such as iron, nickel, and cobalt, and objects made from them like iron nails or steel pins. Non-magnetic materials, on the other hand, are not attracted towards a magnet at all; common examples include wood, plastic, rubber, glass, and paper. This difference can be tested simply by bringing a magnet near different objects and observing which ones stick to it and which do not, as done in Activity 4.1 of the chapter.

3. Matsya-yantra, also called machchh-yantra, was a traditional navigation device used by Indians for sailing at sea, long before the modern magnetic compass became common. It consisted of a magnetised iron piece shaped like a fish, which was kept floating in a vessel filled with oil. Because it was magnetised, the fish-shaped piece would align itself along the north-south direction, just like a modern compass needle, helping sailors find their way even when they could not see the stars.
4. The Earth itself has a magnetic field, similar to that of a bar magnet, with its own North and South magnetic poles. Because of this, any magnet that is freely suspended or allowed to rotate, such as the needle in a magnetic compass, aligns itself along the Earth's north-south magnetic direction. This is why a compass needle always settles down pointing north-south wherever it is placed, and this reliable behaviour is what makes the compass so useful for finding directions.
5. One fun activity is making a magnetic garland by joining small magnets end to end using their attracting poles. Another is taking steel balls out of a maze by moving a magnet below the cardboard tray on which the maze is placed, without touching the balls directly. A third activity is picking up a steel paper clip that has fallen into water using a magnet, without getting the fingers or the magnet wet, since the magnetic effect can act through the glass or plastic of the container.

