

6th Std - Science - Term - 3 Unit - 1 - Magnetism



Complete Guide For Textbook Back Exercise Question with answer and Solution steps. Click / Scan QR Code to Attempt All The TextBook Back Questions as a Practice Test Online

1. Choose the appropriate answer

1. An object that is attracted by magnet.

- A) Eraser
- B) Plain pins

C) Wooden piece

D) A piece of paper

Explanation: The materials that are attracted towards a magnet are called magnetic materials. Iron, nickel and cobalt are magnetic materials. Magnetite or Lodestone is the first known natural magnet that contains iron. Plain pins are an example of magnetic materials.

The materials that are not attracted towards a magnet are called non-magnetic materials. Wooden piece, eraser and a piece of paper are non-magnetic materials. Even metals like gold and silver are non-magnetic in nature.

2. People who made mariner's compass for the first time.

- A) Indians
- B) Europeans
- C) Chinese
- D) Egyptians

Explanation: The Chinese discovered that a natural magnetic stone, i.e., lodestone, when suspended, aligns in the north-south direction at rest. Chinese travellers used these lodestones for navigation in the ocean. They suspended a piece of lodestone in their ships or boats to locate directions during a storm.

3. A freely suspended magnet always comes to rest in the _____ direction.

- A) South west B) East - west
- C) North south
- D) North east

Explanation: According to the directive property, the magnet rests in the same direction again and again, which is the north-south direction. A magnet, when suspended freely in the air, will always come to rest in the north-south direction.

4. Magnets lose their properties when they are _____.

A) stored

B) cleaned

C) hit with a hammer

D) used

Explanation: The magnetic property of a material will be lost when

- heated,
- hammered, or
- dropped from a certain height

Placing the magnets near an electronic device and improper storage will also affect the magnetic field of a magnet.

5. Mariner's compass is used to find the _____.

A) direction

B) speed

C) motion

D) displacement

Explanation: A compass is a device that is used to find the direction. Mariner's compass is used to find the direction.

The compass is mainly used in ships and aeroplanes for navigation. Mountaineers carry a compass to the unknown places to find their way out.

2. Fill in the blanks

1. Artificial magnets are made in different shapes such as <u>**Bar-magnet**</u>,

horseshoe magnet and _ ring magnet_.

- 2. The materials which are attracted towards the magnet are called <u>Magnetic materials</u>.
- 3. Paper is not a <u>Magnetic</u> material.
- 4. In olden days, sailors used to find direction by suspending a piece of <u>Lodestones</u>.
- 5. A magnet always has <u>**Two**</u> poles.

3. True or False. If False, give the correct statement

1. A cylindrical magnet has only one pole.

A) False

B) True

Correct statement: A cylindrical magnet has only two poles

2. Similar poles of a magnet repel each other.

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B) False

Correct statement: North pole of one magnet repel with north pole of another magnet

3. Maximum iron filings stick in the middle of a bar magnet when it is brought near them.

A) True

B) False

Correct statement: Maximum iron filings stick to the ends of a bar magnet when it is brought near them

4. A compass can be used to find east west direction at any place.

A) True

B) False

Correct statement: A compass always points towards north-south direction

5. Rubber is a magnetic material.

A) False

B) True

Correct statement: Rubber is a non-magnetic material

4. Match the following

- 1. Compass ______Like poles
- 2. Attraction
- 3. Repulsion

Magnetic needle

4. Magnetic poles - Opposite poles

5. Circle the odd ones and give reasons

1. Iron nail, pins, rubber tube, needle.

Explanation: The materials that are not attracted towards a magnet are called **non-magnetic materials**. Plastics, leather, rubber, and paper are non-magnetic materials. Even metals like gold and silver are non-magnetic in nature.

2. Lift, escalator, electromagnetic train, electric bulb.

Explanation: When an electric current flows through an iron piece wounded by a coil, it behaves like a magnet. This phenomenon is known as **electromagnetism**.

A type of magnet that produces a magnetic field when an electric current flows through it is known as an **electromagnet**.

A good application of electromagnets are an electromagnetic train, lift and escalator.

3. Attraction, repulsion, pointing direction, illumination.

Explanation: Illumination is a property of light. Attraction, repulsion and pointing direction are magnetic properties.

6. Diagram based questions

The following diagrams show two magnets near one another. Use the words, 'Attract, Repel, Turn around' to describe what happens in each case.



Explanation: Repulsion occurs when like poles (N-N or S-S) of the magnets are kept closer to each other.

Attraction occurs when unlike poles (N-S or S-N) of the magnets are kept closer to each other.

- (a) Unlike poles attract each other.
- (b) Like poles repel each other.
- (c) Unlike poles attract each other.
- (d) Perpendicular poles turn around and attract one another.
- (e) Like poles repel each other.
- (f) Perpendicular poles turn around and attract one another.



8. Give short answer

1. Explain the attraction and repulsion between magnetic poles.

Answer: Attraction and repulsion between magnetic poles:

When two magnets are moved close to each other, they either attract or repel each other. The opposite poles of magnets attract, whereas the similar poles of magnets repel when they are pulled towards each other. The attraction or repulsion of the magnets depends on the direction of the poles facing each other.

2. A student who checked some magnets in the school laboratory found out that their magnetic force is worn out. Give three reasons for that?

Answer: Loss of magnetic property:

The magnetic property of a material will be lost when

- heated,
- hammered, or
- dropped from a certain height.

9. Answer in detail

1. You are provided with an iron needle. How will you magnetize it?

Answer: We can make our magnet with the help of a bar magnet.

- 1. Place a rectangular piece of iron needle or a nail on the table.
- 2. Place one end (pole) of a bar magnet near one edge of the iron needle or a nail.
- 3. Till you reach the other end, move the bar magnet along the length of the iron needle or a nail.
- 4. Now, bring the pole to the starting point of the iron needle or a nail and move it in the same direction again.
- 5. Note that the pole of the magnet and its direction should not change.
- 6. Repeat this process several times (around 30 to 40 times).
- 7. Now, check whether it has become a magnet by placing some iron filings near the piece of an iron needle or a nail.
- 8. If not, continue the process again until it gets magnetized.

By this method of magnetization, we can convert an iron needle into a magnet.

2. How does the electromagnetic train work?

Answer: When an electric current flows through an iron piece wounded by a coil, it behaves like a magnet. This phenomenon is known as electromagnetism.

A type of magnet that produces a magnetic field when an electric current flows through it is known as an electromagnet.

Electromagnetic train: A good application of an electromagnet is an electromagnetic train. This train works on the principle of **magnetic levitation**. Hence, it is also known as a **suspension train** or a **flying train**. This train does not use diesel or petrol. The magnetic attraction and repulsion properties are used to run these super-fast trains.

10. Questions based on Higher Order Thinking Skills

- 1. You are provided with iron filings and a bar magnet without labelling the poles of the magnet. Using this...
- a. How will you identify the poles of the magnet?

Answer: All magnets will have **two poles**, **north (N)** and **south (S)** poles. The north pole of the magnet is the end of the magnet that points towards the north. The south pole of the magnet is the end that points towards the south.

b. Which part of the bar magnet attracts more iron filings? Why?

Answer: The magnetic force is **maximum at the poles** and **minimum at the centre** of a bar magnet. This applies not only to a bar magnet but also to all kinds of magnets.

For example, if a horseshoe magnet or U-shaped magnet is kept near the iron filings, it is observed that more iron filings stick to the poles compared to the centre of the magnet.

2. Two bar magnets are given in the figure A and B. By the property of attraction, identify the North pole and the South pole in the bar magnet (B).



Answer: Repulsion occurs when **like poles**(N-N or S-S) of the magnets are kept closer to each other. **Attraction** occurs when **unlike poles** (N-S or S-N) of the magnets are kept closer to each other. Like poles repel whereas unlike poles attract each other.

3. Take a glass of water with a few pins inside. How will you take out the pins without dipping your hands into water?

Answer: If a strong bar magnet is kept above the glass of water, all the pins inside the water comes up and attracts the magnet.