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ADJACENT NAVNITI APARTMENT PATPARGANJ
DELHI-110092

Class: VI

Subject: Science

**Chapter: Playing with
Magnets**

Multiple Choice Questions (MCQs).

Tick (✓) the correct options.

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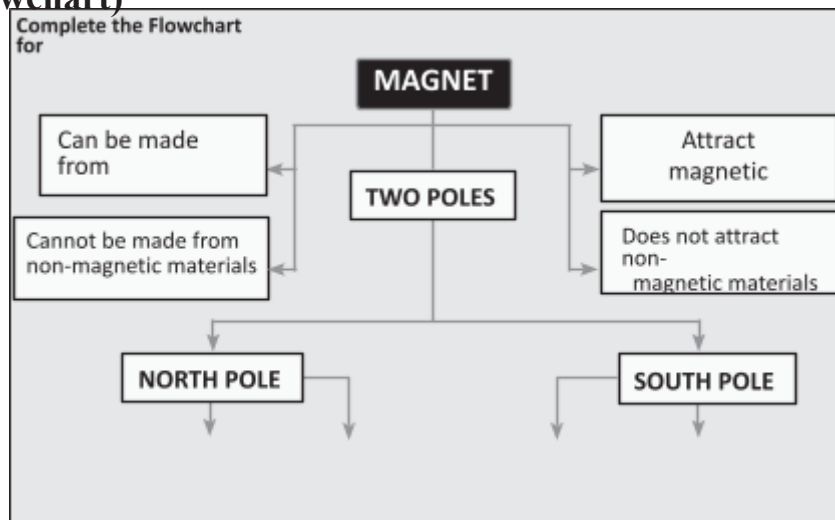
1. (d) 2.(d) 3.(c)

(Think and Answer)

Using a compass is more reliable and easier for navigation than using stars because it provides a constant reference point regardless of weather conditions or time of day. Compasses work in all environments, ensuring accurate direction- finding, whereas celestial navigation can be affected by visibility and requires

knowledge of the stars and constellations.

(flowchart)



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SECTION-A

A. Oral Questions:

1. Magnetic materials are substances that can be attracted by a magnet and can be magnetised themselves. Common examples include iron, nickel and cobalt.
2. When the North Pole of one magnet approaches the South Pole of another magnet, they attract each other.
3. A freely suspended magnet aligns itself with the Earth's magnetic field, with its North Pole pointing toward the magnetic north, helping in navigation and direction finding.
4. When a magnet is broken into two pieces, each piece becomes a new magnet with its own North and South Poles.
5. Yes, a magnet can lose its magnetism over time or if it is subjected to heat, physical shock or other strong magnetic fields.

B. Multiple Choice Questions (MCQs). Tick (✓) the correct options.

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

C. Assertion-Reason Based Questions:

1. (a) 2. (a)

D. Case-Based Questions:

Case 1:

1. The steel paperclip is made of a magnetic material (iron), which is attracted to magnets. In contrast, the plastic ruler is a non-magnetic material and does not respond to magnetic fields.
2. Materials can be classified as **magnetic** (e.g., steel) and **non-magnetic** (e.g., plastic) based on their response to a magnet.

Case 2:

1. The demonstration shows the property of **repulsion** between like poles of magnets, which do not attract each other.

2. If the South Pole of one magnet is brought near the North Pole of another, they will **attract** each other, demonstrating the property of attraction between opposite poles.

SECTION – B

A. Very Short Answer Questions:

1. Iron and nickel.
2. Opposite poles have magnetic fields that interact in a way that pulls them together, creating an attractive force.
3. It aligns itself in the North-South direction due to the Earth's magnetic field.
4. It is used for navigation to determine directions.
5. Bring it close to known magnetic materials (like iron or steel) and check if it attracts them, then bring it close to either poles of a magnet, one of the poles will surely show repulsion.

B. Short Answer Questions:

1. Magnetic materials, like iron and cobalt, can be attracted by a magnet and can become magnets themselves. Non-magnetic materials, such as wood and plastic, do not have magnetic properties and cannot be attracted by magnets.
2. Kindly refer Question no-1 of long question answer.
3. A freely suspended magnet aligns in the North-South direction due to the Earth's magnetic field acts on it making it point along North- South direction.
4. Magnets are used in various applications such as in refrigerator doors (to keep them closed), magnetic locks, credit card strips, compasses for navigation, and in electronic devices like speakers and microphones.
5. The property that helped Rashmi find the needle is the magnet's ability to attract magnetic materials, such as the metal in the sewing needle.

C. Long Answer Questions:

1. A magnetic compass is a device containing a small, lightweight needle, which is a magnet. This needle is free to spin and always points in the north- south direction. Once the needle is aligned in North- south Direction , you can use it to find the East and West directions. The needle of the magnetic compass always points towards the north.

Using a real magnetic compass:

1. Place the compass flat on a surface.
2. The needle will rotate and come to rest in the North-South direction.
3. Gently rotate the compass box so that the North and South marks on the dial line up with the needle.

Now, you can find all directions and mark them on the dial.

2. Take a bar magnet, a small needle, a glass bowl, a bowl of water and a piece of cork or foam.

Steps:

1. Rub the needle on the bar magnet around 30 to 40 times in one Direction. This will magnetise the needle.
2. Carefully place the needle on top of the cork or foam so that it floats.
3. Put the cork in the top of water.

After some time, the needle will rotate and come to rest in the North-South direction. The end of the needle pointing north is your North Pole And the other end is the South Pole.

3. When a bar magnet is broken, each piece becomes a smaller magnet with its own north and south poles. This happens because the magnetic domains within the material realign when cut, allowing each piece to maintain its magnetic properties. Thus, both fragments still act as magnets.
4. Attraction occurs when opposite poles of magnets (north and south) come close together, pulling towards each other. For example, a north pole will attract a south pole. Repulsion occurs when like poles (north-north or south-south) approach each other, causing them to push away. For instance, two north poles will repel each other.
5. Same as question no.6 of long answer questions.
6. Three ways to keep a magnet safe and to maintain the strength of a magnet are:
 - (a) Always store magnets in pairs with their opposite poles together in a Magnetic keepers.
 - (b) Keep magnets away from hot places or sunlight.
 - (c) Keep magnets away from electronic devices to prevent any damage.

D. Application-Based Questions:

1. To help the carpenter recover the iron nails and screws from the wood shavings, you can use a magnet. By moving a strong magnet over the mixture, the nails and screws, being magnetic materials, will be attracted to the magnet and separate from the non-magnetic wood shavings. Once the metal pieces are collected on the magnet, they can easily be removed, leaving the wood shavings behind.
2. To find the poles of the two unlabelled magnets, suspend one magnet freely with a thread and let it come to rest in the north-south direction. The end pointing towards the geographic north is the North Pole, and the opposite end is the South Pole.
Now bring one end of the second magnet near the identified North Pole of the first magnet:
 - * If it repels, that end is also a North Pole.
 - * If it attracts, that end is a South Pole.In this way, you can identify the poles of both magnets.

NOTE- Only Section B is to be done in the notebook. Section-A remains in book only.