

UNIT : 1. MAGNETISM

CLASS : VI

SUBJECT : SCIENCE

I. Choose the appropriate answer

- An object that is attracted by magnet.
a. wooden piece **b. plain pins** c. eraser d. a piece of paper
- People who made mariner's compass for the first time.
a. Indians b. Europeans **c. Chinese** d. Egyptians
- A freely suspended magnet always comes to rest in the _____ direction
a. North - east b. South - west c. East - west **d. North - south**
- Magnets lose their properties when they are
a. used b. stored **c. hit with a hammer** d. cleaned
- Mariner's compass is used to find the
a. speed b. displacement **c. direction** d. motion.

II. Fill in the Blanks

- Artificial magnets are made in different shapes such as Bar-magnet, Horseshoe magnet and Ring magnet.
- The Materials which are attracted towards the magnet are called magnetic substances
- Paper is not a magnetic material.
- In olden days, sailors used to find direction by suspending a piece of lodestones
- A magnet always has two poles.

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

- A cylindrical magnet has only one pole. **False**
- Similar poles of a magnet repel each other. **True**
- Maximum iron filings stick in the middle of a bar magnet when it is brought near them. **False**
- A compass can be used to find EastWest direction at any place. **True**
- Rubber is a magnetic material. **False**

IV. Match the following

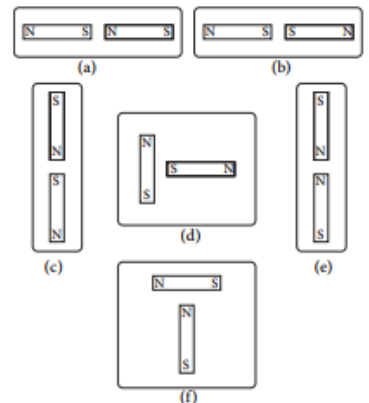
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|-------------------|---|---------------------------|
| 1. Compass | - | Magnetic needle |
| 2. Attraction | - | Opposite poles |
| 3. Repulsion | - | Like poles |
| 4. Magnetic poles | - | Maximum magnetic strength |

V. Circle the odd ones and give reasons

1. Iron nail, pins, **rubbertube**, needle.
2. Lift, escalator, electromagnetic train, **electric bulb**.
3. Attraction, repulsion, pointing direction, **illumination**.

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

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



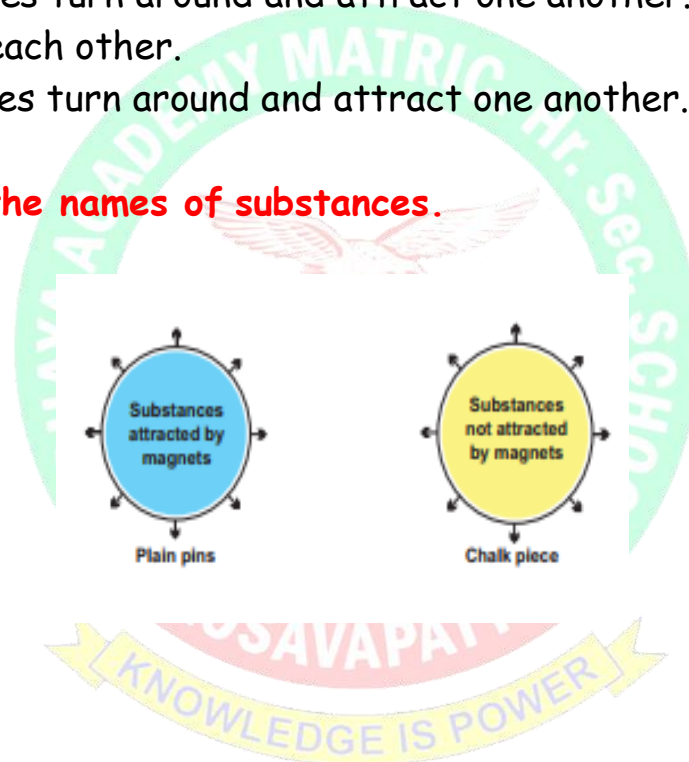
VII. Write down the names of substances.

Plain pins:

- Safety pin
- Needle
- Iron rod
- Nail
- Knife
- Key
- Iron filings
- Safety pin

Chalk piece:

- Paper
- Plastic
- Glass
- Wood
- Leather
- Rubber
- Wax



VIII. Give short answer

1. Explain the attraction and repulsion between magnetic poles.

- ❖ Like poles (N - N, S - S) repel each other.
- ❖ Unlike poles (N - S, S - N) attract 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?

Magnets lose their properties if they are:

- ❖ heated
- ❖ dropped from a height
- ❖ hit with a **hammer**

These are the reasons for that their magnetic force is worn out.

IX. Answer in detail

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

Place the iron needle on the table.

Take a bar magnet and place one of its poles near one edge of the iron needle.

- ❖ Rub from one end to another without changing the direction of the pole of the magnet.
- ❖ Repeat the process for 30 to 40 times. The needle will be magnetized.
- ❖ If it will not attract pin or iron fillings continue the same process for some more time.

2. How does the electromagnetic train work?

- ❖ Electromagnets are used in Electromagnetic train.
- ❖ Electromagnets are magnetised only when current flows through them.
- ❖ When the direction of current is changed, the poles of the electromagnets are also changed.
- ❖ Like poles of the magnets which are attached at the bottom of the train and rail track repel each other.
- ❖ So, the train is lifted from the track up to a height of 10 cm.
- ❖ We know that we can move any magnetic object with the force of attraction or repulsion properties of magnets.
- ❖ This train also moves with the help of the magnets attached on the sides of track and the magnets fitted at the bottom sideway of the train.
- ❖ By controlling the current, we can control the magnets and movement of the train.

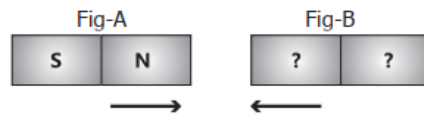
X. Questions based on Higher Order Thinking Skills

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

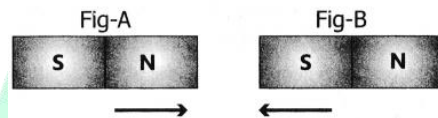
- ❖ When we place the bar magnet in iron fillings large amount of iron fillings stick on the two ends of the bar magnet. These ends are poles of the magnet.
- ❖ Poles will attract more iron filings. Because poles have high magnetic strength.

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)



The Fig -A has S and N poles.

In the Fig -B magnet, nearer to the North pole of Fig-A is South pole and the next pole is North pole.



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

If we keep a strong bar magnet above the glass of water, all pins inside the water come up and attract the magnet.

