

NCERT SOLUTIONS

CLASS-VI SCIENCE

CHAPTER-13

FUN WITH MAGNETS

1. Fill the blanks:

- (i) The shapes in which artificial magnets can be made are _____ and _____
- (ii) _____ materials are attracted towards magnet.
- (iii) Paper is not _____
- (iv) A few centuries ago, sailors used a suspended piece of _____ to find direction.
- (v) There are bound to be _____ poles in a magnet.

KEY

- (i) horse-shoe, bar, cylindrical.
- (ii) magnetic materials.
- (iii) magnetic
- (iv) bar magnet or lode stone
- (v) a pair or two

2. True or False

- (i) There is only one pole in a cylindrical magnet.
- (ii) The natural magnets were first discovered in Greece.
- (iii) In a magnet, similar poles repel each other.
- (iv) When a bar magnet is brought near a pile of iron filings, they tend to stick at the middle of the bar magnet rather than the ends.
- (v) A bar magnet when suspended freely in air always point in the North-South direction.
- (vi) A compass can also be used to find East-West direction at any location.

(vii) Plastic is a magnetic material.

Key

- (i) False
- (ii) True
- (iii) True
- (iv) False
- (v) True
- (vi) True
- (vii) False

3. Pencil sharpener is attracted to both poles of a magnet although the sharpener's body is made of plastic. Identify the material which may be the reason for the above phenomena that might have been used to make some part of the sharpener.

Ans: Iron is used to make the blade in the sharpener due to which it is attracted towards magnet.

4. Column I indicates different scenarios of magnetic pole placement. Column II shows the resulting action. Fill the blanks.

Column I
N-N
N-_____
S-N
_____ -S



Column II
Attraction
Repulsion

pdfelement

Ans:

Column I

Column II

N-N

Repulsion

N-S

Attraction

S-N

Attraction

S S

Repulsion

5. Mention any two properties of a magnet.

Ans: Properties of a magnet are:

- (i) Every magnet has two poles namely, North pole and South pole.

(ii) Unlike poles attract and like poles repel each other.

6. Where are the poles of a bar magnet present?

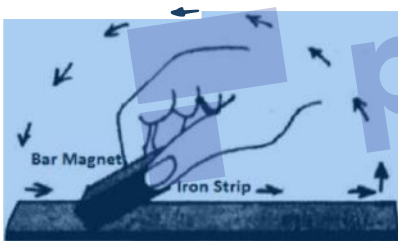
Ans. At extreme ends of the bar magnet, the two poles (i.e North and South) are located.

7. There are no markings on a bar magnet to differentiate north pole and south pole. What is the best method to identify the poles of a bar magnet?

Ans. Suspend the bar magnet freely with help of a thread tied to the center of the bar magnet, the end that points to the north direction will be regarded as the north pole of the magnet. The other end is regarded as the south pole.

8. How to make an iron strip act as a magnet?

Ans. Making a magnet: Take an iron strip and place it on the table. Now take a bar magnet and place one of its poles near one edge of the strip of iron. Without lifting it, move it along the length of the iron strip till you reach the other end. Now lift the magnet and bring the pole to the same point of the strip from where you began. Repeat the same process for about 40-50 times. Now you have made the iron strip to act as a magnet. To verify, bring some iron fillings near the iron strip. The strip will attract the fillings just like a magnet.



9. How does a compass work and how can it be used to find direction?

Ans. The magnetized needle which is pivoted inside the glass box can rotate freely. The casing or the box has a dial marked with directions on it. Now to find the direction the compass has to be kept on a flat surface or a table and the needle should be allowed to rest. Then, rotate the compass so that the north-south on the dial is aligned with the ends of the needle. Usually, different colors are used to point the ends of the needle to identify the north and south poles.



10. **A magnet was brought from various directions towards a toy boat that has been floating in a water tub. The observed effect in each case is mentioned in Column I. Possible reason for the observed effects are mentioned in Column II. Match the statements in Column I and Column II.**

Column I

Boat gets attracted towards the bar magnet.

Boat is not affected by the magnet.

Boat moves towards the magnet if north pole of the magnet is brought near its head.

Boat moves away the magnet if north pole of the magnet is brought near its head.

Boat floats without changing its direction.

Column II

Boat is fitted with a bar magnet with north pole towards its head.

Boat is fitted with a bar magnet with south pole towards its head.

Boat has a small magnet fixed along its length.

Boat is made of magnetic material

Boat is made of non-magnetic material

Ans.

Column I

Boat gets attracted towards the bar magnet.

Boat is not affected by the magnet

Boat moves towards the magnet if north pole of the magnet is brought near its head.

Boat moves away the magnet if north pole of the magnet is brought near its head.

Boat floats without changing its direction.

Column II

Boat is made of magnetic material

Boat is made of non-magnetic material

Boat is fitted with a bar magnet with south pole towards its head.

Boat is fitted with a bar magnet with north pole towards its head.

Boat has a small magnet fixed along its length.

Very Short Answer Type Questions

1. **What is the compound of iron present in a lode stone?**

Ans. Iron oxide or magnetite is the compound present in lode stone.

2. **After whose name is the term "Magnet" coined?**

Ans. The term Magnet is coined after a shepherd named Magnes.

3. **How to separate magnetic materials from a mixture?**

Ans. With help of a bar magnet, the magnetic material can be separated from the mixture.

4. **The magnetic force is maximum at which place on a magnet?**

Ans. At Poles.

5. **A suspended magnet comes to rest in which direction?**

Ans. Magnet comes to rest in N-S (North-South) direction.

6. **What happens when a north pole of a magnet is brought near the north pole of another magnet?**

Ans. There will be repulsion between the two magnets as there is repulsion between the poles.

Short Answer Type Questions.

1. **Draw the diagram of**

(a) Bar Magnet

(b) Horse-shoe Magnet

Ans.

a



b



2. **Separate the magnetic and non-magnetic substances from the list given below:**

Iron, Steel, Nickel, Plastic, Wood, Copper, and a stainless steel spoon

Ans.

Magnetic Substances

Iron, Steel, Nickel

Non-Magnetic Substances

Plastic, wood, copper, stainless steel spoon

3. **Draw a diagram of a Magnetic Compass.**

Ans.





4. Write the main properties of a Magnet.

- Ans. (i) A magnet always has two poles i.e North pole and South pole.
 (ii) Poles of a magnet can never be isolated
 (iii) Like pole repel and unlike poles attract.
 (iv) A freely suspended magnet always gets aligned to North-South direction

5. Mention any two methods by which a magnet can be demagnetized.

- Ans. (i) By hammering the magnet strongly.
 (ii) By heating a magnet strongly and keeping it in the east-west direction.

6. Why is it advised to keep magnets away from mobiles, television, computers and CDs?

Ans. Because all those devices are made up of magnetic material and magnets in it, when we bring magnets near them, it will spoil these devices.

7. Few iron nails and screws got mixed with the wooden shavings while a carpenter was working with them. Suggest the best way for him to get the nails and screws back from the scrap without wasting his time and searching with his hands.

Ans. By using a magnet we can attract all the iron nails and screws and can separate them from wooden shavings. This is possible since, the screws and iron nails are magnetic materials, whereas wood is a non-magnetic material.

8. Why is it said that repulsion is a sure test for magnetism?

Ans. Repulsion is a sure test for magnetism because to identify whether the rod or material is an iron rod, a magnet repulsion is the only way. This is because a magnet attracts an iron object and unlike poles repel each other.

9. A bar magnet is broken into pieces. Where will be it's North and South pole?

N S



Ans. If the bar magnet is broken into pieces, then the end labeled as North remains north and the other end formed will be south. Similarly, the end that was pointing south will be south pole and its opposite end will be a new north pole.

10. **You have two rods one of which is an iron rod and the other is a magnet. How will you differentiate these rods?**

Ans. Suspend both the rods freely with help of a thread. Now bring one end of a bar magnet close to both the ends of the suspended rod. If it shows attraction at both the ends then it is an iron rod. If it shows attraction at one end and repulsion at the other end, then it is a bar magnet.

Long Answer Type Questions.

1. **Show that the magnet has two poles. What are the properties of the poles of a magnet?**

Ans: We know that the pole is the point where the strength of the magnet is maximum. So more and more iron particles will be attracted to the poles of the magnet when we bring a magnet near the iron particles. We will observe the crowdedness of particles at the ends of the magnet. This indicates the presence of two poles in a magnet. Hence poles are present in a magnet in pairs. If a magnet is divided into two parts, each part possesses a pair of poles.



