



মণিপুরৰ শিক্ষা বিভাগ (সংস্কৃত)

DEPARTMENT OF EDUCATION (S)

Government of Manipur

Chapter- 13
Fun with Magnets

SOLUTIONS:

Exercises:

- a) Fill in the blanks in the following:
- Artificial magnets are made in different shapes such as bar magnet, horse-shoe magnet and cylindrical magnet.
 - The materials which are attracted towards a magnet are called magnetic materials.
 - Paper is not a magnetic material.
 - In olden days, sailors used to find direction by suspending a piece of natural magnet.
 - A magnet always has two poles.
- b) State whether the following statements are true or false:
- A cylindrical magnet has only one pole. False
 - Artificial magnets were discovered in Greece. 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
 - Bar magnets always point towards North-South direction. True
 - A compass can be used to find East-West direction at any place. True
 - Rubber is a magnetic material. False
- c) It was observed that a pencil sharpener gets attracted by both the poles of a magnet although its body is made of plastic. Name a material that might have been used to make some part of it.

Ans: The material may be iron.

- d) Column I shows different positions in which one pole of a magnet is placed near that of the other. Column II indicates the resulting action between them for each situation. Fill in the blanks:

Column I	Column II
N-N	<u>Repulsion</u>
N-S	Attraction
S-N	<u>Attraction</u>
S-S	Repulsion`

5. Write any two properties of a magnet.

Ans: Two properties of a magnet are:-

- a) A magnet always has two poles, North-pole and South-pole.
- b) Unlike poles attract each other while like poles repel one another.

6. Where are poles of a bar magnet located?

Ans: The poles of a bar magnet are located near its ends.

7. A bar magnet has no markings to indicate its poles. How would you find out near which end is its North-pole located?

Ans: When a bar magnet is suspended freely, the north facing end of the magnet is its north pole.

8. You are given an iron strip. How will you make it into a magnet?

Ans: An iron strip can be converted into a magnet by rubbing the iron strip several times on a bar magnet.

9. How is a compass used to find directions?

Ans: A compass has a magnetic needle attached to it which can rotate freely. The compass always points to North and South directions. By knowing North -South direction, one can always find out East and West direction also.

10. A magnet was brought from different directions towards a toy boat that has been floating in water in a tub. Affect observed in each case is stated in column I. Possible reasons for the observed affects are mentioned in the column II. Match the statements given in column I with those in column II.

column I

column II.

1. Boat gets attracted towards the magnet.	Boat is fitted with a magnet with North Pole towards its head. (4)
2. Boat is not affected by the magnet.	Boat is fitted with a magnet with South Pole towards its head. (3)
3. Boat moves towards the magnet if north pole of the magnet is brought near its head.	Boat has a small magnet fixed along its length. (5)
4. Boat moves away from the magnet when north pole is brought near its head.	Boat is made of magnetic material. (1)
5. Boat floats without changing its direction.	Boat is made up of non-magnetic material (2)



Extra Questions and answers:

1.What are magnets?

Ans: The substances which have the ability to attract iron are known as magnets.

2.What are magnetic substances? Give examples.

Ans: The materials which are attracted by a magnet are called magnetic substances.

Examples are: - Iron, nickel, cobalt.

3.What are non-magnetic substances? Give examples.

Ans: The materials which are not attracted by a magnet are non-magnetic substances.

Examples are: - Wood, paper, plastic etc.

4.Will it be possible to separate the two poles of a bar magnet by breaking it?

Ans: No, it is not possible to separate the two poles of a bar magnet.

5.What will happen if a magnet is brought near a magnetic compass?

Ans: When a magnet is brought near a magnetic compass ,the needle of the compass will deflect away from its original position.

6.When does a magnet lose its property?

Ans: A magnet loses its property if they are heated, hammered or dropped from some height.

7.How will you store a magnet to keep them safe?

Ans: To keep them safe, bar magnets should be kept in pairs with their unlike poles on the same side. They must be separated by a piece of wood.

8.Write about the story of the Chinese emperor who used a magnet to find directions?

Ans: There was an emperor named Hoang Ti in China. He had a chariot with a statue of a lady that could rotate in any direction. It had an extended arm showing the way. When the chariot moved to any direction and came to rest, the hand of the statue pointed to the south. Thus, the emperor used the chariot to find the directions at any place where he travelled.



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