



### FUN WITH MAGNETS

#### EXERCISES

##### Question 1:

Fill in the blanks in the following:

- a) Artificial magnets are made in different shapes such as \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
- b) The materials which are attracted towards a magnet are called \_\_\_\_\_.
- c) Paper is not a \_\_\_\_\_ material.
- d) In older days, sailors used to find direction by suspending a piece of \_\_\_\_\_.
- e) A magnet always has \_\_\_\_\_ poles.

##### Answer 1:

- a) Artificial magnets are made in different shapes such as bar magnet, cylindrical magnet and horse-shoe magnet.
- b) The materials which are attracted towards a magnet are called magnetic material.
- c) Paper is not a magnetic material.
- d) In older days, sailors used to find direction by suspending a piece of bar-magnet.
- e) A magnet always has two poles.

##### Question 2:

State whether the following statement are true or false.

- i. A cylindrical magnet has only one pole.
- ii. Artificial magnets were discovered in Greece.
- iii. Similar poles of a magnet repel each other.
- iv. Maximum iron filing stick in the middle of a bar magnet when it is brought near them.
- v. Bar magnets always point towards North-South direction.
- vi. A compass can be used to find East-West direction at any place.
- vii. Rubber is a magnetic material.

**Answer 2:**

- i. A cylindrical magnet has only one pole. (False)
- ii. Artificial magnets were discovered in Greece. (False)
- iii. Similar poles of a magnet repel each other. (True)
- iv. Maximum iron filing stick in the middle of a bar magnet when it is brought near them. (False)
- v. Bar magnets always point towards North-South direction. (True)
- vi. A compass can be used to find East-West direction at any place. (True)
- vii. Rubber is a magnetic material. (False)

**Question 3:**

It is observed that a pencil sharpener get 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 in it.

**Answer 3:**

There is a blade in pencil sharpener which is made up of iron. Iron is a magnetic material that is why it is attracted by the poles of magnet.

**Question 4:**

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 blank.

Column I	Column II
N - N	_____
N - _____	Attraction
S - N	_____
_____ - S	Repulstion

Answer 4:

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

Question 5:

Write any two properties of a magnet.

Answer 5:

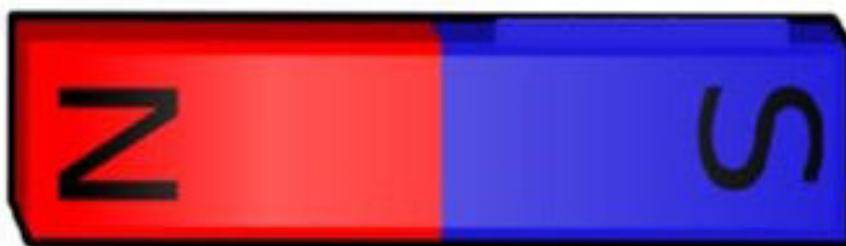
- ✕ Opposite poles of two magnet attract each other while like poles of two magnet repel each other.
- ✕ A freely suspended magnet always aligns in N-S direction.

Question 6:

Where are the poles of a bar magnet located?

Answer 6:

The poles of bar magnet are located at its two end points.



**Question 7:**

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

**Answer 7:**

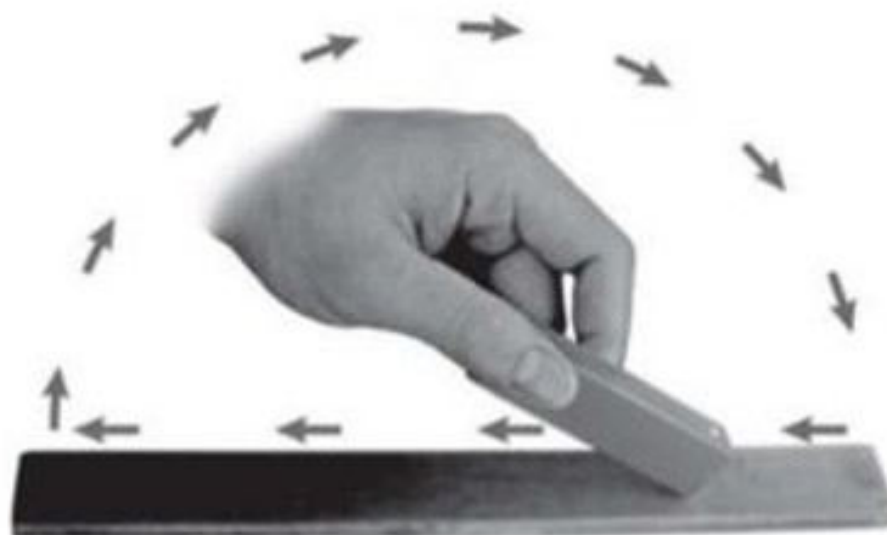
Hang up the magnet by a light thread so that it hangs freely. When it comes to rest, we notice that the magnet is lying in a North-South direction.

**Question 8:**

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

**Answer 8:**

- ✕ Take a rectangular piece of iron bar.
- ✕ Take a bar magnet and keep in contact with one of its poles with one edge of the bar of iron.
- ✕ Without lifting the bar magnet, move it along the length of the iron bar till you reach the other end.
- ✕ Lift the magnet and bring the pole (the same pole you started with) to the same point of the iron bar from which you began.
- ✕ Move the magnet again along the iron bar in the same direction as you did before. Repeat this process about 30-40 times.
- ✕ Bring few all pins near to the iron bar and check if it is converted to a magnet or not.



*Making your own magnet*

**Question 9:**

How is a compass used to find direction?

**Answer 9:**

A compass is usually a small box with glass cover on it. A magnetised needle is pivoted inside the box, which can rotate freely. The compass also has a dial with directions marked on it.

The compass is kept at the place where we wish to know the direction. Its needle indicates the north-south direction when it comes to rest. The compass is then rotated until the north and south marked on the dial are at the two ends of the needle. To identify the north-pole of the magnetic needle, it is usually painted in a different colour.



SAATVIK  
STUDY STATION

**Question 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 column II. Match the statements given in column I with those in column II.

Column I	Column II
Boat gets attracted towards the magnet	Boat is fitted with a magnet with north pole towards its head
Boat is not affected by the magnet	Boat is fitted with a magnet with south pole towards its head
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
Boat moves away from the magnet when north pole is brought near its head	Boat is made of magnetic material
Boat floats without changing its direction	Boat is made up non-magnetic material



Answer 10:

Column I	Column II
Boat gets attracted towards the magnet	Boat is fitted with a magnet with north pole towards its head
Boat is not affected by the magnet	Boat is fitted with a magnet with south pole towards its head
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
Boat moves away from the magnet when north pole is brought near its head	Boat is made of magnetic material
Boat floats without changing its direction	Boat is made up non-magnetic material

