

Ch13 - Fun with Magnets (solved Exercise)

(By:- J. S. Mishra)

1. Fill in the blanks in the following:

- (i) Artificial magnets are made in different shapes such as _____, _____, and _____.
- (ii) The materials which are attracted towards magnets are called _____.
- (iii) Paper is not a _____ material.
- (iv) In olden days, sailors used to find direction by suspending a piece of _____.
- (v) A magnet always has _____ poles.

Ans:

- (i) Artificial magnets are made in different shapes such as bar magnets, horse-shoe magnets and cylindrical magnets.
- (ii) Materials which are attracted towards magnets are called magnetic materials.
- (iii) Paper is not a magnetic material.
- (iv) In olden days, sailors used to find direction by suspending a piece of bar magnet.
- (v) A magnet always has two poles.

2. State whether the following statements 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 filings stick in the middle of a bar magnet when it is brought near them.
- (v) Bar magnets always point towards the North–South direction.
- (vi) A compass can be used to find the East–West direction at any place.
- (vii) Rubber is a magnetic material.

Ans:

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

3. 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 blade of a pencil sharpener is made of iron which is a magnetic material. Due to this a pencil sharpener gets attracted towards both poles of a magnet.

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

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

Ans:

We know that the like poles of a magnet repel each other whereas the unlike poles attract each other. So, given blanks can be filled as follows:

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

5. Write any two properties of a magnet.

Ans:

Two properties of a magnet are:

- (i) A magnet always has two poles: north pole and south pole.
- (ii) Like magnetic poles repel each other and unlike magnetic poles attract each other.

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

Ans:

Poles of a bar magnet are located at its two ends.

7. A bar magnet has no markings to indicate its poles. How can you find out the location of the north pole?

Ans:

Location of the poles of a magnet can be determined by suspending it freely. A freely suspended bar magnet always points north-south direction. The end that points towards the north direction is the north pole of the magnet while the end that points towards the south direction is the south pole of the magnet.

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 following method:

(i) Place the iron strip on a table.

(ii) Place one pole of a bar magnet near one end of the iron strip.

(iii) Move the bar magnet along the length of the iron strip starting from one end to the other end.

(iv) Then, lift the magnet and bring the pole to the starting point and move in the same direction as before.

(v) On repeating this process for at least 30-40 times, the iron strip will become a bar magnet with two poles.

9. How is a compass used to find directions?

Ans:

A compass has a magnetic needle that can rotate freely. When a compass is kept at a place, the magnetic needle aligns in north-south direction. Red arrow of the compass needle is termed as north pole and the other end as south pole.

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

Column I	Column II
<p><i>Boat gets attracted towards the magnet.</i></p> <p><i>Boat is not affected by the magnet.</i></p> <p><i>Boat moves towards the magnet if north pole of the magnet is brought near its head.</i></p> <p><i>Boat moves away from the magnet when north pole is brought near its head.</i></p> <p><i>Boat floats without changing its direction.</i></p>	<p><i>Boat is fitted with a magnet with north pole towards its head.</i></p> <p><i>Boat is fitted with a magnet with south pole towards its head.</i></p> <p><i>Boat has a small magnet fixed along its length.</i></p> <p><i>Boat is made of magnetic material.</i></p> <p><i>Boat is made up of non-magnetic material.</i></p>

Ans:

Column I	Column II
<ol style="list-style-type: none"> 1. Boat gets attracted towards the magnet. 2. Boat is not affected by the magnet. 3. Boat moves towards the magnet if north pole of the magnet is brought near its head. 4. Boat moves away from the magnet when north pole is brought near its head. 5. Boat floats without changing its direction. 	<p>Boat is made up of magnetic material.</p> <p>Boat is made of non-magnetic material.</p> <p>Boat is fitted with a magnet with south pole towards its head.</p> <p>Boat is fitted with a magnet with north pole towards its head.</p> <p>Boat has a small magnet fixed along its length.</p>

