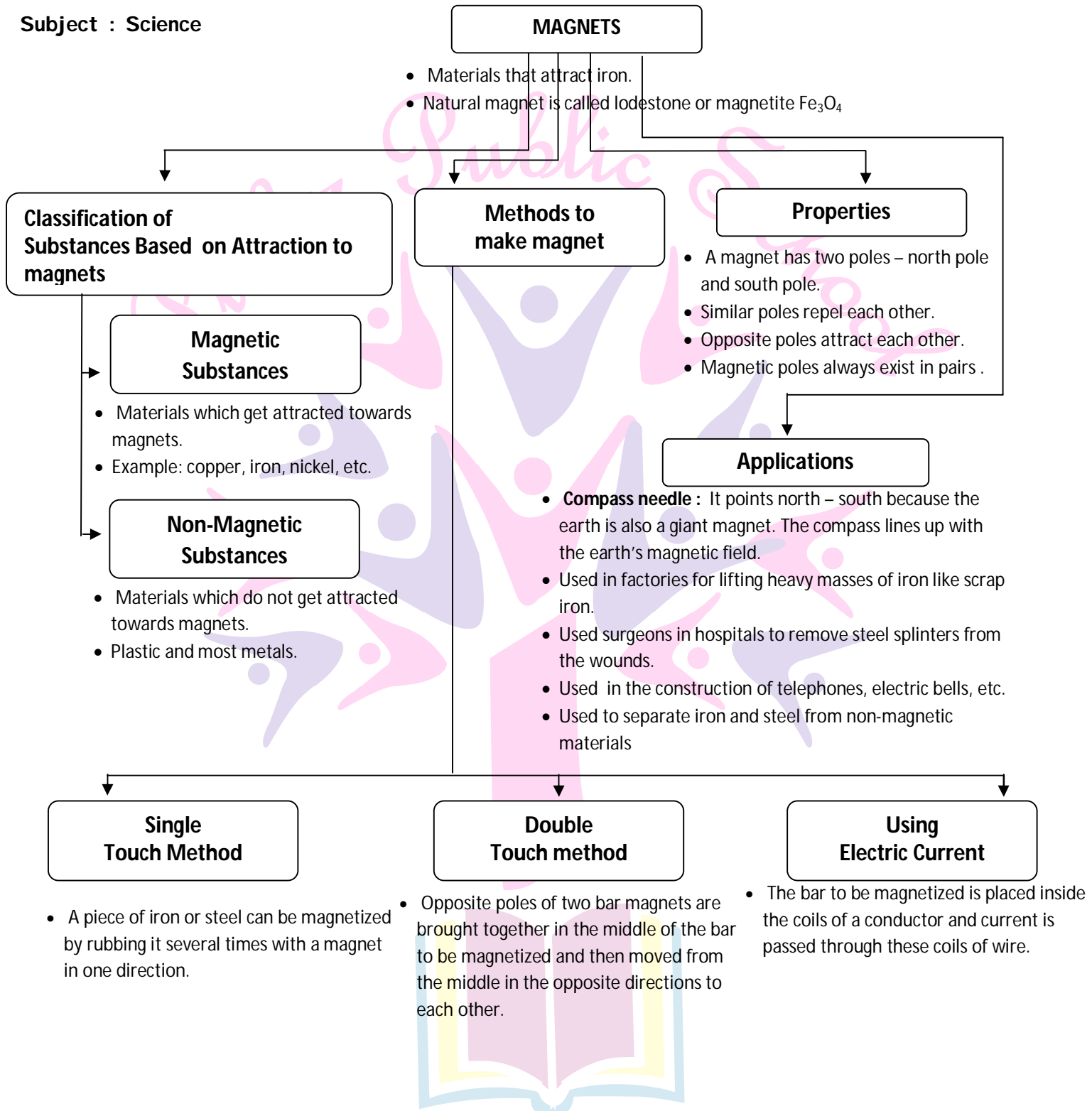


Grade : VI

Subject : Science



Next Generation School

I. Know the Terms

- **Magnets** : The substances having the property of attracting pieces of iron or some other substances are called magnets. Eg: Iron, Cobalt and Nickel.
- **Magnetic materials** : The materials which get attracted towards magnet are called magnetic materials. For example: iron, nickel and cobalt.
- **Non-magnetic materials**: The materials which are not attracted towards a magnet are called non-magnetic materials. For example : wood, rubber or plastic.
- **Lode stone** : The magnetic stone indicating directions used by sailors in olden days to identify directions is called lode stone.
- **Demagnetisation** : The process by which a magnet loses its magnetism is called demagnetisation.
- **Artificial magnets** : Magnets made by humans using magnetic substances.
- **Magnetic force** : The force exerted by a magnet on magnetic materials in its magnetic field.
- **Magnetic poles** : The two end points of a magnet where the magnetic strength is in maximum.

Objective Type Questions

(1 Mark each)

I. Multiple choice questions

1. The number of poles that a magnet has
a. One b. Two c. Three d. Many
2. Magnets lose their magnetism when:
a. Heated b. Hammered c. Dropped from height d. All of these
3. Lodestone is used for:
a. Weighing b. Colouring c. Knowing direction d. Jewellery
4. For making a magnet, we shall rub a magnet on an iron piece in:
a. One direction b. Both directions c. Random manner d. None of these
5. Which of the following is a confirmatory evidence of a pure magnet?
a. Attraction b. Repulsion c. None of these d. Both of these

6. Unlike poles

- a. Attract each other
- b. May attract or repel
- c. Repel each other
- d. None of these

7. Strength of a bar magnet is minimum at:

- a. Ends
- b. Poles
- c. Centre of magnet
- d. None of the above

8. Which of the following is a magnetic material?

- a. Aluminium
- b. Zinc
- c. Copper
- d. Nickel

9. A horse shoe magnet has

- a. No poles
- b. One pole
- c. Two poles
- d. Infinite poles

10. Which of the following is a non-magnetic material?

- a. Iron
- b. Nickel
- c. Cobalt
- d. Rubber

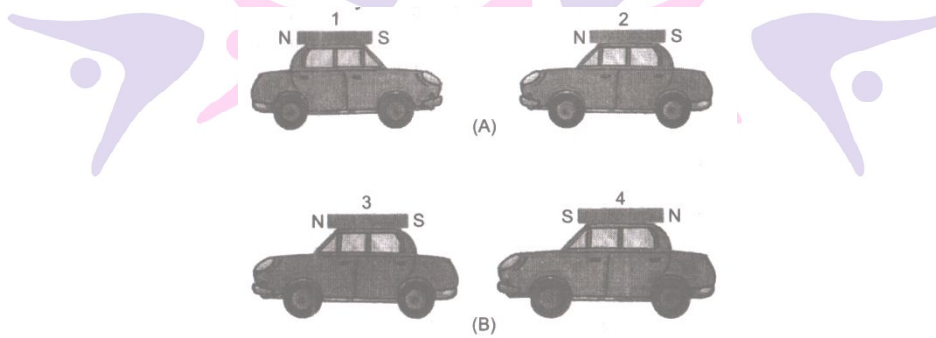
11. Which rock was first found in Greece that had magnetic properties?

- a. Bauxite
- b. Iron
- c. Aluminium
- d. Silver

12. What should compass needle be made of?

- a. Brass
- b. Iron
- c. Aluminium
- d. Silver

13. Observe the pictures A and B given in Fig. carefully.

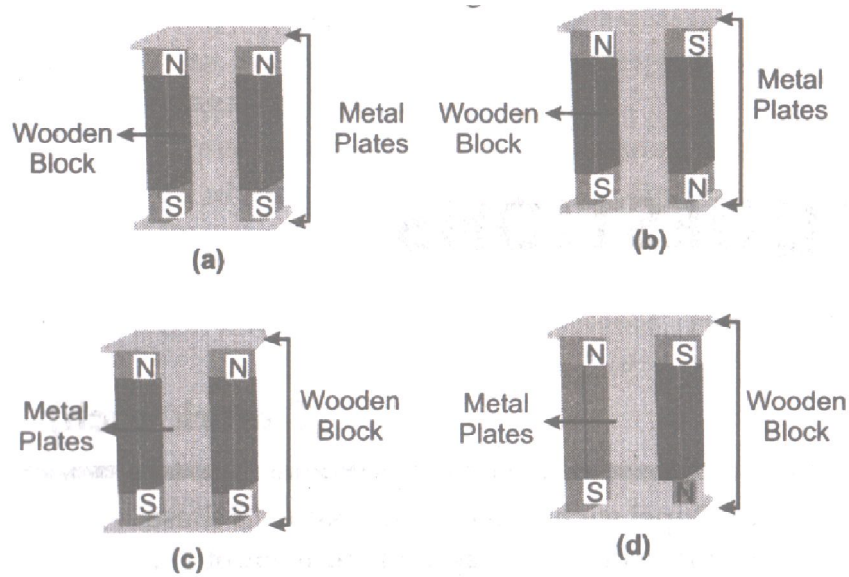


Which of the following statements is correct for the above given pictures?

[NCERT Exemplar]

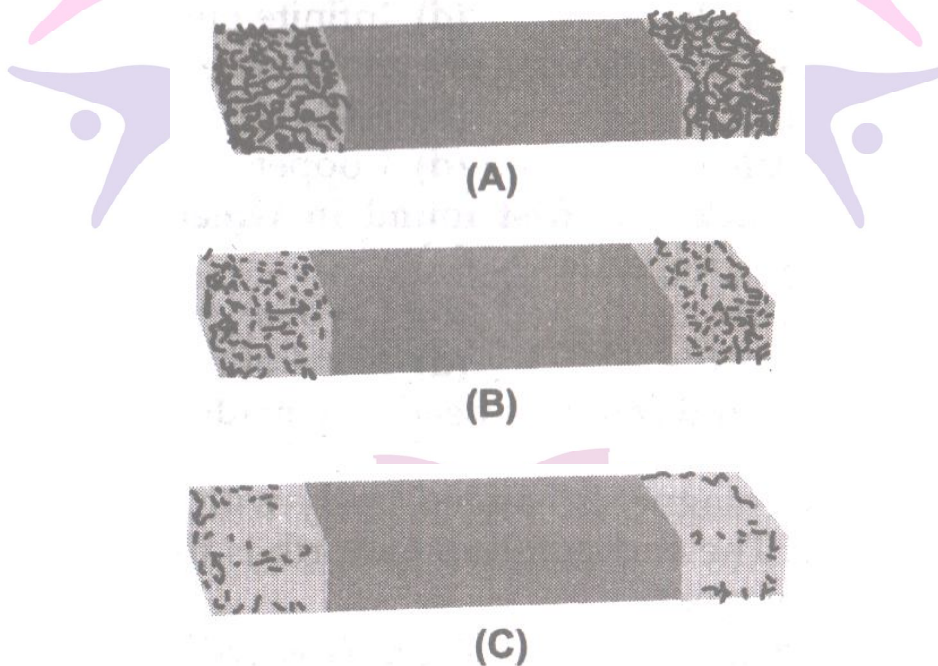
- a. In A, cars 1 and 2 will come closer and in B cars 3 and 4 will come closer.
- b. In A, cars 1 and 2 will move away from each other and in B, cars 3 and 4 will move away.
- c. In A, cars 1 and 2 will move away and in B, cars 3 and 4 will come closer to each other.
- d. In A, cars 1 and 2 will come closer to each other and in B, cars 3 and 4 will move away from each other.

14. The arrangement to store two magnets is shown by figures (a), (b), (c) and (d) in Fig. Which one of them is the correct arrangement?



[NCERT Exemplar]

15. Three magnets A, B and C were dipped one by one in a heap of iron filings. Fig. shows the amount of the iron filings sticking to them.



The strength of these magnets will be

[NCERT Exemplar]

- a. $A > B < C$ b. $A < B < C$ c. $A = B = C$ d. $A < B > C$

16. North pole of a magnet can be identified by

[NCERT Exemplar]

- a. Another magnet having its poles marked as North pole and South pole.
 b. Another magnet no matter whether the poles are marked or not
 c. Using an iron bar d. Using iron filings

17. A bar magnet is immersed in a heap of iron filings and pulled out. The amount of iron filings clinging to the: [NCERT Exemplar]

- a. North pole is almost equal to the south pole
- b. North pole is much more than the south pole
- c. North pole is much less than the south pole
- d. Magnet will be same all along its length.

18. When the south poles of two magnets are kept close, they will _____.

- a. Attract
- b. Repel
- c. Rotate
- d. Remain unaffected

19. In a magnet, the regions of maximum attraction are

- a. All over the body
- b. At the two ends of the magnet
- c. At any one end of the magnet
- d. At the centre of the magnet

20. Magnets are used in

- a. Refrigerator doors
- b. Credit cards
- c. Door bells
- d. All of these

1. b	2. d	3. c	4. a	5. b	6. a	7. c	8. d	9. c	10. d
11. c	12. b	13. d	14. b	15. a	16. a	17. a	18. b	19. b	20. d

II . Multiple choice questions

1. Like poles

- a. repel each other
- b. attract each other
- c. sometimes repel and sometimes attract
- d. no effect at all

2. Unlike poles

- a. repel each other
- b. attract each other
- c. sometimes repel and sometimes attract
- d. no effect at all

3. A magnet is also called lode stone because

- a. it lifts load
- b. it is a stone
- c. it tells us direction
- d. none of these

4. Which of the following combination is of non-magnetic materials?

- a. plastic, wood, iron, paper
- b. iron, nickel and cobalt
- c. leather, iron, nickel and clothes
- d. plastic, leather, clothes and paper

5. A freely suspended magnet always aligns in
- a. north direction
b. south direction
c. east-west direction
d. north-south direction
6. A magnet attracts
- a. iron, nickel, plastic
b. book, pen, pencil
c. bench, chair, cobalt
d. nickel, iron, cobalt
7. A magnet made by man is called
- a. artificial magnet b. natural magnet c. either (a) or (b) d. none of these
8. Like poles of two magnets always
- a. attract b. repel c. both (a) and (b) d. None of these
9. The Strength of a magnet is maximum at
- a. north pole b. south pole c. both (a) and (b) d. at the middle
10. A compass shows the direction of
- a. east b. north c. north-south d. west
11. For making our own magnet we should rub a magnet on a piece of iron in
- a. both direction b. one direction c. both a and b d. none of these
12. Following are the evidences of pure magnet
- a. attraction
b. repulsion
c. sometimes attraction sometimes repulsion
d. none

	1. a	2. b	3. c	4. d	5. d	6. d
7. a	8. b	9. c	10. c	11. b	12. b	

I. True or False

1. A cylindrical magnet has only one pole.
2. Artificial magnets were discovered in Greece.
3. Similar poles of a magnet repel each other.
4. Maximum iron filings stick in the middle of a bar magnet when it is brought near them.
5. Bar magnets always point towards North-South direction.
6. A compass can be used to find East-West direction at any place.

7. Rubber is a magnetic material.

1. False	2. False	3. True	4. False	5. True	6. True	7. False
----------	----------	---------	----------	---------	---------	----------

II. True or False

1. Repulsion is a sure test of magnetism.
2. It is possible to obtain an isolated north pole of a magnet.
3. Copper cannot be magnetised.
4. A magnet loses its magnetism when heated strongly and kept it in the east-west direction.
5. A compass is used to find direction.
6. A wooden material can be magnetised.
7. Poles of a bar magnet are located in the middle.
8. Two poles of a magnet can be separated from each other.
9. Magnetite is a natural magnet.
10. Each magnet has two magnetic poles.
11. Opposite poles of two magnets repel each other whereas similar poles attract one another.
12. The compass has a dial with directions marked on it.
13. A bar magnet has maximum strength in the middle.
14. A bar magnet has three poles.
15. The substance having the property of attracting iron are known as magnets.
16. A non-magnetic substance is attracted by magnet.
17. A freely suspended magnet always aligns in North-South direction.

1. True	2. False	3. True	4. True	5. True	6. False
7. False	8. False	9. True	10. True	11. False	12. True
13. False	14. False	15. True	16. False	17. True	

I. Match the following.

1. Match Column I with Column II. (One option of A can match with more than one option of B)

Column I	Column II
a. Magnet attracts	i. Rests along a particular direction
b. Magnet can be repelled	ii. Iron
c. Magnet if suspended freely	iii. By another magnet
d. Poles of the magnet can be identified	iv. Iron filings.



a. i, iii, iv	b. iii	c. i	d. iii
---------------	--------	------	--------

II. Match the following.

Column I	Column II
a. Poles of a bar magnet are present	i. Magnetic
b. The rock that attracts	ii. Nickel and cobalt
c. The materials that get attracted towards a magnet	iii. At the ends
d. Except iron, these materials	iv. North-South
e. A freely suspended bar magnet always comes to rest in the direction	v. Repel each other
f. Similar poles when brought near to each other	vi. Magnetic

a. iii	b. vi	c. i	d. ii	e. iv	f. v
--------	-------	------	-------	-------	------

III. Match the following.

1. Column A	Column B
a. A freely suspended bar magnet comes to rest in this direction	i. pairs
b. Magnetite	ii. North-South
c. Bar magnet	iii. Repel
d. Magnetic poles occur in	iv. Artificial magnet
e. Similar poles of magnet	v. Natural magnet

a. ii	b. v	c. iv	d. i	e. iii
-------	------	-------	------	--------

2. Column A	Column B
a. Electric bell	i. To lose magnetism
b. Magnetic compass	ii. Region of maximum attraction
c. Magnetic poles	iii. Uses magnet
d. Demagnetise	iv. Attract each other
e. Unlike pole	v. A navigational tool

a. iii	b. v	c. ii	d. i	e. iv
--------	------	-------	------	-------



I. Fill in the blanks

1. Artificial magnets are made in different shapes such as _____, _____, and _____.
2. The materials which are attracted towards a magnet are called _____.
3. Paper is not a _____ material.
4. In olden days, sailors used to find direction by suspending a piece of _____.
5. A magnet always has _____ poles.

1. bar magnet, horse-shoe magnet, cylindrical magnet	2. magnetic materials	3. magnetic
4. bar magnet	5. two	

II. Fill in the blanks

1. Refrigerator doors use the _____ property of magnets.
2. _____ is a natural magnet.
3. _____ is a tool used by sailors and travellers to find direction.
4. A freely suspended magnet always comes to rest in the _____ direction.
5. Materials that get attracted to a magnet are called _____ materials.

1. attracting	2. Magnetite	3. Magnetic compass
4. north-south	5. magnetic	

III. Fill in the blanks

- a. Like poles _____ and unlike poles _____ each other.
- b. Strong magnet can be demagnetised by _____.
- c. The earth's magnetic field is rather like that of a _____ magnet with its _____.
- d. If a N-pole is used in the stroking method of magnetisation the end where the stroking begins is a _____ pole.
- e. If the N-pole of a magnet is brought closer to an unmagnetised nail, then magnetism is _____.
- f. A magnet attracts the _____ materials.

- g. A shepherd named _____ discovered the magnet.
- h. Magnetite is a _____ magnet.
- i. A magnet has _____ poles.
- j. The substances having the property of attracting iron are known as _____.
- k. Artificial magnets have _____ shapes.
- l. The materials which are non attractive towards a magnet are called _____.
- m. A compass shows the _____.
- n. _____ is the evidence of a magnet.
- o. Two different poles of a magnet _____ each other while like poles _____.
- p. Crane that picks up iron from the junk yard uses _____.
- q. Stickers, pin holders and pencil boxes have _____ fitted inside.

a. rapel, attract	b. hammering strongly	c. bar, south	d. north
e. induced, south	f. magnetic	g. Magnese	h. natural
i. two	j. magnets	k. different	l. non-magnetic
m. directions	n. Repulsion	o. attract and repel	p. electrical magnet
q. magnets			

IV. Fill in the blanks

1. When a bar magnet is broken, each of the broken parts will have _____ pole/poles.
2. In a bar magnet, magnetic attraction is _____ near is ends. [NCERT Exemplar]

1. Two	2. More
--------	---------

Quiz Time

1. What is magnetite?
2. What is magnet?
3. Name the place where magnetite was first discovered.
4. Name three magnetic materials.
5. How many poles a bar magnet has? What are their names?

6. If a magnet is freely suspended, what alignment it will take?
7. When does a magnet lose its magnetic property?
8. What is the use of a compass?
9. What is the full form of CDs?

Answer.

1. A natural magnet
 2. The substances having the property of attracting iron, nickel or cobalt are called magnets.
 3. Magnesia. (Greece)
 4. Iron, nickel and cobalt.
 5. Each magnet two magnetic poles—North and South.
 6. A freely suspended magnet always aligns in North (N)—South(S) direction.
 7. A magnet loses its property when heated, hammered or dropped from a height.
 8. It is used to find direction usually by travellers.
 9. Compact disks.
-

NCERT Corner

Intext Questions

1. Name the materials placed on the ground which are picked up by Magnus stick.

Iron, nickel, cobalt etc.

2. What about objects in the classroom ?

There may be two types of objects in the classroom, viz. magnetic as well as non-magnetic.

Magnetic objects : Objects made up of iron, nickel etc.

Non-magnetic objects : Objects made up of wood, plastic, cloth, glass etc.

3. Is there any material common in all the objects that were attracted by the magnet ?

Name it.

Yes, iron is attracted by the magnet.

4. Some materials are given as cloth, plastic, aluminium, wood, glass, iron. Name the non-magnetic materials.

Non-magnetic materials are cloth, plastic, aluminium, wood and glass.

5. Is the soil a magnetic or a non-magnetic material ?

The soil is non-magnetic material.

6. Does the magnet with iron filings sticking to it look like a bar magnet ?

Yes.

7. You are given two identical bars which look as if they might be made of iron. One of them is a magnet, while the other is a simple iron bar. How will you find out, which one is a magnet ?

It can be found out by sprinkling some iron filings on both bars. Iron filings get attracted towards magnet but not towards iron bar.

8. Do the materials other than magnet also come to rest in the same direction in the statue of Emperor's chariot ?

No.

9. How can you find the direction of your classroom from the main gate of your school ?

We can find the direction of our classroom from the main gate of school with the help of a magnet compass.

10. Insert a magnetised needle through a paper cork. Let the cork float in the water placed in a tub in such a way that the cork does not touch the water. Does the needle always point in the same direction when the cork stops rotating ?

Yes.

11. Do the two similar poles attract or repel each other ?

The two similar poles repel each other.

12. Do the opposite poles attract or repel each other ?

The opposite poles attract each other.

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

If a magnet is brought near a compass, the south pole of compass is attracted towards north pole of magnet and north pole of compass is attracted towards south pole of magnet.



Textbook Questions

1. It was observed that a pencil sharpener got attracted by both the poles of a magnet although, its body was made up of plastic. Name a material that might have been used to make some part of it.

In a pencil sharpener, the blade is made of iron and when it comes in contact with magnet, iron is attracted by the magnet.

2. 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 -	Attraction
S - N
.....S	Repulsion

Column I	Column II
N - N	Repulsion
N - S	Attraction
S - N	Attraction
S - S	Repulsion

3. Write any two properties of a magnet.

- (i) Shows North-South directions.
- (ii) Attracts objects made of iron, nickel or cobalt.

4. Where are poles of a bar magnet located ?

The poles of a bar magnet are located at the two ends of the bar magnet. One pole is North (N) and other is South (S).

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

The bar magnet is hanged freely with the help of a thread. The end pointing to north is the north pole of the magnet.

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

Take the iron strip and keep it on the table. Now, take a bar magnet and drag one end of the bar magnet over the iron strip from one end to the other. This process is repeated again and again. The iron strip is converted to a magnet.

7. How is compass used to find directions ?

The needle of the compass indicates North-South direction, when it comes to the rest. By knowing North-South directions, one can always find out East and West directions.

8. A magnet was brought from different directions towards a toy boat that had been floating in water in a tub. Effect 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 A	Column B
(a) Boat gets attracted towards the magnet.	(i) Boat is fitted with a magnet with North pole towards its head.
(b) Boat is not affected by the magnet.	(ii) Boat is fitted with a magnet with South pole towards its head.
(c) Boat moves towards the magnet, if North pole of the magnet is brought near its head.	(iii) Boat has a small magnet fixed along its length.
(d) Boat moves away from the magnet when North pole is brought near its head.	(iv) Boat is made of magnetic material.
(e) Boat floats without changing its direction.	(v) Boat is made up of a non-magnetic material.

a. iv	b. v	c. ii	d. i	e. iii
-------	------	-------	------	--------

I. Very Short Answer Type Questions.

1. What is magnetite ?

Magnetite is one of the natural ores of iron and also known as natural magnet.

2. If a horse wears a horse shoe magnet, what will happen to the magnet ?

It will get demagnetized due to continuous striking against land.

3. In which country was the magnet use discovered ?

Magnet use was first discovered in Greece.

4. Which material is used to make a permanent magnet ?

Hard steel and alloy are used to make permanent magnet.

5. If we gently break a bar magnet from its centre, will two poles get free ?

No, the two pieces will act as individual magnets,

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

They repel each other.

7. What is a magnet ?

A material which shows an attraction for magnetic materials such as iron, cobalt and nickel is called a magnet. When it is suspended freely, it points in the geographical north-south direction.

8. Which magnet is used in an electric bell ?

In an electric bell, U-shaped magnet is used.

9. In which direction does a freely suspended magnet align itself ?

A freely suspended magnet always aligns itself in the geographical north-south direction.

10. Paheli and her friends were decorating the class bulletin board. She dropped the box of stainless steel pins by mistake. She tried to collect the pins using a magnet. She could not succeed. What could be the reason for this ? [NCERT Exemplar]

She could not succeed because the pins were made of stainless steel which is a non-magnetic material and can not be attracted by a magnet.

11. How will you test that 'tea dust' is not adulterated with iron powder ?

[NCERT Exemplar]

It will be tested by using a magnet. If 'tea dust' is adulterated with iron powder, it will stick onto the magnet.

12. Boojho dipped a bar magnet in a heap of iron filings and pulled it out. He found that iron filings got stuck to the magnet as shown in Fig.



(i) Which regions of the magnet have more iron filings sticking to them ?

(ii) What are these regions called ?

[NCERT Exemplar]

(i) Two poles of the magnet have more iron filings sticking to them.

(ii) These regions are called north pole and south pole.

II. Very Short Answer Type Questions.

1. Name the compound of iron contained in lode stone.

The compound of iron is iron oxide or magnetite.

2. Name the shepherd after which magnet was named.

Magnus.

3. How can you separate a magnetic substance from a mixture?

By using a bar magnet, the magnetic substance is separated from mixture.

4. At which place on a magnet, its magnetic force is maximum?

At poles.

5. In which direction does a suspended magnet come to rest?

Magnet comes to rest in N-S (north-south) direction.

6. What happens when N-pole of a magnet is brought near the N-pole of a suspended magnet?

There is repulsion between these two magnets as there is repulsion between like poles.

7. How many poles are there in a magnet?

(1) North Pole

(2) South Pole

8. How many types of magnets are there?

(1) Natural magnet

(2) Artificial magnet

9. Define the term magnetite.

The natural magnet is called magnetite.

10. Name the place where natural magnet was found?

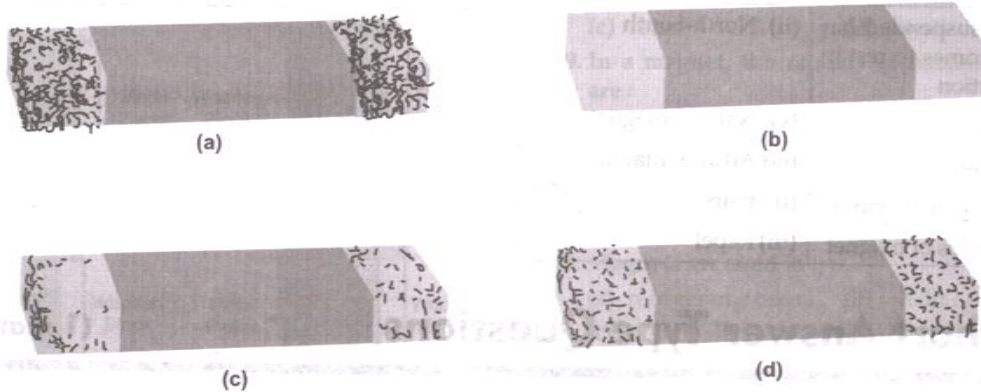
Magnesia

11. If a bar magnet is cut lengthwise into three parts, how many poles will form?

Six

I. Short Answer Type Questions.

1. Four identical iron bars were dipped in a heap of iron filings one by one. Fig. shows the amount of



(a) Which of the iron bars is likely to be the strongest magnet ?

(b) Which of the iron bars is not a magnet ? Justify your answer.

[NCERT Exemplar]

(a) Iron bar (a) is likely to be the strongest magnet because it has maximum quantity of iron filings on both poles.

(b) Iron bar (b) is not a magnet because no iron filing is sticking to it.

2. Name two magnetic and two non-magnetic materials.

The two magnetic materials are :

(i) Iron

(ii) Cobalt.

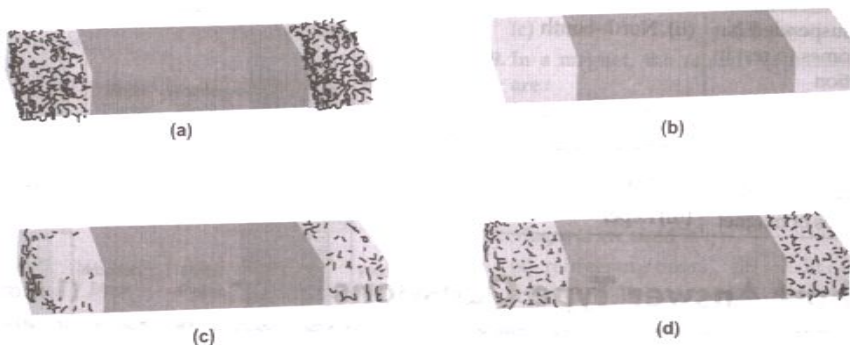
The two non-magnetic materials are :

(i) Leather

(ii) Plastic

3. What is a temporary magnet ? Which material is used to make these magnets ?

Iron filings sticking to each of them.



Temporary magnet is the magnet which loses its magnetism as soon as the source of magnetism is removed. It is usually made up of soft iron.

4. Give the properties of a magnet. The important properties of a magnet are given as follows :

(a) They have directive property, i.e., when suspended freely, a magnet always aligns itself in north-south direction.

(b) They have attractive property, i.e., a magnet attracts magnetic materials like iron, cobalt and nickel towards itself.

5. What is a magnetic keeper ?

A magnetic keeper is a piece of soft iron. In keepers, two magnets are arranged with their opposite poles lying side by side. A piece of wood should be kept between them and two pieces of soft iron (keepers) should be placed across the poles.

6. How is a magnet demagnetized ?

A magnet can be demagnetized :

(i) By heating,

(ii) By hammering the magnet violently.

7. Define attractive and directive properties of a magnet.

(i) Attractive property : A magnet has the property to attract some substance like iron, cobalt and nickel when brought near it. This property of magnet is called the attractive property.

(ii) Directive property : If we suspend a magnet freely with a thread, then it always aligns itself in the geographic north-south direction when it comes to rest. This is called the directive property of a magnet.

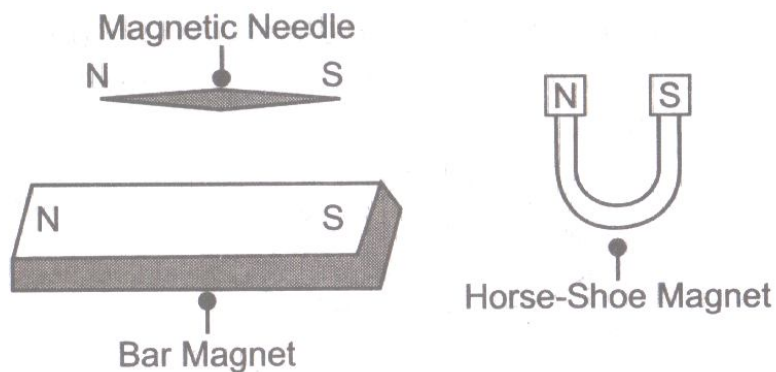
8. Why does the freely suspended magnet always align itself in the north-south direction?

Earth behaves like a huge bar magnet, with poles at its ends. The north pole of this bar magnet points approximately towards the geographical south pole and its south pole points approximately towards the geographical north pole. The north pole of a freely suspended magnet points towards the geographical north pole because it is attracted by the earth's magnetic south pole and the south pole of a freely suspended magnet points towards the geographical south pole because it is attracted by the earth's magnetic north pole. Hence, the freely suspended magnet always aligns itself in the north-south direction.

9. You are given a strip of iron. How will you convert it into a magnet ? What do you call this type of magnet ?

A strip of iron can be converted into magnet by passing electricity through it. It is called electromagnet, which is a temporary magnet.

10. Draw three types of magnets. Label their poles.



11. A toy car has a bar magnet laid hidden inside its body along its length. Using another magnet how will you find out which pole of magnet is facing the front of the car ?

[NCERT Exemplar]

If the front of the toy car gets attracted to the north pole of the given magnet, then it is clear that the south pole of the bar magnet is facing the front of the toy car and vice versa.

12. You are provided with two identical metal bars. One out of the two is a magnet.

Suggest two ways to identify the magnet.

[NCERT Exemplar]

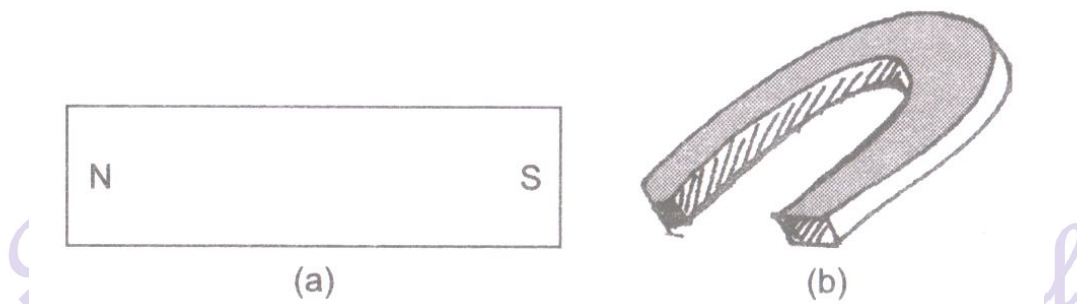
There are following ways to identify the magnet :

(i) By suspending the metal bars with a thread : Keep it horizontal and let it stop in any direction. If we move it by pushing it slowly and if it returns to the same direction, it means it is a magnet otherwise it is a simple iron bar.

(ii) By attracting iron filing : If iron filings are attracted at poles, then it is magnet otherwise it is a simple iron bar.

II. Short Answer Type Questions.

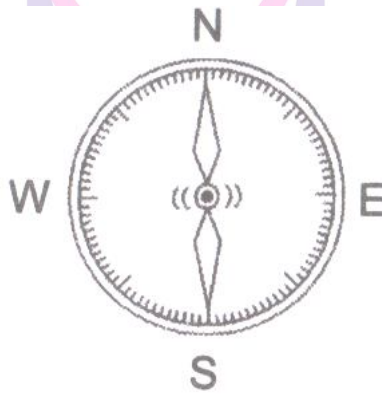
1. Draw the diagram of (a) Bar magnet (b) Horse-shoe magnet.



2. Identify magnetic and non-magnetic substances from the list given below: Iron, Steel, Nickel, Plastic, Wood, Copper and a Stainless Steel spoon.

Magnetic substance	Non-magnetic substance
Iron	Wood
cobalt	paper
nickel	water
	copper
	glass
	gold
	silver

3. Draw a diagram of a magnetic compass.



4. Write main properties of a magnet.

- (i) Magnet has two poles—south pole and north pole.
- (ii) Poles of magnet cannot be isolated.
- (iii) Like poles repel each other and unlike poles attract each other.
- (iv) Freely suspended magnet aligns in N-S direction.

5. Write two methods by which a magnet can be demagnetised.

- (1) By hammering the magnet strongly.
- (2) By heating a magnet strongly and keeping it in the east-west direction.

6. It is advised to keep the magnets away from television, mobiles, CD and computers.

Explain why?

Television, mobiles, CD, computers and many more devices are made up of magnetic materials and magnets in it. If you bring a magnet closer to it then it will spoil these devices.

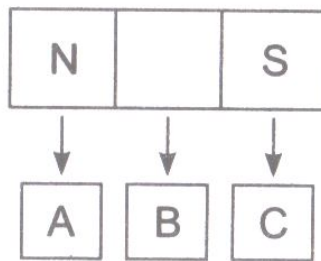
7. Few iron nails and screws got mixed with the wooden shavings while a carpenter was working with them. How can you help him in getting the nails and screws back from the scrap without wasting his time in searching with his hands?

With the help of a magnet we can attract all iron nails and screws and can separate them from the wooden shavings. As iron nails and screws are magnetic materials and will get attracted to the magnet, whereas wooden shavings are non-magnetic.

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

To identify the magnet, repulsion (like poles of two magnets repel) is the only test which will let you know whether the given rod is an iron rod or a bar magnet. Because a magnet attracts an iron object and unlike poles of magnets also attract each other.

9. A given bar magnet was broken into pieces. Where will be its North and South pole?



If you cut a bar magnet into pieces then the end labelled 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 the new north pole.

10. You are given two rods. Out of these, one is an iron rod and the other one is magnet, how will you identify these rods?

Take both the rods and suspend them separately. 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.

11. What are magnetic materials? Give three examples.

The materials which get attracted by magnets are called magnetic materials. Examples:
(1) Iron (2) Cobalt (3) Nickel

12. What are Non-magnetic materials? Give three example.

The materials which are not attracted by magnets are called non-magnetic materials. Examples: (1) Plastic (2) Rubber (3) Wood

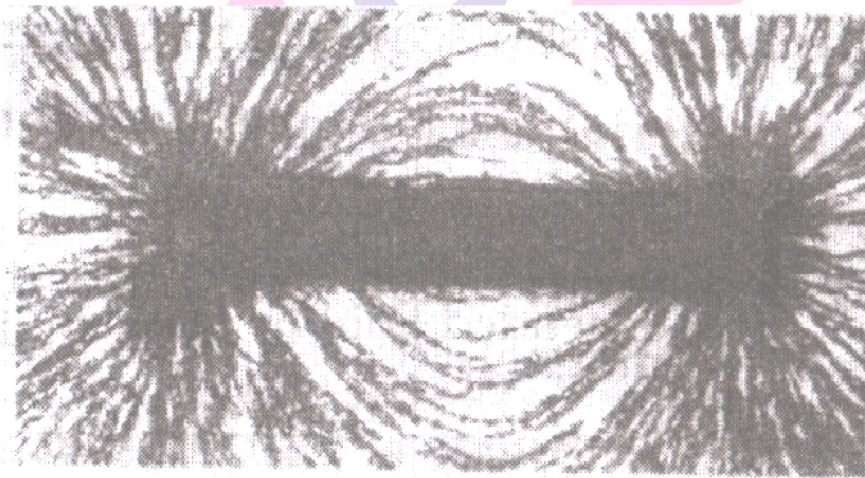
13. Choose magnetic substances from given items:

- (i) Rubber (ii) Alpin (iii) Nail (iv) Cotton cloth (v) Cobalt
(vi) Copper (vii) Iron (viii) Gold

I . Long Answer Type Questions.

1. **Where are the poles of a bar magnet located? Suggest a method to locate them.**

The poles of the bar magnet are located at its two end points. Place a magnet on paper and sprinkle some iron filings on it. It is observed that the iron filings get attracted more strongly towards the two ends of the magnet as compared to its central portion indicating that the poles are located at these two ends of the magnet.



2. (i) **Give two reasons by which magnets lose their magnetic properties.**

(ii) **What safety measures will you follow to store horseshoe magnet?**

(iii) **How is compass used to find out the directions ?**

(i) Magnets can lose their magnetic properties if :

(a) exposed to heat.

(b) they are dropped or hanged on enough to bump their domains out of alignment.

(c) They are burnt up to their curie point (the temperature at which they get demagnetized completely.)

(ii) Safety measures to follows while storing horseshoe magnets :

(a) Always wear safety goggles when handling

ing large magnets.

(b) Always wear gloves when handling magnets to prevent pinching.

(c) Children should NEVER be allowed to play with NEODYMIUM magnets

(d) Keep magnets at least 20 cm away from sensitive electronic and storage devices.

(iii) When the magnet is suspended freely with the thread, it aligns itself in the geographic north-south direction. We use this property of magnet in compass to give us the directions at a particular place. The diagram of the compass is shown in the figure below :

3. Three identical iron bars are kept on a table. Two out of three bars are magnets. In one of the magnets the North-South poles are marked. How will you find out which of the other two bars is a magnet ? Identify the poles of this magnet. [NCERT Exemplar]

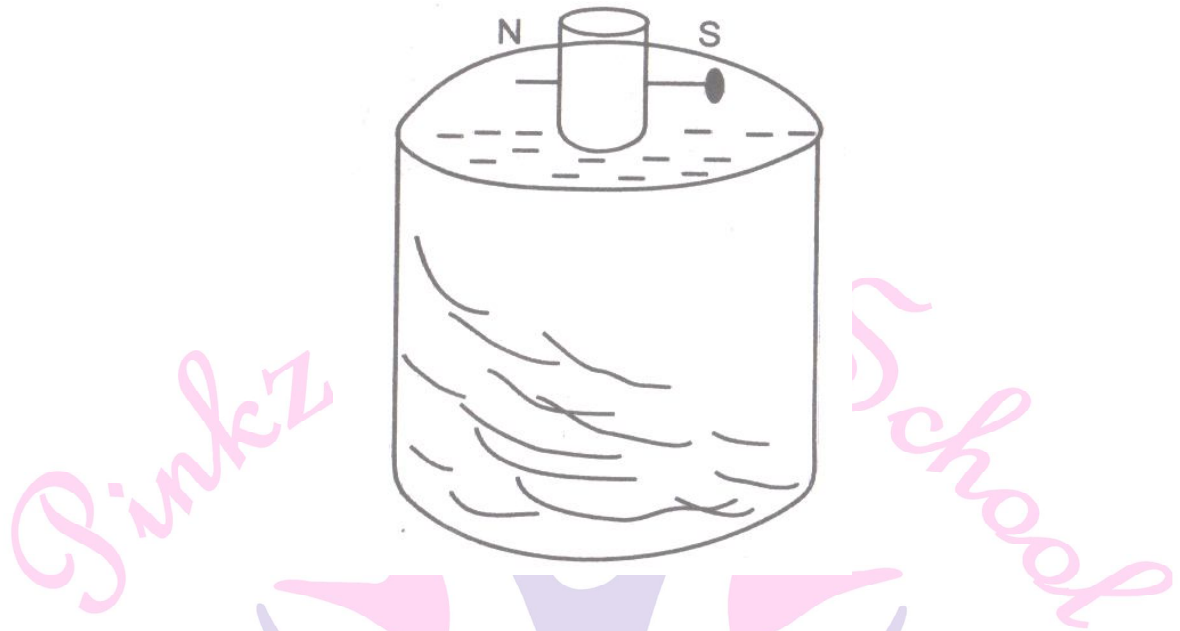
It can be found in following ways :

- (i) Take the bar magnet with known poles in your hand.
- (ii) Take one of the other two iron bars in other hand.
- (iii) Bring one side of iron bar towards the south pole of the bar magnet and note down whether it is attracted or repelled.
- (iv) Bring other side of iron bar towards the south pole of the bar magnet and again note down the same thing.
- (v) If there is an attraction in both cases i.e., (iii) and (iv), then it is definitely a simple iron bar.
- (vi) If there is an attraction in one case and repulsion in other case, then it is a bar magnet.
- (vii) Do the same for the third iron bar. Now, poles can be found in following ways- If in case (iii), the bar is attracted, then it is North pole of the identified bar magnet. If the bar is repelled, then it is a south pole of the identified bar magnet.

4. Suggest an activity to prepare a magnetic compass by using an iron needle and a bar magnet. [NCERT Exemplar]

Following steps are used to prepare a magnetic compass by using an iron needle and a bar magnet:

- (i) Take a small piece of cork, and the magnetised needle (which can be magnetised by using a bar magnet).
- (ii) Take a cup filled with water and let the cork float on it; the needle should not touch the water.
- (iii) Now, compass is ready to work. Note the direction in which the needle points when the cork is floating.
- (iv) Rotate the cork in different directions. Note the direction in which the needle points when the cork begins to float again without rotating. We see that the needle always points in the same direction, when the cork floats without rotation.



5.

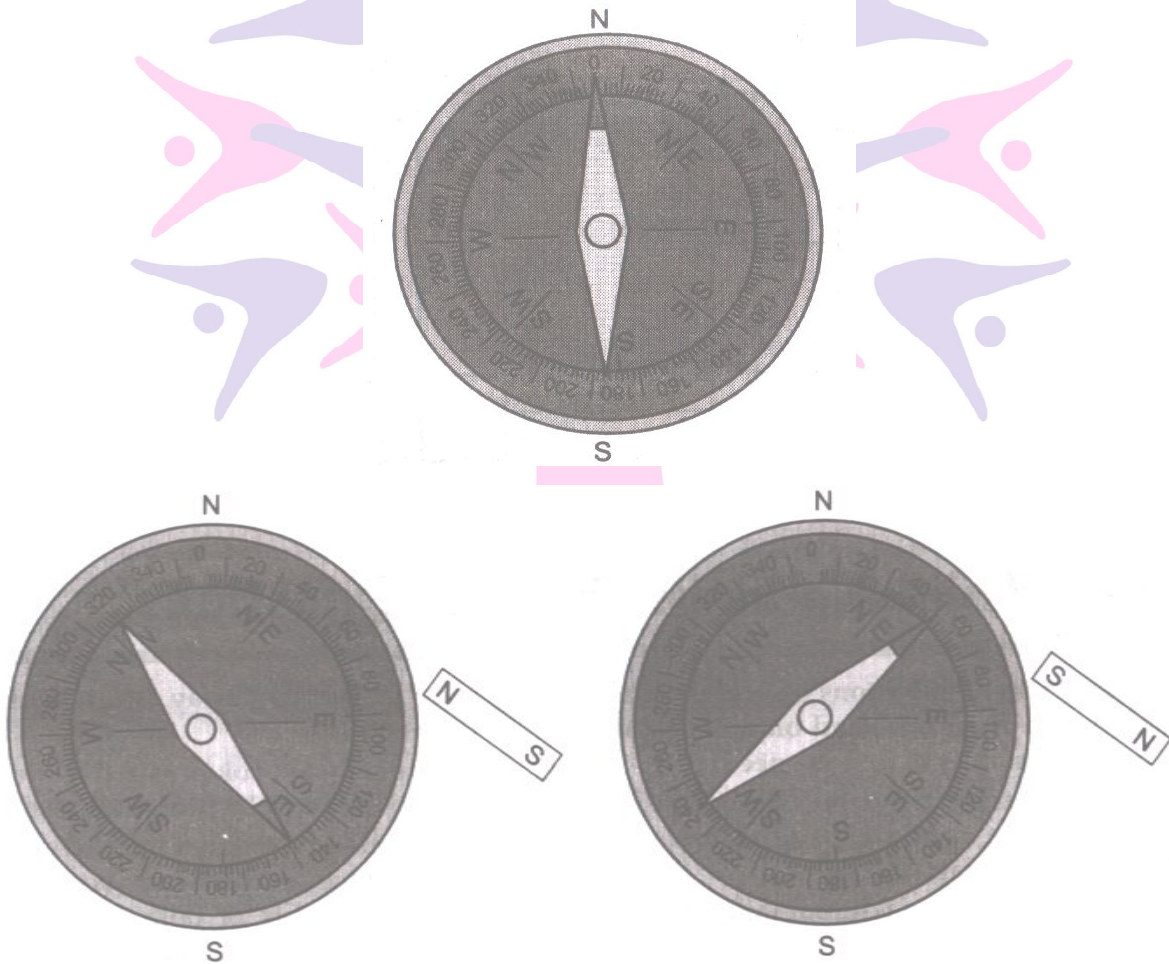


Fig. (ii)

A

B



to the position of its needle if you bring a bar magnet near it ? Draw a diagram to show the effect on the needle on bringing the bar magnet near it. Also draw the diagram to show the effect when the other end of the bar magnet is brought near it. [NCERT Exemplar]

If we bring a bar magnet near a magnetic compass N, its needle will get deflected. When the north pole is brought near the compass, the needle of the compass gets deflected towards the magnet as shown in fig (i). When the south pole is brought near the compass, the needle of the compass gets deflected towards the magnet as shown in fig (ii) :

Activity

- (i) Place the magnets A and B on the table.
- (ii) Bring the north pole of magnet A towards the north pole of magnet B. They repel each other.
- (iii) Now, bring the north pole of magnet A towards the south pole of magnet B. They will be attracted.

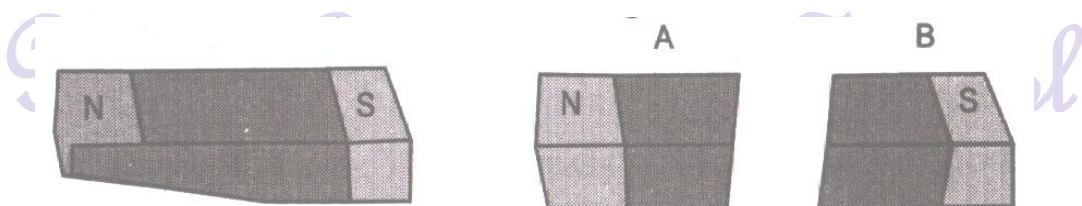
6. Boojho kept a magnet close to an ordinary iron bar. He observed that the iron bar attracted a pin as shown in Fig.



What inference could be drawn from this observation? Explain. [NCERT Exemplar]

When Boojho kept a magnet close to an ordinary iron bar, then it became a temporary magnet and small magnetic materials like pin, iron filing etc could be attracted by it. So iron bar attracted a pin. On removing the magnet, it again becomes an iron bar which does not attract any material.

7. A bar magnet is cut into two pieces A and B, from the middle, as shown in Fig. A



Will the two pieces act as individual magnets ? Mark the poles of these two pieces.

Suggest an activity to verify your answer. [NCERT Exemplar]

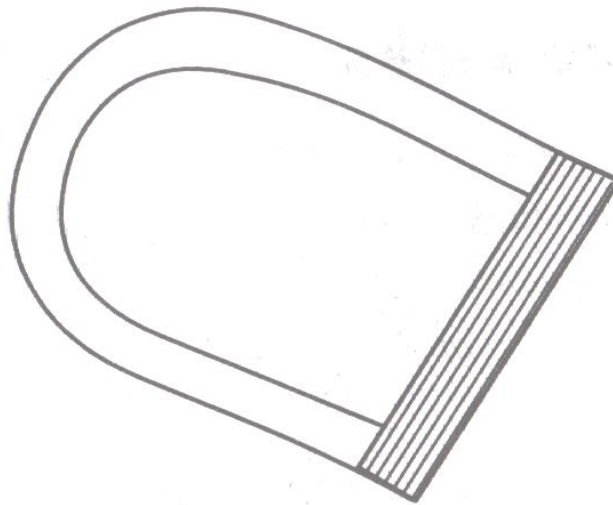
Yes, the two pieces will act as individual magnets, because the magnetic poles always exist in pairs. A single pole of magnet never exists. The poles of two pieces of magnet are :

8. Suggest an arrangement to store a U shaped magnet. How is this different from

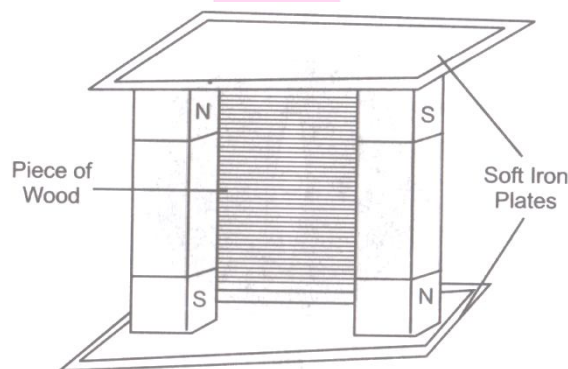
storing a pair of bar magnets ?

[NCERT Exemplar]

Arrangement to store a U-shaped magnet: One metal plate is placed across the two poles of the U-shaped magnet to store it.



Arrangement to store a Bar magnet : Bar magnets should be kept in pairs with their unlike poles on the same side. They must be separated by a piece of wood while two pieces of soft iron should be placed across their ends.

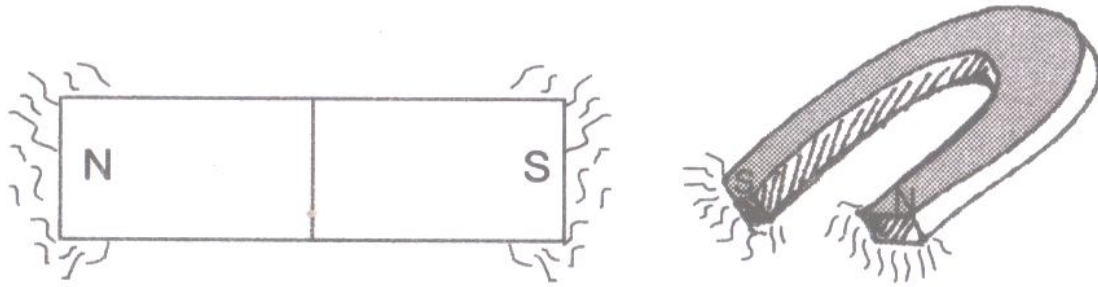


II. Long Answer Type Questions.

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

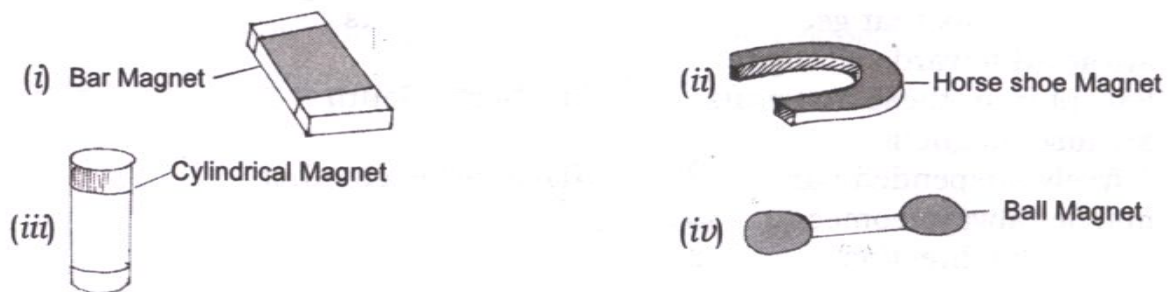
We know that pole is the point where the strength of the magnet is maximum. So more and more iron particles will be attracted at poles of a magnet when we bring a magnet near the

iron particles. We will observe the maximum of particles at the ends of magnet. This indicates the presence of two poles in a magnet. Hence poles are present in a magnet in pair. If a magnet is divided into two parts, each part also possesses a pair of poles.



2. What are artificial magnets? Draw diagrams to show the different shapes of magnets.

The magnets formed from the pieces of iron are called artificial magnets. The following are the different shapes of magnets:



I. High Order Thinking Skills (HOTS)

1. Riya's mother is stitching buttons on a shirt. The needle has slipped from her hand onto the floor. Can Riya help her mother to find the needle ?

Yes, Riya can help her mother to find the needle by using a magnet. Since needle is made of iron so it will easily stick to the magnet.

2. How do magnetic trains run without touching the ground ?

A very strong magnetic field is created by electrified Flowchart coils in the guide way walls, which propels the trains.

3. A magnet was broken into five pieces. How many north poles will be present in the broken pieces ?

On breaking a magnet into five pieces, each piece will behave as a magnet because each piece of magnet consists of both north poles and south poles. So, five north poles will be present in the broken pieces.



II. High Order Thinking Skills (HOTS)

1. A tailor was stitching buttons on his shirt. The needle has slipped from his hand on to the floor. Can you help the tailor to find the needle?

The needle can be found by using a magnet. Since needle is magnetic, when a magnet is wavered over the floor, it will stick to the magnet.

I. Value Based Questions

1. Ramesh was playing in the garden. He observed an earthworm moving on the soil. He remembered that his teacher had told in class that an earthworm does not have bones.
- How was the earthworm moving on soil?
 - What helped the earthworm in its movement/
 - the earthworm was moving by muscle expansions and contractions.
 - The body of earthworm secretes a slimy substance to help the movement.
2. A trip was conducted by Sneha's school to a zoo. There were many animals and birds in the zoo. Sneha and her friends went to an aquarium along with the teacher. Sneha saw that many kinds of fishes were swimming in the aquarium.
- Streamlined shape of the body facilitates easy movement of fish.
 - To keep the body balance and to provide them direction.

Know the Links

- <https://schools.aglasem.com>
- www.studyrankers.com
- www.cbseguess.com
- www.learncbse.in



West Generation School