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DISCOVERY OF MAGNET

There is not any exact date or a year when magnet was discovered. However, as the story goes, there used to live a shepherd boy Magnes, in the town of magnesia in Asia Minor. He used to carry a wooden staff fixed with an iron role. One day, he placed his staff on a blackish rock and its iron role got stuck on it. He was terrified. He thought that there was some spirit under the wooden staff.

This blackish rock was actually an ore of iron. It was called magnetite.

The name of this rock came from the town of magnesia, where it was discovered. As this rock attracted pieces of iron towards itself, any other substance, which had similar properties was named a magnet.

People now have discovered many rocks which have the properties of magnet. They also found that small pieces of these rocks have some special properties.

Natural magnets have no proper shapes. Now-a-days artificial magnets are prepared in different shapes according to our needs.

Horse-shoe magnet, bar magnet, cylindrical, a ball end magnet etc.



Magnetic substance

Do You Know ?

A bar magnet is always pointing the north-south direction because the earth also behaves like a bar magnet. North pole of the magnet is attracted towards the south pole of the earth. So the south pole of the earth's magnet is near the geographical north pole. North pole of the earth's magnet is near the geographical south pole.



Activity Time

Take a paper, a coin and a magnet. Place coin on the paper and hold the magnet in your hand. When you will move magnet below the paper then coin also move in same direction.

MAGNETIC AND NON-MAGNETIC SUBSTANCES

The materials which get attracted towards a magnet are called magnetic materials for example iron, nickel and cobalt. The materials which are not attracted towards a magnet are non-magnetic materials.

Wood, rubber, plastics etc. are non-magnetic materials.



Magnetic substance



Gold



Water bottle



Glass



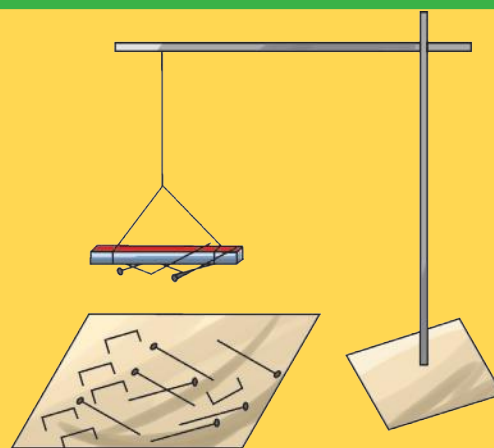
Silver

Non-magnetic substance



Activity Time

Take a sheet of plane drawing paper. Spread on it the assorted things like brass pins, pencil, iron nails, rubber, wood, plastic etc. Tie one end of a piece of thread to a magnet and the other end to a stand. Use this fishing pole to find out which of the things on the drawing sheet are attracted by the magnet. Things which cling to the magnet are made of magnetic materials and those which remain on the drawing sheet are made of non-magnetic materials. Since iron clings to the magnet, it is a magnetic material.



POLES OF MAGNET

Poles are those regions where the attractive power of a magnet exists. A bar magnet suspended such that it swings freely in a horizontal plane, comes to rest pointing roughly north-south direction.

The end of the magnet which roughly points towards the geographical north is called the north seeking pole or simply north pole and the end which roughly points towards the geographical south is called the south seeking pole or simply south pole.



Earth

FINDING DIRECTIONS

A very important use of magnet is to find directions. A freely suspended bar magnet always comes to rest in the fixed directions. If we rotate it, it will come again in some direction, which is the north-south direction with the help of magnet, we can find exact direction using the sun for finding directions may not be very exact because when we stand facing east, then our left arm will be in west, by this we can not find the directions more accurately because everywhere we don't know the direction of the rising sun.

The end of the magnet that points towards north is called seeking end or the north pole of the magnet. The other end that points towards the south is called south seeking end or the south pole of the magnet.

All magnets have two poles; North Pole (N) South Pole (S)

Compass

Later on, a device was developed based on this property of magnets. It is known as compass. A compass is usually a small box with a glass cover on it. A magnetized needle is pivoted inside the box, which can rotate freely. The compass is kept at the place where we wish to know the directions. 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.



Compass

Attraction and Repulsion between Magnets

Opposite poles of the two magnets attract each other as North-South and South-North.

Same poles of the two magnets repel each other as North-North and South-South. This property of the magnets can also be used to find the pole of a magnet by bringing one by one the poles of another magnet near it.

Precaution about Magnets

Magnets lose their properties if they are heated, hammered or dropped from height. Keeping of magnets safe is also important otherwise they become weak. 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. For horse-Shoe magnet, one should keep a piece of iron across the poles.

Know the Keywords :

Magnet : The material that attracts iron.

Magnetic : The regions at the ends of a magnet where attraction is maximum.

Magnetic poles : Ends of a magnet where magnetic force is the maximum.

Repulsion : The force by which bodies tend to repel each other.

Compass : A device used to find direction by means of a magnetic needle.

Point to Remember

- The material that attracts iron is called magnet.
- The material which get attracted towards a magnet are called magnetic materials.
- The material which are not attracted towards a magnet are called non-magnetic materials.
- Magnets loose their properties if they are heated, hammered or dropped from height.

EXERCISE TIME

A. Answer the following questions :

1. Who was Magnes ?
2. Write any two properties of a magnet.
3. What are magnetic materials ?
4. How is a compass used to find directions ?
5. In which directions a freely moving bar magnet comes to rest ?

B. Fill in the blanks :

1. The rocks of magnets are called _____.
2. The materials which are attracted towards a magnet are called _____.
3. A magnet has _____ poles.
4. _____ power is more at poles.
5. Opposite poles _____ each other.

C. Write 'T' for true and 'F' for false statements :

1. Similar poles of a magnet repel each other.
2. Plastic is a non-magnetic material.
3. The rock was a natural magnet.
4. Artificial magnets were discovered in Greece.
5. A freely suspended magnet comes to rest in east–west direction always.

D. Tick (✓) the correct option :

1. Magnes was a :

- (i) blacksmith (ii) shepherd (iii) farmer

2. Horse shoe magnet is a :

- (i) artificial magnet (ii) natural magnet (iii) none of them

3. In which of these shapes can we have a magnet ?

- (i) bar (ii) horse shoe (iii) both (i) and (ii)

4. Which is not a magnetic material ?

- (i) cobalt (ii) zinc (iii) iron

5. Natural magnet have :

- (i) no proper shape
(ii) shape of a rectangle
(iii) shape of a circle

6. A magnet has :

- (i) one pole (ii) two poles (iii) three poles

7. A device used to find directions is :

- (i) odometer (ii) speedometer (iii) compass



Creative Work

- **Draw diagram of a compass in the space below :**

A large rectangular area with a red dotted border, intended for drawing a diagram of a compass.