

## Introduction

- Iron articles get attracted to a piece of magnet.
- Some of other articles like pin holders, refrigerators, pencil boxes have magnets inside them.
- Crane uses magnet to pick up iron junk from various dumping yards.

## How magnets were discovered

- Natural magnets are discovered by a shepherd named magnes in Greece.
- Rocks named magnetite are natural magnets.
- The naturally obtained rocks or materials which have special properties are called magnets
- Magnets can be prepared artificially in different shapes like bar magnet, horse-shoe magnet, cylindrical or a ball ended magnet.

## Magnetic and non- magnetic materials

### ➤ Activity 1

1. Collect different objects that we use in our daily life like iron ball, scale, shoes and keys.
2. Take a magnet and bring these objects closer to the magnet one by one.
3. Note down the name of object which sticks to the magnet and the type of the material of the object.

We will find that objects that are made of metals such as iron, Nickel, and cobalt will stick to the magnet.

- Materials that stick or attracted towards a magnet are known as magnetic materials.
- Materials that do not stick or attracted to a magnet area known as non-magnetic materials.

## Poles of magnet

### ➤ Activity 2

1. On a sheet of paper spread some iron fillings
2. Place a magnet of any shape of your choice on the paper
3. Let us take a bar magnet
4. Iron fillings will stick all over the body of magnet but more on the end of the magnet.
5. The end where more iron fillings are stuck are called the poles of magnet.
6. Similarly, you can repeat this process with different shapes of magnet and find out their poles.

- The strength of magnet is stronger at the ends of the magnet than at the centers.

## Finding directions

### ➤ Activity 3

1. Take a bar magnet
  2. Suspend it from a wooden block by tying a thread to the center of the magnet.
  3. Gently push the magnet in different directions and note the position each time it comes to rest.
  4. Mark the points on the table where the two ends stop in every case.
  5. The two ends of bar magnet will come to rest at same position each time
  6. One end will face the north direction and the other end will face the south direction.
- Every magnet irrespective of their shapes has two poles.
  - The poles of the magnet are north pole and south pole
  - To find the direction we use magnet as it always comes in north direction when set free.
  - Based on this property a device was developed called compass.it is a device in which magnetic needle is pivoted inside the small glass cover with direction marked on it.



Bar Magnet



Ring Magnet



Disc Magnet



Magnetic Needle



Horseshoe Magnet

## Make your own magnet

### ➤ Activity 4

1. Take an iron scale and magnet bar.
2. Place the magnet over the scale and move the magnet bar along the scale without lifting it.
3. Now again repeat the process with the same end of the bar over the same end of the scale.
4. Repeat this process 30 to 40 times.
5. Now bring a key or a pin near to check whether the scale has magnetized or not.
  - Through this process you can magnetize different metallic objects like a blade or a nail.

## Attraction and repulsion between magnets

- The same ends of the magnets always push each other and the different ends of the magnets always pull each other.
- Pushing is called repulsion that means the same poles of two magnet repel each other.
- Pulling is called attraction that means the two different poles of magnets attract each other.
- North pole attracts south pole and repel north pole.
- South pole attracts north pole and repel south pole.

## A few cautions

- If the magnets are hammered, heated or dropped from some height it loses its magnetic property.
- If magnets are properly kept, they become weak.
- Bar magnet should be kept with a piece of wood between them. The opposite sides of the two magnets should faces each other.
- In case of horse-shoe magnet a piece of iron should be kept across the poles of the magnets.
- Magnets should be kept away from televisions, mobiles, music system, cassettes and computers.