



Class 6th

CHAPTER 10

Fun with Magnets

MAGNET

The substances having the property of attracting iron are now known as magnets. Any material (object) that has the property of attracting things made of any of the three metals such as iron, cobalt and nickel is called a magnet. Magnets themselves are made from these three metals: iron, cobalt and nickel. Iron, steel or the alloys of iron are almost always used to make magnets because iron is the cheapest of the three metals.

MAGNETIC AND NON-MAGNETIC MATERIALS

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

MAGNETIC FORCE AND MAGNETIC FIELD

A magnet can attract an iron nail from a distance and the force which a magnet exerts to attract a magnetic material is called 'magnetic force. Since magnets can affect a magnetic material from a distance without touching each other, it is obvious that a magnet exerts force from a distance. The distance up to which it exerts force is its 'magnetic field'.

TYPES OF MAGNET

Bar-magnet, a horse-shoe- magnet or a ring magnet.

POLES OF MAGNET

The two ends of a magnet are called poles of the magnet.

Magnetic Poles are always directional

On magnet being suspended freely, one of the two ends of the magnet points towards the North Pole of the earth and hence we call this end of the magnet as north pole (N).

Similarly the other end of the magnet, on being suspended freely points towards South Pole of the earth. Hence we call this end of the magnet as South Pole (S).

Magnetic Poles Do Not Exist Independently

It is not possible to break or cut a magnet in two halves to get one piece with 'north pole' only and the other piece with 'south pole' only. On cutting a magnet in two halves, each piece holds its own two poles, the north and the South Pole.

Inter action between Magnetic Poles

When two like poles of a magnet are brought together or placed face to face, they repel each other. Opposite poles attract each other. North Pole of a magnet will attract the south pole of the other magnet.

Making Your Own Magnet

There are many ways of making magnet out of a soft iron piece. A simple way to make a magnet out of a piece of soft iron is the 'stroking method'.

Temporary or Permanent Magnets

Most soft iron bar magnets are temporary magnets. They lose their magnetic property when (a) hammered, (b) heated, or (c) dropped to the hard floor with a force. Temporary magnets retain their magnetic properties only for a short period of time.

Permanent Magnets

Are strong magnets and have a longer life. Permanent magnets do not lose their magnetic property easily. They are made from alloys such as:

- a. Steel: an alloy of iron and carbon,**
- b. AlNiCo: an alloy of aluminium, nickel and cobalt**
- c. Ceramic: a mixture of iron oxide and barium oxide.**

Use of Magnets

- 1. Refrigerator doors, pin holders, door-stoppers.**
- 2. Computer, laptops and television monitors.**
- 3. ATM and Bank credit cards.**
- 4. Magnetic toys.**

5. Separating scrap iron from non-magnetic waste.

MAGNETIC COMPASS

Magnetic compass is device which is used to locate the direction of a place. It always rests in a North -South direction. It is used in the navigators in: ships, submarines, aeroplanes etc.