EXPLORING MAGNETS

I Answer the following in brief:

1. What will happen if a bar magnet is cut into half?

Ans) It will still remain a magnet no matter how small the magnet is broken into.

2. What is a magnetic compass?

Ans) Magnetic compass is a freely suspended magnetic needle that helps in knowing the direction.

3. Give some examples of magnetic and non magnetic materials.

Ans) Magnetic materials—iron, nickel, cobalt, Alnico and anything made of these materials

Non-magnetic materials—wood and plastic

4. List the various shapes of magnets that you can find.

Ans) The various shapes of magnets that we can find are: bar, cylindrical, ring, disc, oblong, U-shaped, and horseshoe shaped magnet

5. Write two uses of magnets.

Ans) Magnets have multiple uses.

- They are used in motors, doors of fridge, and electromagnetic cranes
- They are used to pick up iron scrap from the junkyard.
- They are also used in audio and video tapes, computer hard disks etc.

II) Answer in Detail:

1. What are magnetic and non magnetic materials? Give examples of each.

Ans) Magnetic materials are attracted to a magnet or a magnetic substance. Some examples of magnetic materials are iron, nickel, cobalt, Alnico and anything made of these materials.

The materials that are not attracted by a magnet are called as non magnetic materials. Some examples of non-magnetic materials are wood and plastic.

2. How will you magnetise an iron piece and test that it is magnetised ?

Ans) An iron piece is magnetized by stroking it with permanent magnet in one direction repeatedly for a number of times. Then this iron piece is ready to behave like a magnet as it attracts pieces of nails or clips.

3. How will you show that like poles repel and unlike poles attract?

Ans) Activity on page no 62

4. How are magnets stored? Explain

- Ans) Magnets are stored in pairs in a wooden box, with unlike poles on the same side.
- A piece of wood should be kept between the magnets to be separated.
- Across their ends, two pieces of iron should be placed. These iron pieces are magnetic keepers.

5. Magnets are used in maglev trains . Explain

Ans) Maglev stands for magnetic levitation. The concept of maglev trains is based on the fact that like poles repel to levitate, or raise, a train so that it is not touching the rails. This reduces friction and noise and allows trains to run at very high speeds.

6. Write down the property of magnets using which directions can be found. Prove this property with the help of an activity.

Ans) Aim: To test if a given metal bar is a magnet or not and that repulsion is necessary for checking this.

Things required: Metal bar, magnet

Method: Take a magnet and touch its north pole to each end of the metal bar.

Observe what happens.

1. If one end of the metal bar is attracted and the other end is repelled to the North Pole, the metal bar is a magnet.
2. If both ends of the metal bar are attracted to the north pole, the metal bar is not a magnet.