Chapter Eleven

Magnetism And Electricity:

Magnetism:

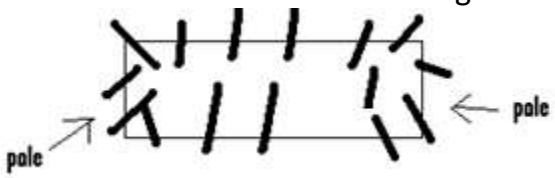
- This is the name given to the forces which acts between magnets.

Uses of magnets:

- They are used in generators, radios, televisions, electric fans and telephones.

The poles of a magnet:

- This refers to the two ends of a magnet where the magnet forces of attraction are strongest.
- If a bar magnet is placed into nails, it will be seen that the two ends will pick up more nails than any other part.
- This is due to the fact that the magnetism is stronger at these points or ends.



- A magnet has two types of poles and these are:

(i) The north pole.
(ii) The south pole.

S = the South Pole.
N = the North Pole.

Magnetic materials:

- These are materials which can be attracted or pulled by a magnet.
- Examples are iron and steel.

Non magnetic materials:

- These are those materials which cannot be attracted or pulled by a magnet.
- Examples are wood and plastic.

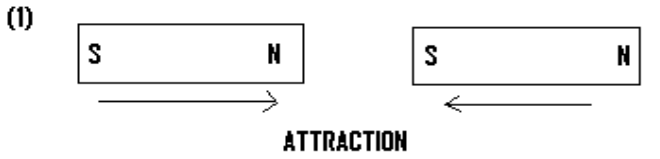
Attraction and repulsion in magnets:

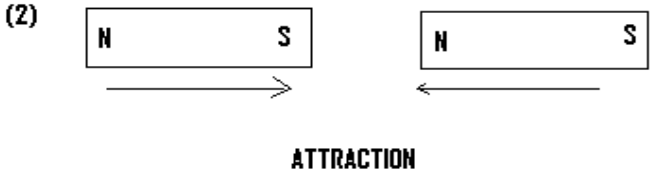
- If two magnets are taken and the end of one of them is brought towards the end of the other one, the magnets may attract (i.e. move toward) each other, or repel (i.e. push away) each other.

Attraction:

- If the north pole of one magnet is brought towards the south pole of another magnet, the two magnets will attract each other.
- This tells us that if the two poles are different from each other, then the two magnets will attract each other.

Examples:

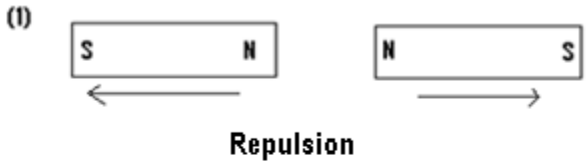


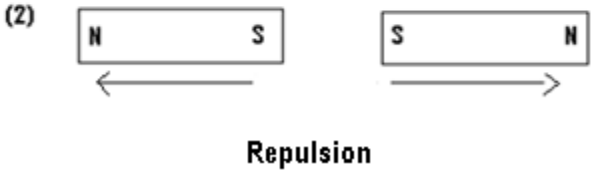


Repulsion:

- If we bring the north pole of one magnet towards the north pole of another magnet, the magnets will repel or push away each other.
- If we bring the south pole of one magnet toward the south pole of another magnet, the two magnets will also repel each other.
- This tells us that if the poles of the two magnets are the same, then they will repel each other.

Examples:





Types of magnets:

- There are two main types of magnets and these are:
  (i) Permanent magnet.
  (ii) Electromagnet.

Permanent magnet:

- This refers to a metal which always acts as a magnet.
- In a permanent magnet, the magnetism is always present in the metal or the magnet.

Electromagnet:

- This refers to a metal which only acts as a magnet, when current is flowing or passing through it.
- For example, if a coil of metal wire is taken and current is passed through it, the wire will act as a magnet so long as the current is flowing through it.
- But the wire will no longer act as a magnet when the current stops flowing through it.
- This type of magnetism which occurs only when current is flowing through a metal, is called electromagnetism.

Magnetization:

- This is the process in which a magnetic material is changed into a magnet.
- There are three methods of making a magnet and these are:
  (i) The stroking method.
  (ii) The electrical method.
  (iii) The induction method.