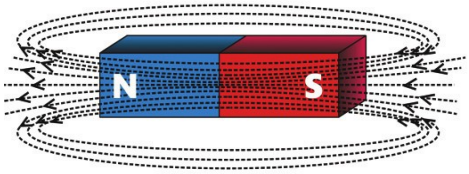
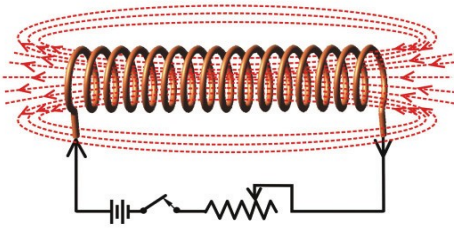
PHYSICS - X-PART-05 CLASS 17

2 Magnetic Effect of Electric Current

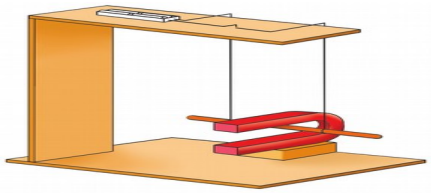
Analyse and compare solenoid and bar magnet





Bar Magnet	Solenoid
* The magnetism is permanent	* The magnetism is temporary
* Permanent magnet	* Electromagnet
* Weak magnetic field	* Strong magnetic field
* Strength cannot be changed	* Strength can be changed
* Polarity is fixed	* Polarity can be reversed

Use of magnetic effect of electricity



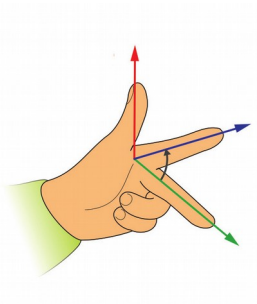
- A force is felt in a current carrying conductor located in a magnetic field.
- The conductor moves in the direction of that force.
- This is known as Motor principle

Motor principle

A conductor, which can move freely and which is kept in a magnetic field, experiences a force when current passes through it and it moves.

What are the factors that influence the direction of motion of the conductor?

- Direction of current
- Direction of magnetic field



* Fleming established a rule that will help to find out the direction of motion of the conductor in the devices making use of magnetic effect of electricity.

Fleming's Left Hand Rule

Hold the forefinger, the middle finger and the thumb of the left hand in mutually perpendicular directions as shown in the figure. If the forefinger indicates the direction of the magnetic field and the middle finger, the direction of the current, then the thumb will indicate the direction of motion of the conductor.

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- The working of electric motor is based on this principle.
- The motor principle is also used in devices like fan, mixie etc

Assignment (Let us assess – 6)

The direction of movement of electrons through a magnetic field is depicted. “The force felt by the electrons due to the influence of the magnetic field is into the plane of the paper”. Is this statement correct? Explain based on the Fleming's Left Hand Rule.