

## Domestic Electric Circuit

**Earth wire :-** Safety measure to take care of leakages

**Neutral wire :-** } Supply electricity to circuits within home.  
**Live wire :-** }

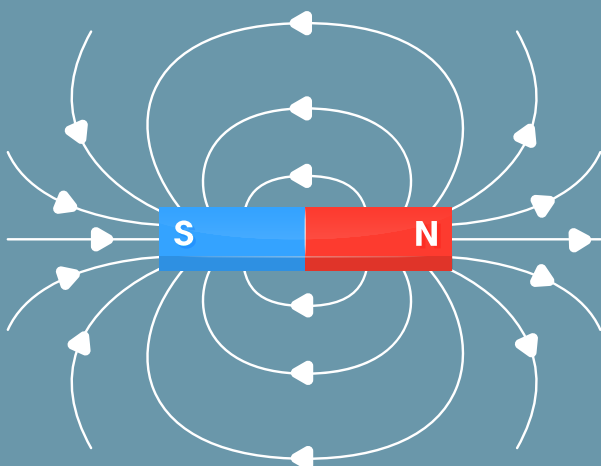
\* Voltage and frequency are 220v and 50Hz respectively

## Field

Surrounding region where force of magnet can be detected

- \* Field strength depends on the closeness of the field lines
- \* It is a **vector quantity**

## Field Lines



Field Lines

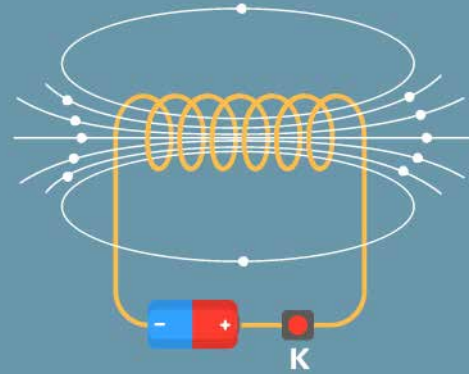
\* Field strength  $\propto$  current

$$\propto \frac{1}{\text{Distance between magnet and conductor}}$$

## Field due to current carrying conductor

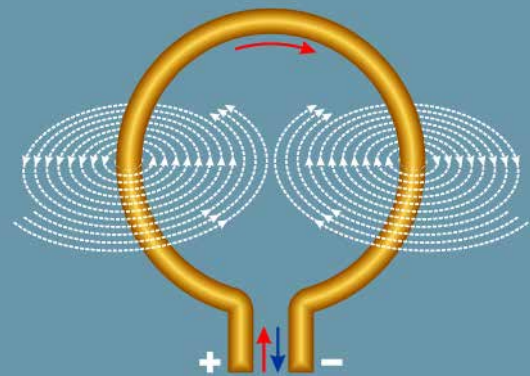
### SOLENOID

\* Coil of many circular turns



\* Field is similar to that of a bar magnet

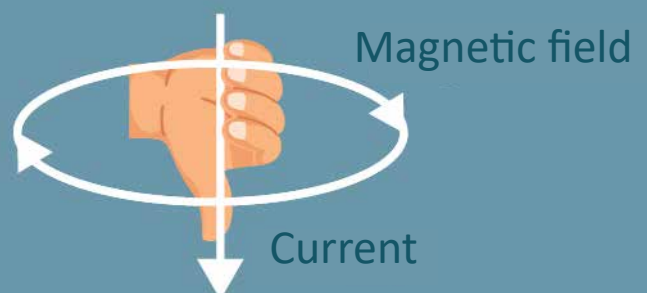
### CIRCULAR LOOP



\* If n loops - n times that for single loop

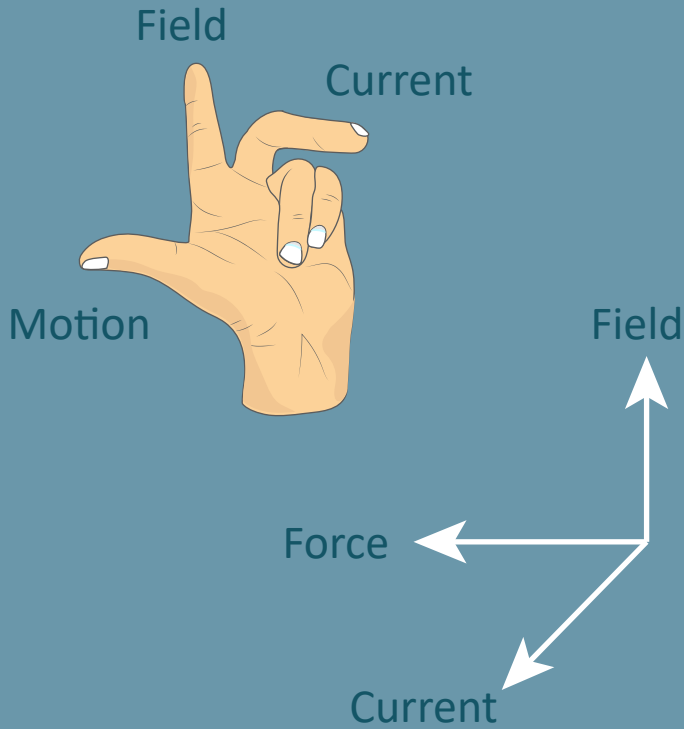
### STRAIGHT CONDUCTOR

\* Direction of the field



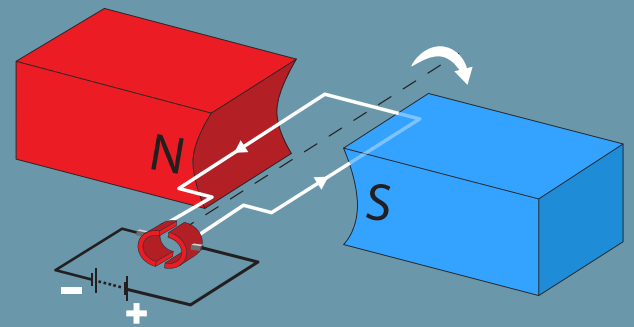
## Force on current carrying conductor in Magnetic field

Direction of force - **Fleming's Left hand rule**



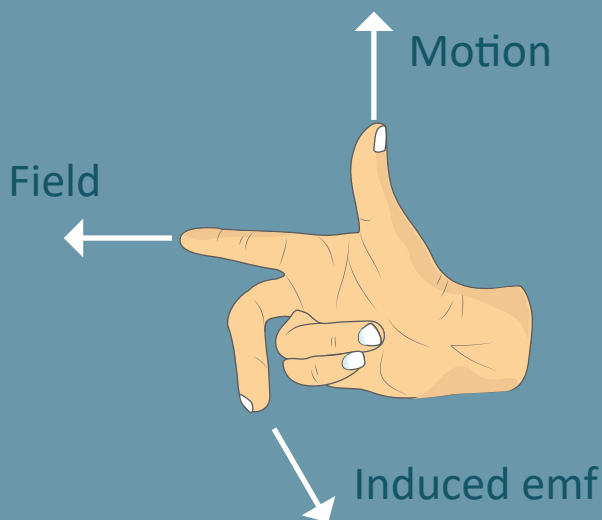
## Electric Motor

- \* Convert electrical energy into mechanical energy
- \* As current passes through the coil in a magnetic field, force acting on the coil turns the coil.



## Electromagnetic Induction

- \* Change in the magnetic field induces current.
- \* Direction of current :- **Fleming's right hand rule**



## Electric Generator

- \* Converts Mechanical energy into electrical energy.
- \* Electrical current is produced because of rotation of coil inside the field.

