

## Definitions and Concepts for Edexcel Physics GCSE

### Topic 12: Magnetism and the Motor Effect

---

*Definitions in **bold** are for higher tier only*

*Definitions marked by '\*' are for separate sciences only*

**Current-Carrying Wires:** When current flows through a wire, a magnetic field is generated around it. The strength of the field depends on the magnitude of the current and the distance from the wire.

**\*Electric Motor:** A current-carrying coil of wire in a magnetic field. The two sides of the coil that are perpendicular to the magnetic field experience forces in opposite directions, causing rotation.

**Electromagnet:** A solenoid with an iron core.

**Force on a Wire:** When a current-carrying wire is placed perpendicular to a magnetic field, a force is exerted on it. The force is proportional to the magnetic flux density of the field and proportional to the current and length of the wire.

**Fleming's Left-Hand Rule:** A rule used to determine the orientation of the force (thumb), current (second finger) and magnetic field (first finger) when a current-carrying wire is placed in a magnetic field (motor effect).

**Induced Magnet:** A material that becomes a magnet when it is placed in an existing magnetic field, but loses its magnetism quickly once it is removed. Induced magnetism always produces attractive forces.

**Like Magnetic Poles:** When matching poles of a magnet are brought near each other they repel each other.

**Magnetic Field:** The region around a magnet in which another magnet or magnetic material will experience a force.

**Magnetic Field Lines:** Lines that show the strength and direction of a magnetic field. The lines point from North to South and their concentration represents the magnitude of the field.

**Magnetic Materials:** Iron, steel, cobalt and nickel.

This work by [PMT Education](https://www.pmt.education) is licensed under [CC BY-NC-ND 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/)



**Magnetic Poles:** The regions of a magnet where the magnetic forces are at their strongest.

**Permanent Magnet:** A magnet that produces its own magnetic field.

**Solenoid:** A wire wrapped into the shape of a coil, that has a strong and uniform magnetic field inside of it. The solenoid's magnetic field strength can be increased by adding an iron core.

**Tesla:** The unit of magnetic flux density.

**Unlike Magnetic Poles:** When opposite poles of a magnet are brought near each other they attract each other.

