

CLASS 10

SCIENCE

REVISION NOTES

Class 10 Science Chapter 12 Magnetic Effects of Electric Current Revision Notes

Need full answers or more practice? See the Class 10 Science Chapter 12 Solutions and Class 10 Science Chapter 12 Extra Questions. These Class 10 Science Chapter 12 notes are ideal for quick revision just before exams.

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Magnetic field lines: emerge from N, merge at S (outside magnet); form closed loops; never intersect; denser lines = stronger field

Right-hand thumb rule: thumb along current, curled fingers give field direction around a straight conductor (concentric circles)

Field at centre of a current loop: perpendicular to the plane of the loop; strengthens with more turns/current

Solenoid: long coil of turns; field inside is strong, uniform, parallel to axis — behaves like a bar magnet

Electromagnet = solenoid + soft iron core (low retentivity, magnetism only while current flows)

Force on current-carrying conductor: $F = BIL \sin\theta$; maximum at $\theta=90^\circ$, zero at $\theta=0^\circ$

Fleming's Left-Hand Rule (force/motor): forefinger=Field, middle finger=Current, thumb=Motion/Force

Electric motor: converts electrical to mechanical energy; opposite forces on coil arms create torque; split-ring commutator reverses current every half turn for continuous rotation

Electromagnetic induction: induced current from changing magnetic flux (relative motion of coil/magnet)

Fleming's Right-Hand Rule (induced current/generator): thumb=Motion, forefinger=Field, middle finger=Current

Electric generator: converts mechanical to electrical energy; slip rings → AC output; split-ring commutator → DC (pulsating) output

Domestic circuits: live (red), neutral (black), earth (green); India mains = 220V, 50Hz AC

Short circuit: live-neutral direct contact → sudden current surge; earthing protects users from shock via metal-casing faults

Fuses/MCBs: break the circuit automatically when current exceeds a safe limit

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