

CLASS 10

SCIENCE

REVISION NOTES

Class 10 Science Chapter 11 Electricity Revision Notes

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- **Current, I** = Q/t (ampere, A); **Potential difference, V** = W/Q (volt, V)
- **Ohm's Law:** $V = IR$, at constant temperature
- **Resistance:** $R = \rho L/A$ — directly proportional to length, inversely proportional to cross-sectional area, ρ = resistivity (material property, unit $\Omega \text{ m}$)
- **Series combination:** $R_s = R_1 + R_2 + R_3 + \dots$; same current through each, voltages add
- **Parallel combination:** $1/R_p = 1/R_1 + 1/R_2 + 1/R_3 + \dots$; same voltage across each, currents add
- **Electric power:** $P = VI = I^2R = V^2/R$ (watt, W)
- **Electrical energy:** $E = Pt$; commercial unit = 1 kWh = $3.6 \times 10^6 \text{ J}$
- **Heating effect (Joule's law):** $H = I^2Rt$
- Ammeter: connected in series, near-zero resistance. Voltmeter: connected in parallel, very high resistance.
- Tungsten (high melting point, doesn't oxidise) → bulb filaments. Alloys like Nichrome (high resistivity, high melting point) → heating elements.
- Series wiring is not used domestically: one break stops everything, and all appliances would be forced to share one current value.
- This chapter is now **Chapter 11** in the 2026-27 rationalised book (was Chapter 12 pre-2023).

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