



REVISION NOTES · CLASS 10

CBSE Class 10 Science Key Points

The definitions, equations and examples that score in CBSE Class 10 Science, taken chapter by chapter from the NCERT textbook.

CBSE 10

01 Chemical reactions

Types – combination, decomposition (thermal, electrolytic, photolytic), displacement, double displacement, redox

Oxidation – gain of oxygen or loss of hydrogen; reduction is the reverse

Balancing – follows the law of conservation of mass

Corrosion and rancidity – rusting needs air and water; antioxidants and nitrogen flushing slow rancidity

02 Acids, bases and salts

Indicators – litmus red in acid, blue in base; phenolphthalein colourless in acid, pink in base; methyl orange red in acid, yellow in base

pH – 0 to 14, 7 is neutral; tooth decay starts below pH 5.5

Reactions – acid + base → salt + water; acid + metal → salt + H₂; acid + carbonate → salt + CO₂ + H₂O

Common salts – baking soda NaHCO₃; washing soda Na₂CO₃·10H₂O; bleaching powder CaOCl₂; plaster of Paris CaSO₄·½H₂O

03 Metals and non-metals

Reactivity series – K > Na > Ca > Mg > Al > Zn > Fe > Pb > H > Cu > Hg > Ag > Au

Amphoteric oxides – Al₂O₃ and ZnO react with both acids and bases

Extraction – very reactive metals by electrolysis; middle metals by roasting (sulphides) or calcination (carbonates), then reduction

Thermite reaction – Fe₂O₃ + 2Al → 2Fe + Al₂O₃

Ionic compounds – high melting points; conduct when molten or dissolved

04 Carbon compounds

Homologous series – members differ by –CH₂–

Functional groups – –OH alcohol; –CHO aldehyde; >C=O ketone; –COOH carboxylic acid

Esterification – ethanoic acid + ethanol (conc. H₂SO₄) → ethyl ethanoate, sweet-smelling

Saponification – ester + NaOH → soap; detergents still work in hard water

Hydrogenation – vegetable oils + H₂ (nickel catalyst) → fats

05 Life processes

Photosynthesis – 6CO₂ + 12H₂O → C₆H₁₂O₆ + 6O₂ + 6H₂O (chlorophyll, sunlight)

Respiration – glucose → pyruvate in the cytoplasm; aerobic in mitochondria → CO₂ + H₂O + energy; yeast → ethanol + CO₂; muscles → lactic acid

Transport – double circulation in a four-chambered heart; xylem carries water, phloem carries food

Excretion – the nephron is the working unit of the kidney

06 Control, reproduction, heredity

Reflex arc – receptor → sensory neuron → spinal cord → motor neuron → effector

Brain – cerebrum (thinking), cerebellum (balance), medulla (involuntary actions)

Hormones – insulin, thyroxine (needs iodine; lack causes goitre), adrenaline, growth hormone

Asexual reproduction – fission, fragmentation, regeneration, budding, vegetative propagation, spores

Heredity – Mendel's monohybrid ratio 3:1, dihybrid 9:3:3:1; a child's sex is set by the father's X or Y

07 Light

Mirror formula – $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$, $f = R/2$, $m = -v/u$

Lens formula – $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$, $m = v/u$

Power of a lens – $P = 1/f$ with f in metres, unit dioptre

Refractive index – $n = c/v$; Snell's law $\sin i/\sin r = \text{constant}$

Defects of vision – myopia, concave lens; hypermetropia, convex lens; presbyopia, bifocal lens

In the sky – scattering makes the sky blue and sunsets red; atmospheric refraction makes stars twinkle

08 Electricity and magnetism

Basics – $I = Q/t$, $V = W/Q$, Ohm's law $V = IR$, $R = \rho l/A$

Combinations – series $R = R_1 + R_2 + \dots$; parallel $1/R = 1/R_1 + 1/R_2 + \dots$

Heating and power – $H = I^2Rt$; $P = VI = I^2R = V^2/R$; 1 kWh = 3.6×10^6 J

Magnetic field – right-hand thumb rule for a straight wire; a solenoid acts like a bar magnet

Force on a conductor – Fleming's left-hand rule

Safety – earthing and fuses protect against overloading and short circuits

09 Our environment

Food chains – only about 10% of energy passes to the next level

Biological magnification – harmful chemicals concentrate up the food chain

Ozone – depleted by CFCs; it shields Earth from ultraviolet radiation

How to use these notes

- 1 Write balanced equations with state symbols where you can; examiners notice.
- 2 Learn one labelled diagram per chapter: heart, nephron, eye, flower, electric circuit.
- 3 For numericals, write the formula, substitute with units, then box the answer.

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