

Science Curriculum, 2021-2022

Topic	Content overview
Year 7	
Introduction to Science	Laboratory safety, drawing and naming equipment, making measurements.
Human Body and reproduction	Skeleton, muscles, blood, sexual reproduction, pregnancy, birth, human development.
Cells, microbes and disease	Cell structure and function, organ systems, unicellular and multicellular, bacteria, virus, fungi, disease & immunisation.
Plants	Reproduction, importance, environmental impact.
Particles and mixtures	States of matter, change of state, melting/boiling points, density, Pure/mixture, filtration, evaporation, distillation, chromatography.
Acids and Alkalis	Uses and properties, indicators, pH scale, neutralisation
Metals	Uses, properties, elements vs. alloys, compounds, conductivity.
Electricity and circuits	Electrical circuits and components, series, parallel, measuring current, safety.
Earth and Climate	Rock types, rock cycle, structure of the Earth and the Earth's atmosphere.
Light	Reflection, refraction, the eye, colour/filters, dispersion
Year 8	
Lab Basics	Safety, making measurements
Food and nutrition	Food groups, healthy diet, food tests, digestive system, absorption, enzymes.
Breathing and Respiration	Breathing system, Respiration, aerobic/anaerobic, effect of exercise
Ecology	Sampling techniques, food chains/webs, populations, pyramids.
Elements and compounds	Atomic structure, compound, elements, periodic table, molecules, bonding.
Chemical reactions	Thermal decomposition, oxidation, reactions of metals
Particles and matter	Diffusion, dissolving & solubility, expansion, pressure, density, Brownian Motion
Energy	Types and transfer of energy, heat transfer, energy resources and fuels, renewable energy resources.
Sound	Generation, transfer, waves, pitch/volume, the ear.
Forces	Pairs, vectors, types, resultant
Magnetism	Fields, effects, Earth, increasing strength, uses
Earth and Space	Earth, planets & stars, solar system models, gravity
Year 9	
Photosynthesis	Respiration, photosynthesis, factors affecting rate, adaptation
Inheritance	Genetics, genes/chromosomes/DNA, evolution, classification, extinction, cloning
Bridge to GCSE: Cells Function & organisation	Cell structure and adaptation, function organisation, microscopy, cell division.
Reactivity of Metals	Oxidation & rusting, reactions with water, acid and oxygen displacement, reactivity series, extraction
Materials	Extraction of metals, recycling, ceramics, polymers and composite materials
Bridge to GCSE: Organic Chemistry	Hydrocarbons, crude oil, fractional distillation, alkanes, alkenes, polymers
Pressure & Motion	Resultant forces, speed, motion graphs, moments, pressure at surfaces, pressure in liquids and gases.
Waves	Transverse and longitudinal, waves in water, electromagnetic spectrum.
Bridge to GCSE: Particles and matter	Changes of state and internal energy, specific latent heat and specific heat capacity, gas pressure.

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Year 10		
B	Cell Biology	Structure, organisation, microscopy, cell division, respiration & exercise, enzymes
B	Transport & Photosynthesis	Cell transport, osmosis, plants & humans (digestion, blood & circulation), photosynthesis
B	Disease & development of Medicines	Non/communicable diseases (health & risk factors), pathogens, fighting disease (plants & human), development of drugs
C	Atomic Structure & Periodic Table	Atomic structure, Periodic Table, Electronic structure, Groups 1,7,0
C	Structure & Bonding	Chemical bonds, ionic, covalent structures, states of matter, metals, alloys, carbon allotropes, nano particles
C	Quantitative Chem	Mass, equations, moles, solutions, titrations* , yield
C	Chemical & Energy Changes	Reactivity and extraction of metals, pH & salts, neutralisation, acid strength, electrolysis, energy changes in reactions, energy level diagrams,
P	Electricity	Circuits, current, voltage, resistance, p.d., series/parallel, Domestic uses, power & safety, energy transfers, static electricity
P	Particle Model of Matter	Particle Model, pressure, internal energy, change of state
P	Energy	Energy stores, transfers, conservation & dissipation, national and global resources, specific heat capacity
Year 11		
B	Coordination & Control	Homeostasis, nervous system, endocrine system, hormones in reproduction, infertility and contraception, plant hormones*
B	Inheritance, Variation & Evolution	Sexual/asexual reproduction, DNA, genes, inheritance, genetic disorders, variation & evolution, Darwin, Selective breeding, genetic engineering, stem cells, classification
B	Ecosystems	Organisms & ecosystems, feeding relationships, environmental change, biodiversity, recycling, Food production*, biotechnology*
C	Rate and Extent of Chemical Reactions	Rates of reaction, collision theory, activation energy, catalysis, reversible reactions
C	Organic Chemistry	Crude oil, hydrocarbons, alkanes, combustion, cracking
C	Chemical Analysis	Purity, formulations, chromatography, identification of gases, cations, anions
C	Earth's Atmosphere & Resources	Evolution of the atmosphere, Global climate change, pollution, potable water, extracting metals, glass ceramics & composites, life cycle assessment, recycling, preventing corrosion, The Haber Process*
P	Forces	Forces, elasticity, speed & velocity, graphs, Newton's Laws, Braking, momentum, resultant forces & vectors
P	Waves	Transverse, longitudinal, reflection, refraction, detection, electromagnetic spectrum, lenses, black body radiation
P	Magnetism & electromagnetism	Permanent & induced magnetism, fields, electromagnets, motor effect
P	Atomic structure & Radioactivity	Atoms & Isotopes, radioactive decay, nuclear radiation, equations, half-life, uses
P	Space Physics*	Stars & the solar system, Orbital motion, red shift & Big Bang Theory

*Triple Science only