

Year 7	
Lab Basics	Laboratory safety, naming and drawing equipment, making measurements.
Cells and Reproduction	Cell structure and function, specialised cells, use of microscopes, organ systems. Puberty, sexual reproduction, pregnancy and birth.
Particles, Elements and Compounds	Particle model and states of matter, atoms, periodic table, metals and non-metals, element compound and mixture.
Energy 1	Energy stores and transfers, conservation of energy.
Human Body and Microbes	Effects of drugs, musculoskeletal system, circulatory system. Micro-organisms, immune system and immunisation.
Sound	Sound as waves, pitch and volume, structure and function of the ear, hearing range, use of sound.
Particle Behaviour	Changes of state, expansion and contraction, density, concentration, diffusion and Brownian motion.
Forces 1	Contact and non-contact forces, representing forces diagrammatically, magnetic fields, electromagnets.
Chemical Reactions	Chemical and physical changes, word equations, conservation of mass, thermal decomposition, oxidation, combustion and temperature changes in chemical reactions.
Circuits 1	Conductors and insulators, circuit symbols, current, potential difference, modelling electricity, static electricity.
Plants 1	Plant organs, pollination, germination, dispersal and growth, random sampling.
Earth and Space	Night and day, seasons, solar system, eclipses, stars, universe.

Year 8	
Mixtures and Separation	Pure and mixture, dissolving, evaporation and crystallisation, distillation, filtration, chromatography.
Energy 2	Conduction, convection and radiation. Insulation, efficiency and work done. Generating electricity and cost of electricity.
Food and Digestion	Food groups, balanced diets, malnutrition. Digestive system and enzymes.
Light	Light travelling in straight lines, reflection, refraction, lenses, spectrum of visible light, colour and filters.
Acids and Alkalis	pH scale and indicators, neutralisation reactions, reactions of acids.
Breathing and Respiration	Respiratory system, gas exchange and adaptations of alveoli, ventilation, effects of smoking. Effects of exercise, aerobic and anaerobic respiration.
Forces 2	Weight and mass, Hooke's Law, air resistance, friction, floating and sinking.
Earth and Climate	Structure of the Earth, rock types, rock cycle, carbon cycle, Earth's atmosphere, climate change, acid rain, renewable and non-renewable energy resources.
Circuits 2	Series and parallel circuits, current and potential different in series and parallel, resistance.
Ecology	Classification, biodiversity, food chains and webs, pyramids, bioaccumulation, adaptations, competition.

Year 9

Plants and Photosynthesis	Photosynthesis, structure of leaves, gas exchange, water and mineral absorption, testing for starch, maximising photosynthesis.
Reactions of Metals	Reactions of metals with oxygen, water and acid. Reactivity series and displacement series. Extraction of metals.
Motion and Pressure	Resultant and balanced forces, speed, distance-time and velocity-time graphs. Moments, pressure, hydraulics.
Inheritance and Genetics	Continuous and discontinuous variation, inherited and environmental variation, DNA. Theories of evolution and extinction. Classification systems.
Earth's Materials	Extraction of metals; iron and aluminium, uses of limestone, ceramics, polymers and composites. Impacts of extracting and using materials. Recycling.
Waves	Transverse and longitudinal, water waves, EM spectrum.
GCSE bridging unit: Cells and Transport	Plant and animal cells, prokaryotic and eukaryotic cells, specialised cells, microscopy. Stem cells. Diffusion, osmosis and active transport, adaptations of exchange surfaces.
GCSE bridging unit: crude oil and organic chemistry	Formation of fossil fuels, hydrocarbons, combustion, fractional distillation, cracking, alkanes and alkenes, air pollution.
GCSE bridging unit: Particle Model	States of matter and changes of state, internal energy, specific latent heat, specific heat capacity, density, pressure in gases.