Key stage 4 – Year 10 Combined Science: Long-Term Plan - Academic Year 2024 – 2025

Term	Topic	Science	What will you learn about?
Autumn 1	Atomic structure and *Radiation*	Chemistry/ *Physics*	❖ *Atomic structure* ❖ A simple model of the atom, symbols, relative atomic mass, electronic charge and isotopes ❖ *Atoms and nuclear radiation* ❖ The periodic table
Autumn 1	Cell Biology	Biology	❖ Cell structure ❖ Cell division ❖ Transport in cells
Autumn 2	Particle model of matter	Physics	❖ Changes of state and the particle model ❖ Internal energy and energy transfers ❖ Particle model and pressure
Autumn 2	Organisation:	Biology	❖ Principles of organisation ❖ Animal tissues, organs and organ systems ❖ Health issues ❖ Plant tissues, organs and systems
Spring 1	Bonding and structure.	Chemistry	❖ Chemical bonds, ionic, covalent and metallic ❖ How bonding and structure are related to the properties of substances ❖ Structure and bonding of carbon
Spring 1	Energy	Physics	❖ Energy changes in a system, and the ways energy is stored before and after such changes ❖ Conservation and dissipation of energy ❖ National and global energy resources
Spring 2	Electricity	Physics	❖ Current, potential difference and resistance ❖ Series and parallel circuits ❖ Domestic uses and safety
Spring 2	Energy changes	Chemistry	❖ Exothermic and endothermic reactions
Spring 2	Infection and response	Biology	❖ Communicable (infectious) diseases ❖ Human defence systems ❖ Vaccination ❖ Antibiotics and painkillers ❖ Discovery and development of drugs
Summer 1	Quantitative Chemistry	Chemistry	❖ Chemical measurements, conservation of mass and the quantitative interpretation of chemical equations ❖ Use of amount of substance in relation to masses of pure substances (HT) ❖ Concentration of solutions
Summer 1	Chemical changes	Chemistry	❖ Reactivity of metals ❖ Reactions of acids ❖ Electrolysis
Summer 2	Bioenergetics	Biology	❖ Photosynthetic reaction ❖ Rate of photosynthesis ❖ Uses of glucose from photosynthesis ❖ Respiration ❖ Response to exercise ❖ Metabolism
Summer 2	**Revision for end of year exams**		

Key stage 4 – Year 11 Combined Science: Long-Term Plan - Academic Year 2024 – 2025

Term	Topic	Science	What will you learn about?
Autumn 1	Electricity	Physics	❖ Current, potential difference and resistance ❖ Series and parallel circuits ❖ Domestic uses and safety
Autumn 1	Homeostasis	Biology	❖ Homeostasis ❖ The human nervous system ❖ Hormonal coordination in humans
Autumn 1	Waves	Physics	❖ Waves in air, fluids and solids ❖ Electromagnetic waves
Autumn 2	Rates Of Reaction	Chemistry	❖ Rate of reaction ❖ Reversible reactions and dynamic equilibrium
Autumn 2	Organic Chemistry	Chemistry	❖ Carbon compounds as fuels and feedstock ❖ Fractional distillation and petrochemicals ❖ Cracking and alkenes
Autumn 2	Chemical Analysis	Chemistry	❖ Purity, formulations and chromatography ❖ Identification of common gases
Autumn 2	Forces	Physics	❖ Forces and their interactions ❖ Work done and energy transfer ❖ Forces and elasticity ❖ Forces and motion ❖ Momentum (HT only)
Spring 1	Inheritance, Variation and Evolution	Biology	❖ Reproduction ❖ Variation and evolution ❖ The development of understanding of genetics and evolution ❖ Classification of living organisms
Spring 1	Chemistry Of the Atmosphere	Chemistry	❖ The composition and evolution of the Earth's atmosphere ❖ Carbon dioxide and methane as greenhouse gases ❖ Common atmospheric pollutants and their sources
Spring 1	Using Resources	Chemistry	❖ Using the Earth's resources and obtaining potable water ❖ Life cycle assessment and recycling
Spring 1	Magnetism And Electromagnetism	Physics	❖ Permanent and induced magnetism, magnetic forces and fields ❖ The motor effect
Spring 2	Ecology	Biology	❖ Adaptations, interdependence and competition ❖ Organisation of an ecosystem ❖ Biodiversity and the effect of human interaction on ecosystems
Summer	**Revision And Exams**	**13 May 2025 Biology P1 9 June 2025 Biology P2**	**19 May 2025 Chemistry P1 13 June 2025 Chemistry P2**	**22 May 2025 Physics P1 16 June 2025 Chemistry P2**

Key stage 4 – GCSE Biology -Term Plan - Academic Year 2024 – 2025

Term	Topic	What will you learn about?
Autumn 1	Cell Biology	❖ Cell structure ❖ Cell division ❖ Transport in cells
Autumn 1	Organisation:	❖ Principles of organisation ❖ Animal tissues, organs and organ systems ❖ Health issues ❖ Plant tissues, organs and systems
Autumn 2	Infection and response	❖ Communicable (infectious) diseases ❖ Human defence systems ❖ Vaccination ❖ Antibiotics and painkillers ❖ Discovery and development of drugs
Autumn 2	Bioenergetics	❖ Photosynthetic reaction ❖ Rate of photosynthesis ❖ Uses of glucose from photosynthesis ❖ Respiration ❖ Response to exercise ❖ Metabolism
Spring 1	Homeostasis	❖ Homeostasis ❖ The human nervous system ❖ Hormonal coordination in humans
Spring 1	Inheritance, Variation and Evolution	❖ Reproduction ❖ Variation and evolution ❖ The development of understanding of genetics and evolution ❖ Classification of living organisms
Spring 2	Ecology	❖ Adaptations, interdependence and competition ❖ Organisation of an ecosystem ❖ Biodiversity and the effect of human interaction on ecosystems
Summer	**Revision And Exams**	➢ **13 May 2025 Biology P1** ➢ **9 June 2025 Biology P2**