BRANNEL SCHOOL
EXCELLENCE | CREATIVITY | COMMUNITY

Curriculum Summary Document

Year 10 – Separate Sciences

Module/Unit of Learning	Taught During	What will students learn?	How does this prepare students for success at GCSE?	Links to other Subjects
Recap of Year 9 Key Concepts	Autumn 1	Students consolidate core ideas from cells, atomic structure, energy, and forces. They revisit required practical techniques and strengthen accuracy in data handling and graph interpretation.	Re-establishes secure conceptual foundations and fluency with key representations, enabling students to progress into deeper Separate Science content with confidence.	Maths: graphing and proportional reasoning
Homeostasis (Biology)	Autumn 1	Students study nervous and endocrine control, reflex actions, and internal regulation. They analyse hormonal feedback systems and the impact of disruption on organism function.	Supports structured multi-step explanations and prepares students for extended responses requiring sequencing of biological processes.	Oracy: clear spoken explanation of biological pathways
Chemical Changes (Chemistry)	Autumn 1– Autumn 2	Students analyse reactions of acids with metals, bases and carbonates. They interpret reactivity patterns and represent reactions using balanced symbol equations.	Strengthens symbolic fluency and accuracy in applying reaction theory required for GCSE exam success.	Maths: ratio and balancing equations
Electricity (Physics)	Autumn 2	Students construct and analyse circuit behaviour in series and parallel. They apply equations involving current, potential difference, resistance and power.	Develops multi-step calculation fluency and supports confidence in interpreting circuit diagrams in exam contexts.	Maths: equation rearrangement
Quantitative Chemistry (Chemistry)	Autumn 2	Students calculate relative formula mass, concentration, moles and percentage yield. They apply multi-step reasoning to practical and abstract scenarios.	Prepares students for high-tariff questions involving calculation, justification and evaluation of method.	Maths: multi-step calculations
Energy Changes (Chemistry)	Spring 1	Students interpret energy profile diagrams and link bond energies to reaction energetics. They evaluate data from practical investigations.	Builds confidence in evaluating evidence and constructing clear causal explanations in extended responses.	Maths: data interpretation
Forces (Physics)	Spring 1	Students study resultant force, acceleration, momentum and motion graphs. They relate measured quantities to physical models.	Strengthens analytical reasoning required for multi-stage calculation and graph interpretation at GCSE.	Maths: gradient and rate of change

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Inheritance, Variation and Evolution (Biology)	Spring 1–Spring 2	Students study DNA structure, genes, alleles, inheritance patterns and evolution. Separate Science depth includes gene expression, genetic technologies and evidence evaluation.	Supports high-level explanation, comparison and evaluative argument required in extended written responses.	History: development of scientific ideas
Rates of Reaction (Chemistry)	Spring 2	Students investigate how temperature, concentration, catalysts and surface area influence reaction rate. They analyse graphical representations to justify conclusions.	Builds skill in linking particle models to quantitative evidence, supporting 'explain' and 'evaluate' exam questions.	Maths: interpreting rate graphs
Organic Chemistry (Chemistry)	Summer 1	Students study hydrocarbons, functional groups, reaction pathways and polymerisation. They apply systematic nomenclature and analyse how structure influences properties.	Prepares students for GCSE questions requiring precise use of chemical terminology and structural representation.	Geography: environmental implications of polymers
Waves and Magnets (Physics)	Summer 1	Students model waves and investigate electromagnetism, magnetic fields and induced potential. They interpret diagrams and link models to observed phenomena.	Strengthens representational reasoning essential for applying abstract models in exam contexts.	Maths: wave and field relationships
Ecology (Biology)	Summer 2	Students analyse ecosystem interactions, biodiversity and sustainability. Separate Science depth includes trophic efficiency and biomass calculations.	Prepares students for data interpretation and evaluative reasoning required in higher-tariff questions.	Geography: ecosystems and resource impact
Chemical Analysis (Chemistry)	Summer 2	Students use qualitative and instrumental methods to identify ions and substances. They interpret chromatograms and flame test results.	Develops precision in observation, data interpretation and evaluation of evidence, directly supporting required practicals and 6-mark exam questions.	Maths: interpreting chromatographic Rf values
Space Physics (Physics)	Summer 2	Students study the life cycle of stars, redshift, and theories of the universe. They interpret astronomical evidence and evaluate scientific models.	Builds evaluative judgement and confidence applying knowledge to unfamiliar contexts in exam scenarios.	Geography: scale and observation of Earth and space