BRANNEL SCHOOL
EXCELLENCE | CREATIVITY | COMMUNITY

Curriculum Summary Document

Year 11 – 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
Ecology (Biology)	Autumn 1	Students analyse interactions within ecosystems, including interdependence, competition and biodiversity. They interpret population and biomass data and evaluate human impacts and conservation strategies.	Strengthens data interpretation and evaluative reasoning needed for high-tariff GCSE biology responses.	Geography: human impact on ecosystems
Organic Chemistry (Chemistry)	Autumn 1	Students study homologous series, functional groups, reaction pathways and polymerisation. They apply systematic nomenclature and analyse how structure influences properties.	Develops precision in chemical representation and structured explanation required for GCSE chemistry exam questions.	Maths: interpreting molecular formulae
Forces (Physics)	Autumn 1	Students analyse resultant force, acceleration, momentum and motion graphs. They relate measured quantities to mathematical models describing motion.	Supports multi-step quantitative reasoning and clear interpretation of motion graphs required for GCSE physics.	Maths: gradients and rates of change
Chemical Analysis (Chemistry)	Autumn 2	Students use qualitative and instrumental methods to identify ions and substances. They interpret chromatograms, spectra and test results.	Strengthens observational precision and data interpretation needed for required practical and extended analysis questions.	Maths: calculating Rf values
Waves (Physics)	Autumn 2	Students model waves and investigate reflection, refraction and diffraction. They interpret wave diagrams and apply equations linking frequency, wavelength and speed.	Builds representational reasoning and confidence in applying models across unfamiliar contexts in exams.	Maths: interpreting and comparing graphs
Inheritance, Variation & Evolution (Biology)	Spring 1	Students review DNA structure, genes, alleles, inheritance patterns and natural selection. Separate Science depth includes genetic technologies and critical evaluation of evidence.	Supports clear reasoning and structured extended writing required for higher-level GCSE biology responses.	History: development of scientific models

BRANNEL SCHOOL
EXCELLENCE | CREATIVITY | COMMUNITY

Curriculum Summary Document

Year 11 – Separate Sciences

Magnetism & Electromagnetism (Physics)	Spring 1	Students study magnetic fields, electromagnets, motors and induced potential. They link field models to observable effects and practical systems.	Develops fluency in applying abstract models to real systems, supporting explanation-based exam questions.	Maths: proportional relationships in field strength
Atmosphere (Chemistry)	Spring 2	Students examine the composition and evolution of the atmosphere and analyse causes of climate change. They evaluate scientific claims and mitigation strategies.	Supports evaluative argument and balanced written reasoning expected in GCSE extended responses.	Geography: climate science and environmental change
Resources (Chemistry)	Spring 2	Students analyse material life cycles, recycling, sustainability and environmental cost. They interpret data to inform evidence-based conclusions.	Builds evaluative judgement and evidence-based decision-making skills required in GCSE chemistry.	Geography: sustainability and resource management
Space (Physics)	Summer 1	Students study the life cycle of stars, redshift and cosmological models. They interpret astronomical evidence and consider uncertainty in scientific explanation.	Strengthens ability to apply scientific models to unfamiliar contexts and justify conclusions in exam scenarios.	Geography: scale and observation
Revision and Exam Preparation	Summer 1–2	Students consolidate key knowledge across biology, chemistry and physics. They rehearse structured extended responses, refine required practical recall and apply exam command words accurately.	Directly prepares students for terminal examinations through retrieval, practice and feedback cycles.	Oracy: verbal rehearsal of structured scientific explanations