

Year 11 Combined Science 2026/2027

Curriculum Intent

We believe that students deserve a broad and ambitious Science curriculum that enriches their scientific knowledge, practical skills and understanding of the world around them. Our curriculum is sequenced to build upon knowledge acquired throughout Key Stages 1, 2 and 3, ensuring students develop secure understanding of the key concepts required for GCSE Combined Science and are well prepared for further study, apprenticeships and employment.

Throughout Year 11, students complete the remaining GCSE content before engaging in an extensive programme of retrieval practice, examination preparation and targeted reteaching informed by assessment data. Practical investigations, mathematical skills, scientific literacy and extended writing are embedded throughout the curriculum to ensure students become confident, analytical and independent scientists.

- Reteach lessons for Foundation Combined Science on Friday Week B.
- Retrieval practice and exam questions embedded within every topic.
- Mock examinations used to identify misconceptions and inform intervention.

Term	Topic	Knowledge and Skills	Assessments	Careers	SMSC	SRE / British Values	Literacy	Character Virtues
Autumn 1	Forces	Investigate contact and non-contact forces, Newton's Laws, resultant force, stopping distances, momentum (Higher), terminal velocity and vehicle safety. Required Practical: Investigating force and extension.	Knowledge retrieval, GCSE exam questions, Exit Ticket.	Mechanical Engineering, Automotive Engineering, Motorsport, Transport Safety,	Social - Working collaboratively during practical investigations.	Rule of Law - Road safety legislation and vehicle standards.	Tier 2 and Tier 3 vocabulary. Mathematical language and graph interpretation.	Resilience, Curiosity, Teamwork

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				Armed Forces.				
	Crude Oil	Formation of crude oil, fractional distillation, hydrocarbons, alkanes, alkenes, cracking, fuels, polymers and sustainability. Required Practical opportunities through distillation demonstrations.	Retrieval quizzes, GCSE questions, Exit Ticket.	Chemical Engineering, Petrochemical Industry, Manufacturing, Materials Science.	Moral - Responsible use of finite resources.	Mutual Respect when considering environmental impacts of industry.	Subject-specific vocabulary including hydrocarbons, fractions and polymers.	Responsibility, Critical Thinking
	Chemistry of the Atmosphere	Development of Earth's atmosphere, greenhouse gases, global climate change, atmospheric pollutants and environmental impact.	Knowledge Retrieval, Exam Practice, Exit Ticket.	Environmental Science, Meteorology, Climate Research, Air Quality Monitoring.	Moral - Human impact on the environment.	Democracy and Individual Liberty when considering environmental policies.	Scientific explanations using precise terminology.	Wisdom, Humanity
Autumn 2	Rates of Reaction	Calculate rates of reaction, collision theory, factors affecting reaction	Retrieval practice, Exit Ticket, GCSE	Pharmaceuticals, Industrial	Social - Collaborative	Rule of Law through regulation of chemical manufacture.	Accurate use of scientific vocabulary	Teamwork, Resilience

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		rates including temperature, concentration, pressure, catalysts and surface area. Higher: Dynamic equilibrium. Required Practical investigating reaction rates.	Chemistry Paper questions.	Chemistry, Food Production, Manufacturing.	economic, practical, investment.		and command words.	
	Magnetism and Electromagnetism	Permanent and induced magnets, magnetic fields, electromagnets, motor effect, generators and transformers.	Exit Ticket, Physics exam questions.	Electrical Engineering, Renewable Energy, Electronics, Robotics.	Social - Appreciating technological developments.	Individual Liberty through safe practical work.	Tier 2 and Tier 3 vocabulary displayed and revisited.	Focus, Resilience
	Waves	Properties of transverse and longitudinal waves, electromagnetic spectrum, wave behaviour, required practicals,	Knowledge Retrieval, Exit Ticket, Physics Paper questions.	Telecommunications, Medical Imaging, Acoustics, Civil	Cultural - Appreciating scientific develop	Individual Liberty through independent practical work.	Development of disciplinary language including describe, explain	Curiosity, Teamwork

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		applications and hazards.		Engineering.	Implements improving society.		and compare.	
Spring 1	Chemical Analysis	Pure substances, formulations, chromatography, gas tests, flame tests, instrumental methods (Higher). Required Practical: Chromatography.	Retrieval quizzes, Exit Ticket, GCSE exam questions.	Forensic Science, Analytical Chemistry, Food Safety, Quality Assurance.	Social - Importance of accurate scientific evidence.	Rule of Law through forensic applications.	Scientific vocabulary relating to analytical techniques.	Accuracy, Integrity
	Using Resources (Chemical Resources)	Sustainable development, life cycle assessments, potable water, wastewater treatment, corrosion, alloys, ceramics, composites and recycling. Required Practical: Producing potable water.	Knowledge Retrieval, Exit Ticket, Chemistry exam questions.	Environmental Engineering, Water Industry, Recycling Technologies,	Moral - Sustainable use of Earth's resources.	Mutual Respect when evaluating environmental decisions.	Subject terminology and extended written explanations.	Responsibility, Critical Thinking

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				Construction.				
Spring 2	Mock Examination Review and Reteaching	Targeted reteaching informed by mock examination analysis. Focus on misconceptions, required practicals, mathematical skills, application of knowledge and examination technique across Biology, Chemistry and Physics.	Past GCSE Papers, Retrieval Practice, Walking Talking Mocks, Personalised Intervention.	Preparation for further education, apprenticeships and STEM careers.	Social - Developing confidence and resilience through reflection.	Individual Liberty by taking ownership of improvement.	Extended responses, command words, disciplinary vocabulary and exam literacy.	Determination, Independence, Resilience
Summer 1	Final GCSE Preparation	Consolidation of key concepts, retrieval practice, exam technique, required practical review, mathematical skills and personalised intervention based on ongoing assessment.	Full GCSE Practice Papers, Knowledge Retrieval, Low Stakes Quizzes.	All STEM careers through mastery of scientific knowledge and problem-solving.	Developing confidence and perseverance.	Responsibility for independent revision and preparation.	Scientific literacy and examination command words.	Self-discipline, Perseverance

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Summer 2	GCSE Examinations and Reflection	Completion of GCSE examinations followed by reflection on learning, scientific careers and progression opportunities where appropriate.	GCSE Examinations.	A Levels, T Levels, Apprenticeships, Engineering, Healthcare, Environmental Science, Laboratory Science.	Celebrating achievement and personal growth.	Respect, Responsibility and Resilience.	Reflection on progress and communication of scientific understanding.	Pride, Resilience, Ambition