

(Science – Separates) Year 11 Long Term Plan

Rationale (with end points): Throughout the course, the scientific process is taught, with many opportunities to safely plan, risk assess, investigate, record, conclude and evaluate practical investigations, together with the relevant maths skills, and key subject-specific vocabulary that will enable students to be scientifically literate. In Year 11 Biology pupils learn about the topics of homeostasis and response, Inheritance, Variation and Evolution and finally ecology. In Year 11 Chemistry, we complete the course with Rates of Reaction, Hydrocarbons and Chemical Analysis, Atmosphere of the Earth and Using resources. In Year 11 Physics pupils learn about forces, waves and magnetism and electromagnetism.

Term	Topic	Knowledge	Skills	Reading /wider reading
Autumn term 1	<ul style="list-style-type: none"> Biology – B5 Homeostasis & Response Chemistry – C6 – The rate and extent of chemical change Physics – P5 Forces 	<ul style="list-style-type: none"> Hormonal coordination in humans Plant hormones Rate of reaction Reversible reactions and dynamic equilibrium Forces and their interactions Work done and energy transfer Forces and elasticity 	<ul style="list-style-type: none"> Practical Skills - Microscopes Mathematical Skills - Magnification Calculations Extended Writing – Experimental Method 	Wider Reading 1: Selected Article (Scientific Paper/Magazine)
Autumn 2	<ul style="list-style-type: none"> Reteach Week Biology – B6 Inheritance, variation and evolution 	<ul style="list-style-type: none"> Reproduction Variation and evolution Carbon compounds as fuel and feedstocks 	<ul style="list-style-type: none"> Graphical Skills – Charts, graphs and tables. Analysing & Evaluation Skills - Graphs & Calculations 	Wider Reading 2: Selected Article (Scientific Paper/Magazine)

	<ul style="list-style-type: none"> • Chemistry – C7 – Organic chemistry • Physics – P5 Forces 	<ul style="list-style-type: none"> • Reactions of alkenes and alcohols • Synthetic and natural polymers • Moments, levers and gears • Pressure and pressure differences • Forces and motion • Momentum 	<ul style="list-style-type: none"> • Extended Writing – Menstrual Cycle 	
<p style="text-align: center;">Spring 1</p>	<ul style="list-style-type: none"> • Reteach Week • Biology – B6 Inheritance, variation and evolution • Chemistry – C8 – Chemical analysis and C9 – Chemistry of the Atmosphere • Physics – P6 Waves 	<ul style="list-style-type: none"> • Genetics and evolution • Classification of living organisms • Purity, formulations and chromatography • Identification of common gases • Identification of ions • Composition and evolution of Earth's atmosphere • Greenhouse gases • Atmospheric pollutants 	<ul style="list-style-type: none"> • Practical Skills – Experimental Method • Mathematical Skills - Balancing Equations – Ratios 	<p>Wider Reading 3: Selected Article (Scientific Paper/Magazine)</p>

		<ul style="list-style-type: none"> • Waves in air, fluid and solids • Electromagnetic waves • Black body radiation 		
Spring 2	<ul style="list-style-type: none"> • Reteach Week • Biology – B7 Ecology • Chemistry – C10 Using resources • Physics – P7 Magnetism and Electromagnetism • Physics – P8 Space physics 	<ul style="list-style-type: none"> • Adaptations, interdependence and competition • Organisation of an ecosystem • Biodiversity • Trophic levels • Food production • Earths resources and Potable water • Life cycle assessment and recycling • Using materials • The Haber process and NPK fertilisers • Permanent and induced magnetism • The motor effect • Induced potential, transformers and National grid • Solar system • Red-shift 	<ul style="list-style-type: none"> • Analysing & Evaluating Skills – Renewable Energy resources • Mathematical Skills - Multi-step calculations • Graphical Skills – Describing trends 	<p>Wider Reading 4: Selected Article (Scientific Paper/Magazine)</p>

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Summer 1	<ul style="list-style-type: none"> GCSE External Exams 	<ul style="list-style-type: none"> GCSE External Exams 	<ul style="list-style-type: none"> Extended writing – Evaluate Bioleaching & Phytomining 	Wider Reading 5: Selected Article (Scientific Paper/Magazine)
Summer 2	<ul style="list-style-type: none"> GCSE External Exams 	<ul style="list-style-type: none"> GCSE External Exams 	<ul style="list-style-type: none"> Mathematical Skills – Wave property calculations Practical Skills – Angle measurements Practical Skills – Building Circuits and taking measurements. Mathematical Skills - Calculations & Rearranging Formulae 	Wider Reading 6: Selected Article (Scientific Paper/Magazine)