

Mulberry Academy Woodside

Science

Curriculum Overview 2025 - 2026

Curriculum intent statement:

Our Science curriculum is driven by **ambition** and the pursuit of **academic excellence** for all students. We provide a **challenging, inclusive, and knowledge-rich** learning experience that inspires curiosity and develops a deep understanding of biology, chemistry, and physics. Students are **empowered** to think critically, apply scientific principles to real-world contexts, and appreciate the role of science in society. Through practical skills, problem-solving, and analytical thinking, we prepare all learners to **achieve** their full **potential** and progress confidently to further study and STEM careers.

KS4 Edexcel		AUTUMN TERM		SPRING TERM		SUMMER TERM	
		TERM 1A	TERM 1B	TERM 2A	TERM 2B	TERM 3A	TERM 3B
YEAR 10	KNOWLEDGE	Biology Paper 1: <i>Unit 2: Cells and Genetics</i> <ul style="list-style-type: none"> • Mitosis • Meiosis • Growth in Animals and Plants • Stem Cells • The Nervous System and Reflexes • DNA • Inheritance and Variation Chemistry Paper 1: <i>Unit 2: Particles and Separating Techniques</i> <ul style="list-style-type: none"> • Particle Model • Separating Techniques <i>Unit 3: Chemistry Calculations</i> <ul style="list-style-type: none"> • Solution Calculations • Calculations with Moles <i>Unit 4: Neutralisation</i> <ul style="list-style-type: none"> • Acids and Alkalis • Neutralisation reactions • Solubility 		Physics Paper 1: <i>Unit 2: Energy</i> <ul style="list-style-type: none"> • Energy Stores and Transfers • Energy Efficiency • Kinetic and Gravitational Potential Energy • Energy Resources Biology Paper 1: <i>Unit 3: Evolution</i> <ul style="list-style-type: none"> • Theory of Evolution by Natural Selection • Classification • Genetic Engineering • Artificial Selection • Human Evolution Chemistry Paper 1: <i>Unit 5: Metal Extraction</i> <ul style="list-style-type: none"> • Electrolysis • Metal Reactivity <i>Unit 6: Equilibrium</i> <ul style="list-style-type: none"> • Dynamic equilibrium • Reversible reactions 		Physics Paper 1: <i>Unit 3: Waves and the EM Spectrum</i> <ul style="list-style-type: none"> • Properties of waves • Wave speeds • Refraction • Electromagnetic Spectrum • Use and Dangers of the Electromagnetic Spectrum Biology Paper 1: <i>Unit 4: Health and Disease</i> <ul style="list-style-type: none"> • Non-communicable Diseases • Communicable Diseases • Pathogens • Barriers to Infection • Immune System Response • Antibiotics Physics Paper 1: <i>Unit 4: Radioactivity</i> <ul style="list-style-type: none"> • Atomic Structure • Background Radiation • Radioactive Decay • Types of Radiation • Half-Life • Hazards of Radioactivity 	
	SKILLS	Practical skills: <ul style="list-style-type: none"> • Lab safety • Identifying risks and hazards • Use of a Bunsen burner • Manipulating lab equipment • Planning an experiment • Writing conclusions • Evaluating results • Evaluating experimental techniques Mathematical skills:		Practical skills: <ul style="list-style-type: none"> • Manipulating lab equipment • Measuring accurately • Planning an experiment • Writing conclusions • Evaluating results • Evaluating experimental techniques • Using a data logger Mathematical skills: <ul style="list-style-type: none"> • Calculations and rearranging equations 		Practical skills: <ul style="list-style-type: none"> • Lab safety • Identifying and managing biological hazards • Use of a microscope • Manipulating lab equipment • Planning an experiment • Writing conclusions • Evaluating results • Evaluating experimental techniques 	

		<ul style="list-style-type: none"> • Calculations and rearranging equations • Using standard form • Significant figures and decimal places • Calculations using moles (H) • Calculating numbers of subatomic particles • Use of percentages in calculating relative atomic mass (A_r) and percentage composition • Use of ratios in calculating empirical and molecular formulae • Use of positive and negative numbers in relation to ions • Use of logarithmic scales (pH scale) <p>Literacy Skills</p> <ul style="list-style-type: none"> • Meanings and use of words that are central to understanding scientific concepts • Identifying common prefixes and suffixes to decode keywords 	<ul style="list-style-type: none"> • Use of mathematical symbols (e.g. delta, Δ) • Unit conversions and the use of SI prefixes • Using standard form • Significant figures and decimal places • Drawing half-life graphs <p>Literacy Skills</p> <ul style="list-style-type: none"> • Meanings and use of words that are central to understanding scientific concepts • Identifying common prefixes and suffixes to decode keywords 	<p>Mathematical skills:</p> <ul style="list-style-type: none"> • Calculations and rearranging equations • Using standard form • Unit conversions and the use of SI prefixes • Significant figures and decimal places • Identifying anomalies • Drawing graphs • Identifying and describing trends • Rate calculations <p>Literacy Skills</p> <ul style="list-style-type: none"> • Meanings and use of words that are central to understanding scientific concepts • Identifying common prefixes and suffixes to decode keywords
YEAR 11	KNOWLEDGE	<p>Biology Paper 2</p> <p><i>Unit 1: Plant Biology</i></p> <ul style="list-style-type: none"> • Photosynthesis • Plant Transport Processes • Plant Cell Adaptations <p><i>Unit 2: Hormones</i></p> <ul style="list-style-type: none"> • Hormones • The Menstrual Cycle and Hormones • Control of Blood Glucose by Hormones • Type 1 and Type 2 Diabetes <p><i>Unit 3: Respiration</i></p>	<p>Chemistry Paper 2:</p> <p><i>Unit 1: Groups in the Periodic Table</i></p> <ul style="list-style-type: none"> • Group 1 Elements • Group 7 Elements • Group 0 Elements <p><i>Unit 2: Rates of Reaction</i></p> <ul style="list-style-type: none"> • Rates of Reaction • Factors Affecting Rates of Reaction • Catalysts • Endothermic and Exothermic Reactions <p><i>Unit 3: Hydrocarbons</i></p>	<p>Physics Paper 2:</p> <p><i>Unit 1: Energy and Forces</i></p> <ul style="list-style-type: none"> • Work and Power • Interacting Fields • Vector Diagrams <p><i>Unit 2: Electricity and Magnetism</i></p> <ul style="list-style-type: none"> • Circuits • Current, Potential Difference, and Resistance • Transferring Energy • Electrical Safety

	<ul style="list-style-type: none"> • Aerobic Respiration • Adaptations of the Respiratory System • The Circulatory System <p><i>Unit 4: Ecosystems</i></p> <ul style="list-style-type: none"> • Ecosystems • Human Impacts on Ecosystems • Material Cycles 	<ul style="list-style-type: none"> • Crude Oil • Fractional Distillation • Combustion • Cracking • Earth's Early Atmosphere • Climate Change 	<ul style="list-style-type: none"> • Magnetism • Electromagnetism • Motor Effect • Transformers <p><i>Unit 3: Particle Theory</i></p> <ul style="list-style-type: none"> • Kinetic Theory and Density • Specific Heat Capacity and Specific Latent Heat • Kelvin Temperature Scale • Springs and Extension
SKILLS	<p>Practical skills:</p> <ul style="list-style-type: none"> • Lab safety • Identifying and managing biological hazards • Use of a microscope • Manipulating lab equipment • Planning an experiment • Writing conclusions • Evaluating results • Evaluating experimental techniques <p>Mathematical skills:</p> <ul style="list-style-type: none"> • Calculations and rearranging equations • Using standard form • Unit conversions and the use of SI prefixes • Significant figures and decimal places • Identifying anomalies • Drawing graphs • Identifying and describing trends • Rate calculations <p>Literacy Skills</p> <ul style="list-style-type: none"> • Meanings and use of words that are central to understanding scientific concepts • Identifying common prefixes and suffixes to decode keywords 	<p>Practical skills:</p> <ul style="list-style-type: none"> • Manipulating lab equipment • Measuring accurately • Planning an experiment • Writing conclusions • Evaluating results • Evaluating experimental techniques • Using a data logger <p>Mathematical skills:</p> <ul style="list-style-type: none"> • Calculations and rearranging equations • Use of mathematical symbols (e.g. delta, Δ) • Unit conversions and the use of SI prefixes • Using standard form • Significant figures and decimal places • Selecting the correct equation from a given list • Constructing vector diagrams to scale <p>Literacy Skills</p> <ul style="list-style-type: none"> • Meanings and use of words that are central to understanding scientific concepts • Identifying common prefixes and suffixes to decode keywords 	<p>Practical skills:</p> <ul style="list-style-type: none"> • Lab safety • Identifying risks and hazards • Use of a Bunsen burner • Manipulating lab equipment • Planning an experiment • Writing conclusions • Evaluating results • Evaluating experimental techniques <p>Mathematical skills:</p> <ul style="list-style-type: none"> • Calculations and rearranging equations • Using standard form • Significant figures and decimal places • Calculations using moles (H) • Calculating numbers of subatomic particles • Calculating rates of reaction • Identifying and describing trends • Use of positive and negative numbers in relation to calculating energy changes in reactions <p>Literacy Skills</p> <ul style="list-style-type: none"> • Meanings and use of words that are central to understanding scientific concepts • Identifying common prefixes and suffixes to decode keywords