

Year 10 Curriculum Overview [2022-2023]

Subject – Science

Autumn Term	Knowledge & Understanding			Literacy Skills Opportunities for developing literacy skills	Employability Skills [if any]	Assessment Opportunities
	Composites	Components [includes understanding of KEY concepts & subject specific vocab]	Formal Retrieval [if any]			
HT1	Methods of separation and purifying substances	<ul style="list-style-type: none"> Mixtures Filtration Crystallisation Paper Chromatography Distillation Drinking water 	<ul style="list-style-type: none"> KS3 Review 	<ul style="list-style-type: none"> Devise an experiment Compare and contrast 	<ul style="list-style-type: none"> Crystallographer 	
	Key Biological Concepts	<ul style="list-style-type: none"> Enzymes – factors affecting enzyme activity Transport systems Osmosis in potatoes Working Scientifically – graph skills 	<ul style="list-style-type: none"> KS3 Review Enzymes Cells Microscopes 	<ul style="list-style-type: none"> Scientific Research and presentations – Microscopes Specialised Cells extended writing 	<ul style="list-style-type: none"> Microbiologist Jeweller 	
	Conservation of Energy	<ul style="list-style-type: none"> Energy Stores and transfers Energy Efficiency Non-renewable Resources 	<ul style="list-style-type: none"> Energy Stores review 	<ul style="list-style-type: none"> Explain questions Interpreting data 	<ul style="list-style-type: none"> Structural Engineering Personal Trainer 	

		<ul style="list-style-type: none"> • Renewable energy • Keeping warm • Stored energies 				
	Atomic Structure	<ul style="list-style-type: none"> • Atomic Structure • Isotopes 	<ul style="list-style-type: none"> • Y9 Review • Atomic number • Mass number 	<ul style="list-style-type: none"> • Compare and contrast Mendeleev and the modern PT 	<ul style="list-style-type: none"> • Inorganic chemist • Speciation chemist 	
	The Periodic Table	<ul style="list-style-type: none"> • How Mendeleev arranged elements into a periodic table • How elements are arranged in the modern periodic table • 	<ul style="list-style-type: none"> • KS3 Review • Electron configuration 	<ul style="list-style-type: none"> • Extracting information 	<ul style="list-style-type: none"> • 	
HT2	Cells and Control	<ul style="list-style-type: none"> • Mitosis, • Growth in animals • Growth in Plants • Stem Cells • The nervous system • Neurotransmission speeds. 	<ul style="list-style-type: none"> • KS3 Review – Special Cells • Cell differentiation • Transport processes 	Presenting work on the Reflex Arc <ul style="list-style-type: none"> • Extended writing – specialised cells, synapses, reflex arc, 	<ul style="list-style-type: none"> • Neuroscientist 	<p>Assessment point 1 Assesses learning on the following topics: Key Biological Concepts, States of Matter Separation methods, Atomic Structure, The periodic Table, Conservation of Energy</p>
	Forces & Motion	<ul style="list-style-type: none"> • Vectors and Scalars • Acceleration Equations • Velocity – Time Graphs • Newton’s first Law • Mass and Weight 	<ul style="list-style-type: none"> • Y9 review • D-T graphs • Speed Equation • Resultant Forces • Acceleration 	<ul style="list-style-type: none"> • Keywords map • Extracting data 	<ul style="list-style-type: none"> • Engineers – Car design • Crash investigators 	

		<ul style="list-style-type: none"> • Newton's Second Law • Investigating Acceleration 				
	Ionic Compounds	<ul style="list-style-type: none"> • Ionic Bonds, • Ionic Lattices, • Properties of Ionic Compounds. 	<ul style="list-style-type: none"> • Electronic configurations and Ions • Isotopes 	<ul style="list-style-type: none"> • Presenting ionic models and discussing limitations 	<ul style="list-style-type: none"> • 	
HT2 & HT3	Types of substance	<ul style="list-style-type: none"> • Covalent Bonds • Molecular compounds • Allotropes of Carbon • Properties of Metals • Bonding Models. 	<ul style="list-style-type: none"> • Ionic Bonding • The Periodic Table • Types of substance 	<ul style="list-style-type: none"> • Compare and Contrast allotropes of Carbon • Research – graphene • Extended answers 	<ul style="list-style-type: none"> • Metallurgist • Research into Graphene at Manchester University 	

Year 10 Curriculum Overview [2022-23]

Subject – Science

Spring Term	Knowledge & Understanding			Literacy Skills Opportunities for developing literacy skills	Employability Skills [if any]	Assessment Opportunities
	Composites	Components [includes understanding of KEY concepts & subject specific vocab]	Formal Retrieval [if any]			
HT3	Types of substance	<ul style="list-style-type: none"> Molecular compounds Allotropes of Carbon Properties of Metals Bonding Models. 	<ul style="list-style-type: none"> Ionic Bonding The Periodic Table Types of substance 	<ul style="list-style-type: none"> Compare and Contrast allotropes of Carbon Research – graphene Extended answers 	<ul style="list-style-type: none"> Metallurgist Research into Graphene at Manchester University 	
	Genetics	<ul style="list-style-type: none"> Meiosis DNA Structure Alleles Inheritance Gene Mutation 	<ul style="list-style-type: none"> Y9 Review DNA Structure and Variation 	<ul style="list-style-type: none"> Role of Meiosis in reproduction. 	<ul style="list-style-type: none"> DNA analysis Geneticists Medical scientists 	
	Waves	<ul style="list-style-type: none"> Describing waves Wave speeds CP Ripple Tank – investigating waves 	Velocity- time graphs Acceleration Core Practical / Equation <ul style="list-style-type: none"> 	Compare two waves of measuring properties (CP links)	<ul style="list-style-type: none"> Astronauts Radiology technicians Nuclear power plant 	Assessment Point 2 Class Teacher Assessment
	The Electromagnetic Spectrum	<ul style="list-style-type: none"> Electromagnetic Waves Refraction CP Investigating Refraction, 	Waves Review Waves Core Practical <ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Compare two waves of measuring properties (CP links) 	<ul style="list-style-type: none"> Astronauts Radiology technicians Nuclear power plant 	

		<ul style="list-style-type: none"> • The Electromagnetic Spectrum • Using long wavelengths • Using short Wavelengths • EM Radiation dangers. 				on last and current topic
HT4	Acids and Alkalis	<ul style="list-style-type: none"> • Acids, Alkalis and Indicators, • Strong and Weak acids • Bases and Salts, • Making Copper Sulphate Salt • Alkalis and Balancing Equations • Investigating Neutralisation • Reactions of acids with metals • Reactions of acids with carbonates • Solubility. 	<ul style="list-style-type: none"> • KS3 Review Acids & Alkalis • Bonding models • Covalent bonding 	<ul style="list-style-type: none"> • Oral explanations - how to make a salt / investigating neutralisation. 	<ul style="list-style-type: none"> • Analytical Chemist • Laboratory Technician 	
	Natural Selection & Genetic Modification	<ul style="list-style-type: none"> • Evidence of Human Evolution • Darwin's Theory • Classification • Selective Breeding • Genetic Modification 	<ul style="list-style-type: none"> • Y9 Review Evolution • Selective Breeding • Genetic Engineering 	<ul style="list-style-type: none"> • Evaluating processes 	<ul style="list-style-type: none"> • Decision making skills • Zoologist • Evolutionary Biologist 	

<p>HT5</p>	<p>Mock Preparation and examinations</p>	<ul style="list-style-type: none"> • Biology • Chemistry • Physics 	<ul style="list-style-type: none"> • Paper 1 	<ul style="list-style-type: none"> • Key vocabulary and checklists to support literacy during Mocks 		
	<p>Radioactivity</p>	<ul style="list-style-type: none"> • Atomic Models • Inside Atoms • Electrons and Orbits • Background Radiation • Types of Radiation, Radioactive Decay • Half-Life • Dangers of Radioactivity 	<ul style="list-style-type: none"> • Structure of the Atom • Electromagnetic Radiation 	<ul style="list-style-type: none"> • Extended writing: • How evidence has changed the atomic model over time. • Explain how measurements of background radiation help make results valid 	<ul style="list-style-type: none"> • Nuclear Engineer • Decommissioning 	

Year 10 Curriculum Overview [2022-23]

Subject – Science

Summer Term	Knowledge & Understanding			Literacy Skills Opportunities for developing literacy skills	Employability Skills [if any]	Assessment Opportunities
	Composites	Components [includes understanding of KEY concepts & subject specific vocab]	Formal Retrieval [if any]			
HT6	Health, Disease and the development of medicines	<ul style="list-style-type: none"> Health & Disease Non-communicable diseases Cardiovascular disease Pathogens 	<ul style="list-style-type: none"> Drugs and disease 	<ul style="list-style-type: none"> Key vocabulary 	<ul style="list-style-type: none"> Immunologist World Health Organisation Scientific advisor 	<p>Assessment point 3</p> <p>Mock Examinations in Biology, Chemistry and Physics</p>
	Health, Disease and the development of medicines	<ul style="list-style-type: none"> Spreading pathogens Physical and chemical barriers The immune system Antibiotics 	<ul style="list-style-type: none"> Drugs and disease 	<ul style="list-style-type: none"> Extended writing: Explaining how immunisation offers protection 	<ul style="list-style-type: none"> Immunologist World Health Organisation Scientific advisor 	
	Forces & Motion cont'd from HT1	<ul style="list-style-type: none"> Newton's Third Law Momentum Stopping Distances Crash Hazards. 	<ul style="list-style-type: none"> Resultant Forces Newton's Laws 	<ul style="list-style-type: none"> Keywords map Extended writing for a road-safety website 	<ul style="list-style-type: none"> Engineers – Car design Crash investigators 	