

Year 10 Curriculum Overview [2021-2022]
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	Separation Methods	<ul style="list-style-type: none"> Filtration Crystallisation Chromatography Distillation 	<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"> Cells Enzymes Transport systems 	<ul style="list-style-type: none"> KS3 Review Enzymes Cells Microscopes Working scientifically 	<ul style="list-style-type: none"> Scientific Research and presentations – Microscopes Specialised Cells extended writing 	<ul style="list-style-type: none"> Microbiologist Jeweller 	
	Forces & Motion	<ul style="list-style-type: none"> Resultant Forces Newton's Laws of Motion 	<ul style="list-style-type: none"> Y9 review D-T graphs Speed Equation Forces 	<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 	
	Periodic Table	<ul style="list-style-type: none"> Atomic Structure Electron configuration Mendeleev 	<ul style="list-style-type: none"> Y9 Review Atomic number Atomic Structure 	<ul style="list-style-type: none"> Compare and contrast Mendeleev and the modern PT 	<ul style="list-style-type: none"> Inorganic chemist Speciation chemist 	
	Fighting Disease Review (Y9)	<ul style="list-style-type: none"> Health Immunity Antibiotics Medicine Development 	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 	

HT2	Cells and Control	<ul style="list-style-type: none"> • Cell division • Cell growth • Cell specialisation • The Nervous system 	<ul style="list-style-type: none"> • 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 • 	Assessment point 1 Key Biological Concepts, Separation methods, Forces and Motion
	Waves	<ul style="list-style-type: none"> • Properties • Refraction 	<ul style="list-style-type: none"> • 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 	
	Ionic Compounds	<ul style="list-style-type: none"> • Bonding • Lattices • Properties 	<ul style="list-style-type: none"> • Electronic configurations and Ions • Isotopes 	<ul style="list-style-type: none"> • Presenting ionic models and discussing limitations 		
	Types of substance	<ul style="list-style-type: none"> • Covalent Bonding • Molecules • Allotropes • Metallic Bonding • Models 	<ul style="list-style-type: none"> • Ionic Bonding • The Periodic Table 	<ul style="list-style-type: none"> • Compare and Contrast allotropes of Carbon • Research – C60 discovery 	<ul style="list-style-type: none"> • Metallurgist • Research into Graphene at Manchester University 	

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HT3	Genetics	<ul style="list-style-type: none"> Cell division Alleles Inheritance Mutations 	<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 	Assessment Point 2 Class Teacher Assessment on last and current topic
	The Electromagnetic Spectrum	<ul style="list-style-type: none"> Waves Refraction Long and Short wavelengths Radiation Dangers 	<ul style="list-style-type: none"> Waves Review Waves Core Practical 	<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 	
	Acids and Alkalis	<ul style="list-style-type: none"> Indicators pH and hydrogen Ions Making Salts Solubility Symbol Equations 	<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 & Artificial Selection	<ul style="list-style-type: none"> Evidence of Evolution 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 	
	Masses	<ul style="list-style-type: none"> Formula Moles Relative Formula Mass 	<ul style="list-style-type: none"> Chemical Equations Working Scientifically 			

HT4	Radioactivity	<ul style="list-style-type: none"> The Atom Orbits Radiation Decay & Half-life Dangers 	<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 	
	Forces & Motion cont'd from HT1	<ul style="list-style-type: none"> Newton's Laws of Motion Momentum 	<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 	
	Electrolysis (Separating Compounds)	<ul style="list-style-type: none"> Copper sulphate electrolysis Molten compounds Aqueous Compounds 	<ul style="list-style-type: none"> Ionic compounds Ions Half Equations 		<ul style="list-style-type: none"> Electrical Engineer 	
	Metals	<ul style="list-style-type: none"> Obtaining metals Reactivity REDOX Recycling 	<ul style="list-style-type: none"> Y9 review: The Reactivity series Electrolysis 	<ul style="list-style-type: none"> Collaboration – the future of recycling metals Evaluating biological and non-biological methods of metal extraction. 	<ul style="list-style-type: none"> Mining Mineral extraction metallurgist 	

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HT5	Mock Preparation	<ul style="list-style-type: none"> • Biology • Chemistry • Physics 	<ul style="list-style-type: none"> • Paper 1 	<ul style="list-style-type: none"> • Command Words 		Assessment Point 3 Mock Paper 1 Examinations in Biology, Chemistry and Physics
	Energy	<ul style="list-style-type: none"> • Work • Power • Non-contact Forces • Vectors 	<ul style="list-style-type: none"> • Forcefields 		<ul style="list-style-type: none"> • Structural Engineering • Personal Trainer 	
HT6	<ul style="list-style-type: none"> • Plants 	<ul style="list-style-type: none"> • Photosynthesis • Transport Processes • Cell adaptations • Translocation • Transpiration 	<ul style="list-style-type: none"> • Plant growth and Reproduction 	<p>Extended writing focus:</p> <p>Evaluation – how to improve results / modify investigations – apply knowledge of CP to elodea practical.</p> <ul style="list-style-type: none"> • Explain how mineral ions are transported in plants. Explain how sucrose is transported to storage organs. 	<ul style="list-style-type: none"> • Ecologist • Botanist 	

