

Prior Knowledge Content from Y09	KNOWING WHAT (information, facts & content)						KNOWING HOW (methods and processes)		
	Biology 1. Cell Biology 2. Biodiversity 3. Adaptation and classification 4. Nutrient cycles and decomposition		Chemistry 1. Atomic structure 2. Periodic table 3. Reactivity of metals 1 4. Structure and bonding		Physics 1. Magnets and Electromagnets 2. Particle Model of Matter		Throughout all science units students will be developing skills around: Using scientific vocabulary, terminology, and definitions. Recognise the importance of scientific quantities and understand how they are determined. Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations. Explain everyday and technological applications of science; evaluate associated personal, social, economic, and environmental implications; and make decisions based on the evaluation of evidence and arguments.		
Topic	Term 1			Term 2			Term 3		
	Biology 1	Chemistry 1	Physics 1	Biology 2	Chemistry 2	Physics 2	Biology 3	Chemistry 3	Physics 3
	Digestion and enzymes Respiration / Response to exercise/ Metabolism Heart , blood and blood vessels Nervous system The brain* The eye*	Structures Chemical changes	Energy Waves*	Hormones/reproduction and fertility Homeostasis Photosynthesis and plant organs/ tissues Water and Nitrogen balance* Plant hormones* Food production*	Quantitative chemistry Energy changes in reactions	Electricity	Cells Recap Cell Transport Biodiversity Recap	Atmospheric Chemistry Organic 1	Atomic structure
KNOWLEDGE focus	AOA 8461 Specification points: 4.2.2.1 The human digestive system 4.4.2 Respiration 4.5.2 The human nervous system 4.5.3.4 - 4.5.3.7 Human reproduction	AOA 8462 Specification points: 4.2 Bonding, structure, and the properties of matter 4.4 Chemical changes	AOA 8463 Specification points: 4.1 Energy 4.6 Waves*	AOA 8461 Specification points: 4.2.2.2 - 4.2.2.5 The heart and blood vessels 4.5.1 Homeostasis (topics not covered in Biology 1) 4.4.1 Photosynthesis 4.5.4 Plant hormones* 4.7.5 Food production*	AOA 8462 Specification points: 4.3 Quantitative chemistry 4.5 Energy changes	AOA 8463 Specification points: 4.2 Electricity	AOA 8461 Specification points: 4.6 Inheritance, variation, and evolution	AOA 8462 Specification points: 4.9 Chemistry of the atmosphere 4.7.1 Organic chemistry	AOA 8463 Specification points: 4.4 Atomic structure
METHODS focus	<ul style="list-style-type: none"> Students should be able to use models to explain enzyme action. Carry out practical methodologies. Interpret results of chemical tests. Understand social and ethical issues associated with IVF treatments. Investigations into the effect of exercise on the body. Evaluate the benefits and risks of procedures carried out on the brain* 	<ul style="list-style-type: none"> Visualise and represent 2D and 3D forms. Describe a practical procedure for a specified purpose. Identify the main hazards in specified practical contexts. 	<ul style="list-style-type: none"> Recognise and use expressions in decimal form. Recognise and use expressions in standard form Use an appropriate number of significant figures. Change the subject of an equation. Use an appropriate number of significant figures. 	<ul style="list-style-type: none"> Evaluate risks related to use of blood products. 	<ul style="list-style-type: none"> Opportunities within investigation of mass changes using various apparatus. Recognise and use expressions in decimal form. Recognise and use expressions in standard form Change the subject of an equation. Use scientific equipment to take measurements. Recognise/draw/interpret diagrams. Apply given equations 	<ul style="list-style-type: none"> Recognise and use expressions in decimal form. Recognise and use expressions in standard form Use an appropriate number of significant figures. Change the subject of an equation. Visualise and represent 2D and 3D forms including two dimensional representations of 3D objects. 	<ul style="list-style-type: none"> Interpret and explain the processes in diagrams of the carbon cycle, the water cycle. Interpret graphs used to model predator-prey cycles. 	<ul style="list-style-type: none"> Visualise and represent 2D and 3D forms including two dimensional representations of 3D objects. Investigate the properties of different hydrocarbons. Describe industrial processes 	<ul style="list-style-type: none"> Recognise and use expressions in decimal form. Recognise and use expressions in standard form Use an appropriate number of significant figures. Change the subject of an equation.
Planned ASSESSMENT opportunities	<ul style="list-style-type: none"> In class marked task In class formative assessment End of topic test 	<ul style="list-style-type: none"> In class marked task In class formative assessment End of topic test 	<ul style="list-style-type: none"> In class marked task In class formative assessment End of topic test 	<ul style="list-style-type: none"> In class marked task In class formative assessment End of topic test 	<ul style="list-style-type: none"> In class marked task In class formative assessment End of topic test 	<ul style="list-style-type: none"> In class marked task In class formative assessment End of topic test 	<ul style="list-style-type: none"> In class marked task In class formative assessment End of topic test 	<ul style="list-style-type: none"> In class marked task In class formative assessment End of topic test 	<ul style="list-style-type: none"> In class marked task In class formative assessment End of topic test

Content marked in the specifications for "Biology Only", "Chemistry Only" and "Physics Only" will only be taught to separate science students.
Content marked within this document with a * will only be taught to separate science students.

Prior Knowledge Content from Y10	KNOWING WHAT (information, facts & content)						KNOWING HOW (methods and processes)		
	Biology		Chemistry		Physics		Throughout all science units students will be developing skills around: Using scientific vocabulary, terminology, and definitions. Recognise the importance of scientific quantities and understand how they are determined. Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations. Explain everyday and technological applications of science; evaluate associated personal, social, economic, and environmental implications; and make decisions based on the evaluation of evidence and arguments.		
Topic	Term 1			Term 2			Term 3		
	Biology 1	Chemistry 1	Physics 1	Biology 2	Chemistry 2	Physics 2	Biology 3	Chemistry 3	Physics 3
	Infection and Response DNA & the genome Inheritance and Variation	Rates of reaction & Equilibrium Organic 2	Forces Space Physics*	Evolution and evidence for evolution Theory of evolution and speciation*	Chemical analysis Using resources	Waves			
KNOWLE DGE focus	AOA 8461 Specification points: 4.3 Infection and response 4.6 Inheritance, variation, and evolution	AOA 8462 Specification points: 4.6 The rate and extent of chemical change 4.7 Organic chemistry	AOA 8464 Specification points: 4.5 Forces 4.8 Space Physics	AOA 8461 Specification points: 4.6 Inheritance, variation, and evolution	AOA 8462 Specification points: 4.8 Chemical analysis 4.10 Using resources	AOA 8464 Specification points: 4.6 Waves			
METHODS focus	<ul style="list-style-type: none"> Interpret a diagram of DNA structure Interpret information about genetic engineering techniques and to make informed judgements about issues Explain the benefits and risks of selective breeding given appropriate information and consider related ethical issues. Appreciate that embryo screening and gene therapy may alleviate suffering but consider the ethical issues which arise 	<ul style="list-style-type: none"> Recognise and use expressions in decimal form. Use ratios, fractions, and percentages. Make estimates of the results of simple calculations. Translate information between graphical and numeric form. Drawing and interpreting appropriate graphs from data to determine rate of reaction. Plot two variables from experimental or other data. Determine the slope and intercept of a linear graph. Draw and use the slope of a tangent to a curve as a measure of rate of change. 	<ul style="list-style-type: none"> Plan experiments or devise procedures to make observations and collect data and minimise hazards. Apply and rearrange given equations. Use prefixes milli, micro, kilo and mega. Use standard form fluently Analyse data using equations, gradients and trendlines. 	<ul style="list-style-type: none"> Use the theory of evolution by natural selection in an explanation. 	<ul style="list-style-type: none"> Recognise and use expressions in decimal form. Translate information between graphical and numeric form. Interpret LCAs of materials or products given appropriate information Use ratios, fractions and percentages. Make estimates of the results of calculations. Use an appropriate number of significant figures. Translate information between graphical and numeric form. 	<ul style="list-style-type: none"> Recognise/draw/interpret diagrams of waves Plan experiments or devise procedures to make observations and collect data and minimise hazards. 			
Planned ASSESSMENT opportunities	<ul style="list-style-type: none"> In class marked task In class formative assessment PPE Paper 1 	<ul style="list-style-type: none"> In class marked task In class formative assessment PPE Paper 1 	<ul style="list-style-type: none"> In class marked task In class formative assessment PPE Paper 1 	<ul style="list-style-type: none"> In class marked task In class formative assessment PPE Paper 2 	<ul style="list-style-type: none"> In class marked task In class formative assessment PPE Paper 2 	<ul style="list-style-type: none"> In class marked task In class formative assessment PPE Paper 2 			

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