

Academic outline 2022-23

Subject: A level Biology (AQA)

	Term 1 Aug-Oct	Term 2 Nov-Dec	Term 3 Jan-Feb	Term 4 Mar-Apr	Term 5 Apr-May	Term 6 Jun-Jul
Year 12:	<p><u>Unit 1. Biological Molecules.</u></p> <p>A: Biological molecules</p> <ul style="list-style-type: none"> • Molecules of life • Sugars • Polysaccharides • Lipids • Proteins • Enzymes • Factors affecting enzyme activity • Enzyme controlled reactions <p>B: More Biological Molecules</p> <ul style="list-style-type: none"> • DNA and RNA • DNA Replication • ATP • Water • Inorganic Ions 	<p><u>Unit 2. Cells</u></p> <p>A: Cell Structure and Division</p> <ul style="list-style-type: none"> • Eukaryotic cells and Organelles • Prokaryotic cells and Organelles • Analysis of cell components • Cell division – mitosis • Investigating mitosis <p>B: Cell Membranes</p> <ul style="list-style-type: none"> • Cell membranes • Diffusion • Osmosis • Active transport <p>C: Cells and the Immune System</p> <ul style="list-style-type: none"> • Antigens • The immune response • Immunity and vaccines • Antigenic variation • Antibodies in medicine • HIV and viruses 	<p>Completion of unit 2</p> <p><u>Unit 3. Organisms exchange substances with their environment.</u></p> <p>A: Exchange and Transport Systems</p> <ul style="list-style-type: none"> • Size and surface area • Gas exchange in humans • Effects of lung disease • Gas exchange systems <p>B: More Exchange and Transport Systems</p> <ul style="list-style-type: none"> • Digestion and Absorption • Haemoglobin • The circulatory system • The heart • Cardiovascular disease • Xylems • Phloems 	<p>Completion of unit 3</p> <p><u>Unit 4. Genetic information, variation and relationships between organisms.</u></p> <p>A: DNA, RNA and Protein Synthesis</p> <ul style="list-style-type: none"> • DNA • Genes and chromosomes • RNA and protein synthesis • Transcription and translation • The genetic code and nucleic acids <p>B: Diversity and Selection</p> <ul style="list-style-type: none"> • Meiosis and genetic variation • Mutations • Genetic diversity • Natural selection • The effects of selection • Investigating selection 	<p>Completion of unit 4</p> <p>C: Diversity and Classification</p> <ul style="list-style-type: none"> • Classification of organisms • Courtship behaviour • DNA or protein classification • Using gene technologies to assess genetic diversity • Investigating variation • Biodiversity • Agriculture and biodiversity <p>Reteach of QLA areas unit 1-unit 4.</p> <p>Required practical workshops</p>	<p>Progression PPE's and reteach from PPE's</p>

CURIOSITY

COMPASSION

COURAGE

Year 13	<u>Topic 5: Energy transfers in and between organisms</u>	<u>Topic 6: Responding to changes in environment</u>	<u>Topic 7: Genetics, populations, evolution and ecosystems</u>	<u>Topic 8: Control of gene expression</u>	<u>Exam preparation</u>	A level Exams
	<p>A: Photosynthesis and Respiration</p> <ul style="list-style-type: none"> • Photosynthesis, respiration and energy • Light dependent reaction • Light independent reaction • Limiting factors in photosynthesis • Aerobic and anaerobic respiration • Mitochondrial reactions <p>B: Energy transfers and nutrient cycles</p> <ul style="list-style-type: none"> • Energy transfer in ecosystems • Farming practices and production • Nutrient cycles in natural ecosystems • Fertilisers and eutrophication 	<p>A: Stimuli and Responses</p> <ul style="list-style-type: none"> • Survival and response • Nervous communication • Responses in plants • Receptors • Control of heart rate <p>B: Nervous Coordination</p> <ul style="list-style-type: none"> • Neurones • Synaptic transmission • Muscle structure • Muscle contraction <p>C: Homeostasis</p> <ul style="list-style-type: none"> • Homeostasis • Control of blood glucose concentration • Diabetes • The kidneys • Controlling blood water potential 	<p>A: Genetics</p> <ul style="list-style-type: none"> • Genetic terms • Monohybrid crosses • Multiple allele and dihybrid crosses • Linkage • Epistasis • Chi squared test <p>B: Populations and evolution</p> <ul style="list-style-type: none"> • The hardy Weinberg principle • Variation and selection • Speciation and genetic drift <p>C: Populations in ecosystems</p> <ul style="list-style-type: none"> • Ecosystems • Variation in population size • Investigating populations • Succession • Conservation 	<p>A: Mutations and Gene expression</p> <ul style="list-style-type: none"> • Mutations • Mutagenic agents • Cancer • Stem cells • Regulation of transcription and translation • Epigenetics <p>B: Genome projects and gene technologies</p> <ul style="list-style-type: none"> • Genome projects • Making DNA fragments • Amplifying DNA fragments • Recombinant DNA technology • Gene therapy • Gene probes and medical diagnosis • Genetic fingerprinting 		