

**Biology at Samuel Whitbread Academy**  
**Curriculum Sequencing**

Year 12:

Course	Year	Term	Big Ideas	Subject Learning Checklist
Biology A Level	12	Term 1	Biological Molecules	<i>Condensation and hydrolysis reactions</i> <i>Carbohydrates</i>  <i>Lipids</i>  <i>Proteins</i>  <i>Enzymes and inhibitors</i> <i>DNA</i>  <i>ATP</i>  <i>Water</i>  <i>Inorganic molecules</i>
		(Units taught simultaneously)		<i>Structure of eukaryotic cells</i> <i>Structure of prokaryotic cells</i>  <i>Mitosis and binary fission</i>  <i>Viral replication</i>  <i>Microscopy</i>  <i>Cell transport</i>  <i>Immune system</i>
		Term 2	Exchange surfaces	<i>Surface area to volume ratio</i>  <i>Insects</i>

				<i>Fish</i> <i>Mammals</i> <i>Plants</i> <i>Digestion</i> <i>Mass transport in plants</i>
		(Units taught simultaneously)	Genetics 1	<i>DNA genes and chromosomes</i> <i>Protein synthesis</i> <i>Genetic diversity and mutations</i> <i>Adaptation</i> <i>Species and taxonomy</i> <i>Biodiversity</i> <i>Investigating ecology</i>
		<b>Term 3</b>	Energy transfers in ecosystems	<i>Energy transfers</i> <i>Nutrient cycles</i> <i>Farming</i> <i>Eutrophication</i> <i>Chlorophyll</i>
		(Units taught simultaneously)	Ecology	<i>Succession</i> <i>Biotic and abiotic factors</i> <i>Ecology population studies</i>

				<i>Conservation</i> <i>Human interaction with ecosystems</i>
		(Units taught simultaneously)	Maths for biology	<i>Statistics</i> <i>Analysis</i> <i>Practical maths skills</i> <i>Practice problems</i>

**Year 13:**

<b>Course</b>	<b>Year</b>	<b>Term</b>	<b>Big Ideas</b>	<b>Subject Learning Checklist</b>
<b>Biology A Level</b>	<b>13</b>	<b>Term 1</b>	Genetics 2	<i>Inheritance</i> <i>Dihybrid cross and Mendelian genetics</i> <i>Population studies</i> <i>Evolution</i> <i>Speciation</i>
			Biochemical pathways	<i>Photosynthesis</i> <i>Light dependent and independent reactions</i>

		(Units taught simultaneously)		<i>Limiting factors</i> <i>Respiration</i> <i>Glycolysis</i> <i>Link reaction</i> <i>Krebs cycle</i> <i>Oxidative phosphorylation</i>
		(Units taught simultaneously)		
		<b>Term 2</b>	Responses to change	<i>Survival and response</i> <i>Receptors</i> <i>Control of heart rate</i> <i>Nervous system</i> <i>Synaptic transmission</i> <i>Muscle contraction</i>

		(Units taught simultaneously)		<i>Homeostasis</i> <i>Blood glucose concentration</i> <i>Blood water potential</i>
			Genetic techniques	<i>Mutations 2</i> <i>Gene expression</i> <i>Stem cells</i> <i>Transcription factors</i> <i>RNAi</i> <i>Epigenetics</i> <i>Cancer</i> <i>Genome projects</i> <i>Recombinant DNA technology</i> <i>Gene treatment and therapy</i> <i>forensics</i>
		<b>Term 3</b>	Synoptic deepening	<i>Using the exam techniques and bringing together the entire course to synoptically utilise all skills acquired.</i> <i>Analysing investigative studies</i>
		(Units taught simultaneously)	Essay preparation	<i>Practicing technique for science essay</i>