



Year 13: Biology

Curriculum Intent: Students follow the two-year OCR A-Level (A) Biology specification. Students build on their knowledge from Year 12 and develop their mathematical skills throughout the course. Pupils study Module 5 and 6 of the OCR specification before taking their external examinations. Learning is supported by practical work and students will complete a range of practical assessments (PAGs) during the year which count towards their final qualification. Students are taught by 2 teachers

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Key ideas	<p>Module 5</p> <ul style="list-style-type: none"> • Communication and homeostasis • Excretion as an example of homeostatic control • Neuronal communication • Hormonal communication 	<p>Module 5</p> <ul style="list-style-type: none"> • Neuronal communication • Hormonal communication • Respiration • Plant and animal responses. • Photosynthesis 	<p>Module 5</p> <ul style="list-style-type: none"> • Photosynthesis <p>Module 6</p> <ul style="list-style-type: none"> • Cellular control • Patterns of inheritance • Manipulating hormones • Cloning and biotechnology 	<p>Module 6</p> <ul style="list-style-type: none"> • Patterns of inheritance • Cloning and biotechnology 	<p>Module 6</p> <ul style="list-style-type: none"> • Patterns of inheritance • Cloning and biotechnology • Students will undertake a period of revision in lessons for their external examinations 	Students undertake their final Exams during the Summer exam series.
Sequence of Learning (taught by 2 teachers)	<p>Module 5</p> <ul style="list-style-type: none"> • The need for communication systems and homeostasis. • Temperature control and endotherms and exothermic. • Roles of sensory receptors. • The structure and function of neurons. • Action potentials and transmission of nerve impulses, 	<p>Module 5</p> <ul style="list-style-type: none"> • The mammalian nervous system and the brain. • Reflex actions and coordinating responses, including controlling the heart rate. • Muscles and muscle contraction. • Plant responses and the control of plant growth. • Tropisms 	<p>Module 5</p> <ul style="list-style-type: none"> • Photosynthesis and factors affecting photosynthesis. <p>Module 6</p> <ul style="list-style-type: none"> • Gene mutations and the regulation of gene expressions. • Genetic control and body plan development. • Genetic variation, including discontinuous and continuous variation. 	<p>Module 6</p> <ul style="list-style-type: none"> • Monogenic and dihybrid inheritance, including multiple alleles, sex linkage, codominance, autosomal linkage and epistasis. • Calculations using Chi-squared and Hardy-Weinberg principle • DNA sequencing • DNA profiling and the polymerase chain reaction. • Electrophoresis 	<p>Module 6</p> <ul style="list-style-type: none"> • Isolating mechanisms. • Artificial selection. • Cloning in plants and animals. • Biotechnology • Microorganism cultures. • Immobilised enzymes. 	

	<ul style="list-style-type: none"> including actions at synapses. Excretion Structure and function of the liver. Structure and function of the kidney, including osmoregulation and kidney failure. Endocrine communication Adrenal glands and the pancreas. Regulation of blood sugar 	<ul style="list-style-type: none"> Commercial use of plant hormones Role of the pancreas in the regulation of blood glucose and diabetes. Cellular respiration and the energy values of different respiratory substrates. Factors affecting the rate of respiration. Role of chloroplast and pigments in Photosynthesis 	<ul style="list-style-type: none"> Monogenic and dihybrid inheritance. 	<ul style="list-style-type: none"> Genetic engineering Gene therapy Cloning 		
Vocabulary	The list of key words is too numerous for inclusion here. The recommended course textbook provides a complete Glossary of key words					
Practical Skills (relevant PAGs)	<ul style="list-style-type: none"> Microscopy to investigate histology of liver and kidney tissue. 	<ul style="list-style-type: none"> Investigating factors affecting the rate of respiration. 	<ul style="list-style-type: none"> PAG 6.3 Chromatography 			