A-level Biology is a stepping stone to future study. The AQA specification allows students to develop their skills and knowledge as well as a passion for Biology that will lay the groundwork for further study in courses, like biological sciences and medicine.

The first year of study will focus on the fundamentals of biology: biological molecules, transport in and out of cells, cell structure and organisation, immunology, DNA replication, protein synthesis, biodiversity and variation.

The second year will build on these fundamental principles; applying them to some important biological processes: photosynthesis and respiration, the endocrine and nervous systems, speciation, ecology, gene technologies and epigenetics.

	Term 1+2	Term 3+4	Term 5+6
YEAR 12 Biology	Biological molecules • Carbohydrates, lipids, proteins, enzymes and the factors affecting enzyme activity Nucleic acids • Structure of DNA and RNA • DNA replication • Energy and ATP • Water Cells • Microscopy • Eukaryotic and prokaryotic cells • Mitosis and the cell cycle Transport across cell membranes • Cell surface membranes • Transport across membranes – Diffusion, active transport, osmosis, co-transport Cell recognition and the immune system • Phagocytosis • T-Lymphocytes and cell mediated immunity • B-Lymphocytes and humoral immunity • Antibodies • Vaccination	Organisms exchange substances with their environment • Gas exchange – in single celled organisms, insects, fish, the leaf and humans • Breathing • Enzymes and digestion Mass transport • Haemoglobin • Mammalian circulatory systems • Heart structure and blood vessels • Cardiac cycle • Mass transport in plants	Genetic information, variation and relationships between organisms • DNA, genes and protein synthesis • Genetic diversity • Biodiversity Energy transfer in and between organisms • Photosynthesis • Respiration • Nutrient cycles

	• HIV	

YEAR 13 Biology	Organisms respond to changes in their environment
	    • Response to stimuli
	    • Plant growth factors
	    • A reflex arc
	    • Receptors
	    • Nervous coordination and muscles
	    • Homeostasis – Feedback, hormones and regulation of blood glucose, blood water potential
	    • Kidneys and their role is osmoregulation
	
	Genetics, populations, evolution and ecosystems
	    • Inheritance – monohybrid, dihybrid, codominance, sex-linkage, autosomal.
	    • Epistasis
	    • The chi-squared test
	
	Populations and evolution
	    • Population genetics
	    • Variation
	    • Natural selection
	    • Speciation
	
	Populations and ecosystems
	    • Competition
	    • Predation
	    • Investigating populations
	    • Succession
	    • Conservation of habitats
		The control of gene expression
		    • Gene mutations
		    • Stem cells and totipotency
		    • Transcription and translation
		    • Epigenetics
		    • Cancer
		
		Recombinant DNA technology
		    • Cloning – in vivo and in vitro
		    • Locating and sequencing genes
		    • Genetic fingerprinting, screening and counselling	