

KS5 Biology Curriculum Map

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 12	Cells Biological molecules	Immunity Nucleic acids Transport across cell membranes	Organisms exchange substances with their environment	Mass Transport Genetic information, variation and relationships between organisms	Mass transport Genetic diversity	Biodiversity Populations in ecosystems
	Biological molecules - Carbohydrates and monosaccharides - Disaccharides and polysaccharides - Starch, glycogen and cellulose - Lipids - Proteins - Enzyme action - Factors affecting enzyme action - Enzyme inhibition	Immunity - Defence mechanisms - Phagocytosis - T Lymphocytes and cell-mediated immunity - B Lymphocytes and humoral immunity - Antibodies - Vaccination - HIV	Exchange - Exchange between organisms and their environment - Gas exchange in single-celled organisms and insects - Gas exchange in fish - Gas exchange in the leaf of a plant - Limiting water loss - Human gas exchange system - Breathing - Exchange in the lungs - Enzymes and digestion - Absorption of the products of digestion	Mass Transport in Animals - Haemoglobin - Transport of oxygen by haemoglobin - Mammalian circulation - Heart structure - Cardiac cycle - Blood vessels and their functions - Transport of water in the xylem - Transport of organic molecules in the phloem - Investigating transport in plants	Mass transport in plants - Transport of water in the xylem - Transport of organic molecules in the phloem - Investigating transport in plants	Biodiversity - Species and taxonomy - Diversity within a community - Species diversity and human activity - Investigating diversity - Quantitative investigations of variation
	Cells - Cell structure - Methods of studying cells - The electron microscope	Nucleic acids - Structure of RNA and DNA - DNA replication - Energy and ATP - Water		Genetic information - DNA, genes and protein synthesis - Genes and the triplet code	Genetic diversity - Mutations - Meiosis and genetic variation - Genetic diversity and adaptation	Populations in ecosystems - Populations in ecosystems - Variation in population size

	• Microscopic measurements and calculations • Eukaryotic cell structure • Cell specialisation and organisation • Prokaryotic cells and viruses • Mitosis • The cell cycle	Transport across cell membranes • Structure of the cell surface membrane • Diffusion • Osmosis • Active transport • Co-transport and absorption of glucose in the ileum		• DNA and chromosomes • the structure of ribonucleic acid • Protein synthesis – transcription and splicing - Protein synthesis - translation	• Types of selection	• Competition • Predation • Investigating populations • Succession • Conservation of habitats
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**Academic
Excellence**

We provide a supportive and challenging environment to ensure our students achieve academic excellence.



Ambition

We have the highest expectations for academic excellence and personal development and work hard to achieve them.

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1
Year 13	Photosynthesis Inheritance	Respiration Inheritance Response to stimuli	Nervous coordination and muscles Homeostasis Populations and evolution	Nervous coordination and muscles The control of gene expression	Exam Preparation
	Photosynthesis - Chloroplasts - Light-dependent reaction - Light-independent reaction - Chromatography - Investigating the light-dependent reaction.	Respiration - Mitochondria - Glycolysis - Link Reaction - Krebs cycle - Oxidative Phosphorylation - Anaerobic respiration - Investigating respiration in single-celled organisms	Response to stimuli - Survival and response - Plant growth factors - A reflex arc - Receptors - Control of heart rate	Nervous coordination and muscles - Neurones - The nerve impulse - Action potential - Synapses - Transmission across a synapse - Structure of skeletal muscles - Contraction of skeletal muscle	Revision Consolidation & AO1 Focus – strengthen core knowledge across all key concepts AO2 Application & Data Handling – Apply knowledge to unfamiliar contexts and interpret data
	Inheritance - Monohybrid inheritance - Probability and genetic crosses - Dihybrid inheritance - Codominance and multiple alleles	Inheritance - Sex linkage - Autosomal linkage - Epistasis - Chi-squared test Response to stimuli - Survival and response - Plant growth factors - A reflex arc - Receptors - Control of heart rate	Homeostasis - Principles of homeostasis - Principles of homeostasis - Hormones and the regulation of blood glucose - Diabetes Populations and evolution - Population genetics	The control of gene expression - Gene expression - gene mutations - stem cells and totipotency - Regulation of transcription and translation - Epigenetic control of gene expression - Gene expression and cancer - Genome projects - Recombinant DNA technology - Producing DNA fragments	AO3 Evaluation & Synoptic Thinking – Develop skills in analysis, evaluation, and drawing conclusions Exam strategy and Final practice – Refine exam technique and boost confidence

			• Variation in phenotype • Natural selection • Effects of selection on evolution • Isolation and speciation	• In vivo gene cloning • In vitro gene cloning • Locating genes, genetic screening and counselling Genetic fingerprinting	
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