Bishop Stopford's School

Curriculum Map Year 12 **Biology**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of work	**Section 1 Biological Molecules** **Section 2 Cells**	**Section 1 Biological Molecules** **Section 2 Cells**	**Section 3 Organisms exchange substances with their environment**	**4 Section 4 Genetic Information, variation and relationships between organisms**	**4 Section 4 Genetic Information, variation and relationships between organisms**	**Revision and Trial Exams** **A2** **Statistical Tests** **• Chi – Square** **• Spearman's Rank** **• T-Test** **Section 5 Energy in and between organisms**
Core Skills	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy
Core Knowledge	Section 1 Biological Molecules Biological molecules • Introduction to biological molecules • Carbohydrates and monosaccharides • Carbohydrates – disaccharides and polysaccharides • Starch, glycogen and cellulose • Lipids • Proteins • Enzyme action • Factors affecting enzyme action • Enzyme inhibition Nucleic Acids • Structure of RNA and DNA • DNA Replication • Energy and ATP • Water and its Functions	Section 2 Cells Cell structure • Methods of studying cells • The electron microscope • Microscopic measurements and calculations • Eukaryotic cell structure • Cell specialism and organisation • Prokaryotic cells and viruses • Mitosis • The cell cycle Transport across membranes • Structure of the cell surface membrane • Diffusion • Osmosis • Active transport • Co-transport and absorption of glucose in the ileum Cell recognition and response • Defence mechanisms • Phagocytosis • T-Lymphocytes and cell mediated immunity • B-Lymphocytes and humoral immunity • Antibodies • Vaccination • Human Immunodeficiency virus (HIV)	Section 3 Organisms exchange substances with their environment 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 • Structure of the human gas exchange system • The mechanism of breathing • Exchange of gases in the lungs • Enzymes and digestion • Absorption of the products of digestion Mass transport • Haemoglobin • Transport of oxygen by haemoglobin • Circulatory system of a mammal • The structure of the heart • The cardiac cycle • Blood vessels and their functions • Transport of water in the xylem • Transport of organic molecules in the phloem • Investigating transport in plants	Section 4 Genetic Information, variation and relationships between organisms DNA, Genes and protein synthesis • Genes and the triplet code • DNA and chromosomes • The structure of ribonucleic acid • Protein synthesis – transcription and splicing • Protein synthesis – translation Genetic diversity • Mutations • Meiosis and genetic variation • Genetic diversity and adaptation • Types of selection Biodiversity • Species and taxonomy • Diversity within a community • Species diversity and human activity • Investigating diversity		All Statistical Tests • Chi – Square • Spearman's Rank • T-Test Energy and ecosystems • Food chains and energy transfer • Energy transfer and productivity • Nutrient cycles • Use of natural and artificial fertilisers • Environmental issues concerning use of nitrogen-containing fertilisers
Assement & Feedback	Formative HL Tasks set on each topics lesson schedule to include preparing presentations, CPAC assessments and presentations End of topic test at end of each unit of study Summative Assessments in January and June					
Link to prior learning	KS 4 National Curriculum	KS 4 National Curriculum	Diffusion, Osmosis and Active Transport Structure of a membrane Structure & function of a protein GCSE Knowledge of Heart, blood vessels and digestion	Structure and formation of nucleic acids GCSE knowledge of protein synthesis, natural selection, classification		