

KS5 Curriculum Mapping

| (A LEVEL BIOLOGY) | | | | | | | | | | | | | |
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| | | Term1 | | Term2 | | Term3 | | | | | | | |
| | | Term 1.1 | Term 1.2 | Term 2.1 | Term 2.2 | Term 3.1 | Term 3.2 | | | | | | |
| 12 | Concept/ Theme | The major biological molecules Studying cells and mitosis | | Other biological molecules The cell membrane | | The immune response DNA and protein synthesis Exchange surfaces | | Genetic diversity and natural selection Mass transport in animals | | Biodiversity Mass transport in plants | | Ecosystems and studying ecosystems | |
| | Knowledge | <u>Biological Molecules</u> <ul style="list-style-type: none"> • Carbohydrates • Testing carbohydrates • Lipids • Testing lipids • Proteins • Testing proteins • Estimating glucose & calibration curves • Enzymes theory • Enzymes factors <u>Cells</u> <ul style="list-style-type: none"> • Eukaryotic cells • Prokaryotic cells • Differentiation • Studying cells and the electron microscope • Studying cells and the light microscope • Cell fractionation and ultracentrifugation • Cell cycle and mitosis • Mid topic assessment | | <u>Biological Molecules</u> <ul style="list-style-type: none"> • Enzymes inhibition • Mid topic assessment • Enzymes required practical • Nucleic acids • DNA replication • Water • Ions • ATP • End of topic assessment <u>Cells</u> <ul style="list-style-type: none"> • Root tip squash required practical • Cell membrane • Transport across the cell membrane • Water potential • Permeability required practical • Phagocytosis • Specific immunity | | <u>Cells</u> <ul style="list-style-type: none"> • Primary & secondary immune response • Vaccines & ethics • HIV • End of topic assessment <u>Variation</u> <ul style="list-style-type: none"> • Genes and Chromosomes • Transcription • Translation • Meiosis • Mutations • Mid topic assessment <u>Exchange</u> <ul style="list-style-type: none"> • Size and surface area • Gas exchange in insects • Gas exchange in plants • Xerophytes • Gas exchange in fish • Gas exchange in mammals • Lung dissection required practical • Digestion | | <u>Variation</u> <ul style="list-style-type: none"> • Genetic diversity • Natural selection and adaptation • Antibiotic resistance • Antibiotic resistance required practical • Species and courtship • Classification <u>Exchange</u> <ul style="list-style-type: none"> • Absorption • Haemoglobin • Oxygen dissociation curve • Mid topic assessment • Circulatory systems • Mammalian circulatory system • Cardiac cycle • Heart dissection • Tissue fluid | | <u>Variation</u> <ul style="list-style-type: none"> • Evidence for classification • Biodiversity • Investigating Biodiversity • Variation investigation • End of topic assessment <u>Exchange</u> <ul style="list-style-type: none"> • Heart disease • Lung disease • Transpiration • Translocation • End of topic assessment | | <u>Genetics to Ecosystems (Y13 unit)</u> <ul style="list-style-type: none"> • Intro to Ecosystems • Animal sampling • Conservation • Conservation data • Pond invertebrate sampling • Plant sampling • Investigating distribution of plant species required practical • Predator prey relationships <u>Year 12 progress assessments & feedback</u> | |

| | Concept/ Theme | Inheritance Taxes, kineses and tropisms Receptors | Populations, natural selection and speciation Nervous coordination and muscles | Photosynthesis Homeostasis | Respiration Mutation to genome | Energy Transfers Gene technology |
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| 13 | Knowledge | <p><u>Genetics to Ecosystems</u></p> <ul style="list-style-type: none"> Review ecosystems Succession Managing succession Inheritance Monohybrid crosses and codominance Dihybrid crosses Sex linkage <p><u>Organisms response</u></p> <ul style="list-style-type: none"> Taxes and kineses Animal behaviour required practical Plants and Tropisms Receptors and the Pacinian Corpuscle Receptors and the eye Eye dissection Control of heart rate Stimuli and Response assessment | <p><u>Genetics to Ecosystems</u></p> <ul style="list-style-type: none"> Autosomal linkage Epistasis Testing theories of inheritance using statistical tests Hardy Weinberg Applying Hardy Weinberg Inheritance assessment Natural selection Speciation Succession and Speciation assessment <p><u>Organisms response</u></p> <ul style="list-style-type: none"> The neurone The action potential How an action potential travels The synapse Muscle structure Sliding filament theory Review of muscles Nervous coordination and muscles assessment | <p><u>Energy Transfers</u></p> <ul style="list-style-type: none"> Photosynthesis and the light dependent reaction Photosynthesis and the light independent reaction Application tasks for photosynthesis Dehydrogenase activity required practical Limiting factors and applications Chromatography of pigments required practical Assessment Photosynthesis <p><u>Organisms response</u></p> <ul style="list-style-type: none"> Homeostasis and Feedback Blood glucose regulation Diabetes The Kidney Urine testing Required practical Assessment Homeostasis | <p><u>Energy Transfers</u></p> <ul style="list-style-type: none"> Respiration and glycolysis Respiration and the Link Reaction Respiration and the Krebs Cycle Respiration and Oxidative Phosphorylation Anaerobic respiration Factors affecting the rate of respiration required practical Assessment Respiration <p><u>The Control of Gene Expression</u></p> <ul style="list-style-type: none"> Mutation Cell potency Regulation of transcription Regulation of translation and siRNA Cancer Epigenetics Using genome projects Assessment mutation to genome | <p><u>Energy Transfers</u></p> <ul style="list-style-type: none"> Biomass and Energy Productivity Improving productivity Nutrient cycles Environment and Eutrophication Assessment Energy & Cycles <p><u>The Control of Gene Expression</u></p> <ul style="list-style-type: none"> Making DNA and PCR Genetic engineering Implications of genetic engineering Gene Therapy DNA probes Assessment Gene technology |
| Extra-curricular | | Weekly after school sessions available for Y12 & Y13 students throughout the year. Tuesdays at 3pm – 4pm in SC01 | | | | |