

Year 10: Separate Biology	Curriculum Intent: Year 10 Biology tackles more complex ideas and concepts in the subject. It builds on the key knowledge from years 7,8 and 9 to link together all the areas of the subject. The learning journey goes from the microscopic; looking at cell level systems and processes within cells such as mitosis, through organism and community level systems, to larger scale global issues facing the world of biology. Procedural knowledge and practical skills are developed further, building on experience with microscopy, osmosis and active transport experiments and sampling. The curriculum in year 10 aims to extend and deepen the understanding of Biology at GCSE					
	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Key ideas and Sequence of Learning	Module 3 – Organism level systems • Maintain water balance • Inside Kidney • Responding to osmotic challenges Module B4 – Community level systems • Ecosystems • Biotic and Abiotic factors • Competition and interdependence • Pyramids of biomass • Efficiency of biomass transfer • Nutrient cycles • Decomposition	Module B5 – Genetics and inheritance • Variation • Sexual and Asexual reproduction • Meiosis • Dominant and recessive alleles • Genetic crosses • History of genetics • Genetic Crosses • Mutation • Natural selection • Evidence of evolution • Classification systems Module B6 – Global Challenges • Food security • Feeding the world • Selective Breeding	Module B6 – Global Challenges • Compare natural selection and selective breeding • Genetic Engineering • Biotechnology in farming • Health and disease • Spread of communicable disease • Prevention of the spread of disease • Human infection • Plant diseases and defence mechanisms • Blood and body defences • Monoclonal antibodies	Module B6 – Global Challenges • Vaccination • Prevention and treatment of disease. • New Medicine • Non-Communicable diseases. • Treatment of Cardiovascular disease. Students will revise and prepare for their Pre Public examinations	Students sit their EoY exams. Students will review their PPE exam papers. Module B6 – Global Challenges • Modern advances in medicine. • Sampling techniques • Biodiversity • Increasing and the loss of Biodiversity • Maintaining biodiversity	Module B6 – Global Challenges Monitoring Biodiversity Student will revisit and revise mor challenging topics
Key Questions	1. Why is it important to	1. What causes mutations?	1. What is selective Breeding?	1. How can vaccines be used to provide	1. How do we use sampling	

	maintain water balance, how is urine produced and how does it change? 2. What do your kidneys look like inside and what does a nephron look like? 3. How does the body control how much urine is produced? 4. How is biomass transported through the ecosystem? 5. How effective is biomass transfer? 6. How are nutrients recycled through the environment? 7. What is the difference between decomposers and detritivore? 8.	2. How does mutations influence phenotype. 3. How does evolution occurs through the process of natural selection. 4. What evidence is there for evolution 5. How do we organise the natural world? 6. What is food security. 7. How can we use selective Breeding to increase food security?	2. What is genetic engineering? 3. How do plants defend themselves against communicable diseases. 4. How are plant diseases detected in the field? 5. What are monoclonal antibodies? 6. How are monoclonal antibodies produced? How are monoclonal antibodies used?	immunity to a disease? 2. How are new medicines discovered. Developed and tested for human use? 3. What is the link between lifestyle choices and some forms of non-communicable diseases? 4. How can different lifestyles, medical treatment and surgical treatments be used for cardiovascular disease?	techniques to study plants animals? 2. How is human activity affecting the Earth's biodiversity 3. What is food security and why is it important?	
Vocabulary	• Homeostasis. • Adrenaline • Lysis • Solute • Nephrons • Tubules • ADH (Anti-diuretic hormone)	• Dominant allele • Environmental variation • Fertilisation • Gametes • Sex cells • Genetic cross • Genetic variation • Genome	• Genetic engineering • Restriction enzymes • Ligase • Vector • Intensive farming • Selective Breeding	• Lymphocytes • Antitoxins • Pathogen • Phagocytes • Placebo • Sterile • Vaccine • Cancer	• Biodiversity • Capture-recapture • Conservation • Deforestation • Ecotourism • Endangered species • Habitat	

	• Bowman's capsule • Loop of Henle • Glomerulus • Cortex • Medulla • Zone of inhibition • Vaccine • Habitat • Interdependence • Mutualism • Parasitism • Population • Predation • Producers • Pyramid of biomass • Trophic level • Abiotic factors • Biomass • Biotic factors • Carbon cycle • Community • Competition • Consumers • Decomposers • Detritivores • Ecosystem • Egestion • Excretion • Habitat	• Genotype • Haploid cells • Heterozygous • Homozygous • Meiosis • Phenotype • Punnett square • Recessive allele • Sexual reproduction • Variation • Zygote • Alleles • Asexual reproduction • Cancer • Clone • Continuous variation • Diploid cells • Discontinuous variation • Mutation • Cancer • Coding DNA • Natural Selection • Evolution • Antibiotic Resistant Bacteria • Advantageous • Antibiotics • Fossils • Extinction • Ancestor • Fossilisation • Anatomy	• Pesticides • Toxins • Foreign Genes • Cross pollination • Donor organism • Host organism • Sticky Ends • Cloning • Plasmid • Antibiotic Resistance • Incubate • Golden Rice	• Ethanol • Tar • Nicotine • Carbon monoxide • Particulates • High blood pressure • Statins • Antiplatelets • Beta blockers • Nitrates • Diabetes • Stent • Bone Marrow • Immunosuppressant • Gene therapy • Alleles • Target cell • Receptor	• Biodiversity • Identification key • Indicator species • Non-random sampling • Random sampling • Sample • Seed bank • Biological control • Biotechnology • Donor organism • Food security • Foreign genes • Sustainable food production	
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		• Molecular Comparison • Species • Artificial Classification • Evolutionary links • Phylogeny • Selective Breeding • Generations • Gene pool • Inheritance • Yield				
Practical Skills	• Kidney Dissection • Investigation Decomposition		• Investigate the spread of disease		• Investigate sampling techniques	