Curriculum Plans: Year 11 (Biology SEPARATE)

	Topic	Knowledge: By the end of the unit students will know:	Skills: What skills will students have developed by the end of this unit?	Key terms: What new key terms and vocabulary will be learnt in this unit?	Summative Assessment: How will pupils be assessed in this unit?
Michaelmas 1	**4.6.1 Reproduction** *(inheritance)*	• Sexual and asexual reproduction • Advantages and disadvantages • Meiosis • DNA structure and function (protein synthesis) and the genome • Inheritance • Inherited disorders (Cystic fibrosis and polydactyly • Sex determination (male and female chromosomes)	• Experimental data evaluation • Comparisons of processes • Evaluation of ethical, economic and social issues concerning embryo screening	Sexual reproduction Asexual reproduction Haploid Diploid Gamete Genome Chromosome Gene Allele Dominant Recessive Homozygous Heterozygous Genotype Phenotype.	TEST_Reproduction
Michaelmas 2	**4.6.2 Variation and evolution** **4.6.3 The development of understanding of genetics and evolution** **4.6.4 Classification of living organisms**	• Variation (differences in the characteristics of individuals in a population) • Mutations • The theory of evolution • Describe the work of Charles drawing and Jean-Baptiste Lamarck • Speciation • Describe the work of Gregor Mendel • Describe the evidence for evolution (antibiotic resistance and fossils) • Extinction • Classification of living organisms	• Use the theory of evolution by natural selection in an explanation • Explain that the theory of evolution by natural selection developed over time and from information gathered by many scientists. • Interpretation of evolutionary trees • Extract and interpret information from charts, graphs and tables • Understanding of how scientific methods and theories develop over time	Mutation Genome Variation Environmental factors Species Natural selection Evolution Charles Darwin Jean-Baptiste Lamarck Gregor Mendel Antibiotic resistance Extinction Carl Linnaeus Kingdom Phylum Class Order Family Genus	EXAM_mock GCSE (mix paper 1 + paper 2 content)

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				Species	
Lent 1	**4.6.2 Variation and evolution** *(manipulating genomes)* **4.7.1 Adaptations, interdependence and competition** **4.7.2 Organisation of an ecosystem** **4.7.4 Trophic levels in ecosystems**	• The process of selective breeding • Advantages and disadvantages of selective breeding • Genetic engineering (production of GM organisms) • Cloning • Advantages and disadvantages of genetically modified organisms and cloning • Interaction between individuals in communities (interdependence and competition) • The impact of biotic and abiotic factors on communities • Adaptations of organisms • Food chain and levels of organisation • Experimental methods to determine population size and abundance • The carbon and the water cycle, including the role of microorganisms in cycling material • Decomposition and the factors affecting decomposition • The impact of environmental changes such as temperature, water availability and atmospheric gas composition on the distribution of organisms • The trophic levels and pyramid of biomass • Energy transfer and biomass transfer between trophic levels	• Explain the benefits and risks of selective breeding given appropriate information and consider related ethical issues. • Interpret information about genetic engineering techniques and to make informed judgements about issues concerning cloning and genetic engineering, including GM crops. • Extract and interpret information from charts, graphs and tables • Interpretation of graphs showing predator-prey cycles • Calculation of efficiency of biomass transfer between trophic levels	Interdependence Communities Population Habitat Ecosystem Biotic Abiotic Stable community Environmental factors Biomass Pyramids of biomass Trophic levels Food chain Transect Quadrats Producers Primary consumers Secondary consumers Tertiary consumers Predator Apex predator prey Mean Mode Median Herbivores Carnivores	TEST_ variation and evolution

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Lent 2	**4.7.3 Biodiversity and the effect of human interaction on ecosystems** **4.7.5 Food production**	• Biodiversity worldwide and within ecosystems • The impact of deforestation and global warming on biodiversity • The impact of pollution and waste management (water, air and land pollution) on biodiversity • The reason and the impact of peat bog destruction • Positive and negative impact of human interaction in an ecosystem • Human efforts to maintain biodiversity • Biological factors affecting food production • Food security: changing demands because of population increase, changing diets, and economical issues. • Evolution and efficiency of farming techniques • Advantages and disadvantages of modern farming techniques • Application of different fishing techniques for stock recovery • The role of biotechnology in food production	• Extract and interpret information from charts, graphs and tables relating to global warming • Evaluation of the environmental implication of deforestation • Evaluation of information given regarding problems caused by human activities • Interpretation of population and food production data to evaluate food security	Biodiversity Peat bog Food security Sustainability Intensive farming	TEST_Human impact and food production
Trinity 1	**Revision**				? EXAM_mock GCSE (Paper 2)
Trinity 2	N/A				N/A