



GCSE Biology Academic Overview 2018-19

Science						
	Term 1.1	Term 1.2	Term 2.1	Term 2.2	Term 3.1	Term 3.1
Year 9	Key Concepts in Biology	Key Concepts in Biology cont. Cells & Control	Cells & Control cont. Genetics	Genetics	Genetics	Natural Selection & Genetic Modification
Year 10	Natural Selection & Genetic Modification cont.	Health, Disease & The Development of Medicines	Plant Structures & Their Functions	Animal Co-ordination, Control & Homeostasis	Animal Co-ordination, Control & Homeostasis cont. Exchange & Transport in Animals	Exchange & Transport in Animals cont.
Year 11	Ecosystems & Material Cycles	Ecosystems & Material Cycles cont.	Exam Preparation	Exam Preparation	Exams	Exams



Year 11 GCSE Biology Curriculum Content Overview 2018-19

Knowledge and Skills Students will be taught to....	Reading, Oracy, Literacy and Numeracy	Assessment
<ul style="list-style-type: none"> <input type="checkbox"/> Understand how ecosystems are organised and affected by both biotic and abiotic factors. <input type="checkbox"/> Understand the roles of the water, carbon and nitrogen cycle and their importance in ecosystems. <input type="checkbox"/> Work scientifically by carrying out a series of 'core practicals', which you will be expected to know about for your examinations. <input type="checkbox"/> Work mathematically, by developing and applying a variety of maths skills throughout the course. 	<p style="text-align: center;">Reading</p> <ul style="list-style-type: none"> • Edexcel combined science text book • Recommended reading texts • CGP revision guide • PLC checklists <hr/> <p style="text-align: center;">Numeracy</p> <ul style="list-style-type: none"> • Recall of key values and quantities • Recall, use and application of equations • Conversion between units • Working with numbers in standard form • Drawing appropriate graphs and tables with suitable scales/ headings and plotting/ recording data • Describing mathematical patterns in experimental data and explaining them using scientific concepts • Perform calculations based on extracting data from both tables and graphs <hr/> <p style="text-align: center;">Oracy and Literacy</p> <ul style="list-style-type: none"> • Key words • Writing a method for core practicals • Six mark questions 	<p style="text-align: center;">Formative</p> <ul style="list-style-type: none"> • Questioning in lessons • Live student performance in lessons followed by questions • Whole class feedback during lessons • Regular peer and self assessment • Book checks for general presentation, work completion and spellings • Low stakes quizzing • Learning checkpoints in between main assessments <p style="text-align: center;">Summative</p> <ul style="list-style-type: none"> • 3 cumulative assessments throughout the year



Assessment Skills, Knowledge and Concepts Map

Key learning questions	Edexcel Combined Science Biology Year 11 Assessment Phase 1
	Ecosystems & Material Cycles
<ul style="list-style-type: none"> <input type="checkbox"/> Describe how an ecosystem is organised and what is meant by 'interdependence'. <input type="checkbox"/> Explain how communities can be affected by biotic and abiotic factors. 	<ul style="list-style-type: none"> <input type="checkbox"/> Describe the different levels of organisation from individual organisms, populations, communities, to the whole ecosystem <input type="checkbox"/> Describe the importance of interdependence in a community <input type="checkbox"/> Explain how communities can be affected by abiotic and biotic factors, including: temperature, light, water, pollutants and competition, predation

Key learning questions	Edexcel Combined Science Biology Year 11 Assessment Phase 2
	Ecosystems & Material Cycles cont.
<ul style="list-style-type: none"> <input type="checkbox"/> Define the terms 'parasitism' and 'mutualism'. <input type="checkbox"/> Explain how to use quadrats and belt transects to investigate how abiotic factors affect population sizes and distribution of organisms. <input type="checkbox"/> Define the term trophic level and explain how energy is transferred between trophic levels. <input type="checkbox"/> Explain some ways in which humans can negatively impact biodiversity in ecosystems. <input type="checkbox"/> Give some benefits of maintaining biodiversity. <input type="checkbox"/> Define the term 'food security'. State some of the factors which affect food security globally. <input type="checkbox"/> Describe how the carbon cycles constantly recycles carbon between the air and living organisms. <input type="checkbox"/> Explain the importance of the water cycle in making water available for living organisms. <input type="checkbox"/> Describe how nitrogen in the air is turned into nitrates, to be taken up by plants. <input type="checkbox"/> Describe the roles of bacteria involved in the nitrogen cycle. <input type="checkbox"/> Explain how crop-rotation and fertilisers can be used to increase nitrates available for plants. <input type="checkbox"/> Define the term 'indicator species'. 	<ul style="list-style-type: none"> <input type="checkbox"/> Describe how the survival of some organisms is dependent on others, including parasitism & mutualism <input type="checkbox"/> Core Practical: Investigate the relationship between organisms and their environment using field-work techniques, including quadrats and belt transects <input type="checkbox"/> Explain how to determine the number of organisms in a given area using raw data from field-work techniques, including quadrats and belt transects <input type="checkbox"/> Bio ONLY: Explain how some energy is transferred to less useful forms at each trophic level and that this affects the number of organisms at each trophic level <input type="checkbox"/> Bio ONLY: Calculate the efficiency of energy transfers between trophic levels and percentage calculations of biomass <input type="checkbox"/> Explain the positive and negative human interactions within ecosystems and their impacts on biodiversity, including: fish farming, non-indigenous species and eutrophication <input type="checkbox"/> Explain the benefits of maintaining local and global biodiversity, including the conservation of animal species and the impact of reforestation <input type="checkbox"/> Bio ONLY: Describe the biological factors affecting levels of food security <input type="checkbox"/> Describe how different materials cycle through the abiotic and biotic components of an ecosystem <input type="checkbox"/> Explain the importance of the carbon cycle, including the processes involved and the role of microorganisms as decomposers <input type="checkbox"/> Explain the importance of the water cycle, including the processes involved and the production of potable water in areas of drought including desalination



<ul style="list-style-type: none"> <input type="checkbox"/> State and explain an example of an indicator species for polluted water and air. <input type="checkbox"/> Explain how temperature, water content and oxygen availability affect the rate of decomposition in food, and in composting. <input type="checkbox"/> State how to calculate the rate of decay. 	<ul style="list-style-type: none"> <input type="checkbox"/> Explain how nitrates are made available for plant uptake, including the use of fertilisers, crop rotation and the role of bacteria in the nitrogen cycle <input type="checkbox"/> HT & Bio ONLY: Evaluate the use of indicator species as evidence to assess the level of pollution, for: polluted water and air quality <input type="checkbox"/> Bio ONLY: Explain the effects of temperature, water content and oxygen availability on the rate of decomposition in food preservation <input type="checkbox"/> Bio ONLY: Explain the effects of temperature, water content and oxygen availability on the rate of decomposition in composting <input type="checkbox"/> Bio ONLY: Calculate rate changes in the decay of biological material
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Key learning questions	Edexcel Combined Science Biology Year 11 Assessment Phase 3
	Examination Preparation
<ul style="list-style-type: none"> <input type="checkbox"/> See all previous curriculum overviews. 	<ul style="list-style-type: none"> <input type="checkbox"/> Use of PPE's and revision materials to prepare for examinations.