Combined Science 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 Combined Science Biology Curriculum Content Overview 2018-19

Knowledge and Skills Students will be taught to….	Reading, Oracy, Literacy and Numeracy	Assessment
▯ Understand how ecostsems are organised and affected by both biotic and abiotic factors. ▯ Understad the roles of the water, carbon and nitrogen cycle and their importance in ecosystems. ▯ Work scientifically by carrying out a series of 'core practicals', which you will be expected to know about for your examinations. ▯ Work mathematicaly, by developing and appling a variety of maths skills throughout the course.	**Reading** • Edexcel combined science text book • Recommended reading texts • CGP revision guide • PLC checklists **Numeracy** • 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 **Oracy and Literacy** • Key words • Writing a method for core practicals • Six mark questions	**Formative** • 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 **Summative** • 3 cumulative assessments throughout the year

ERASMUS DARWIN ACADEMY

Excellence for All

Assessment Skills, Knowledge and Concepts Map

Key learning questions	Edexcel Combined Science Biology Year 11 Assessment Phase 1 Ecosystems & Material Cycles
☐ Describe how an ecosystem is organised and what is meant by 'interdependence'. ☐ Explain how communities can be affected by biotic and abiotic factors.	☐ Describe the different levels of organisation from individual organisms, populations, communities, to the whole ecosystem ☐ Describe the importance of interdependence in a community ☐ 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.
☐ Define the terms 'parasitism' and 'mutualism'. ☐ Explain how to use quadrats and belt transects to investigate how abiotic factors affect population sizes and distribution of organisms. ☐ Explain some ways in which humans can negatively impact biodiversity in ecosystems. ☐ Give some benefits of maintaining biodiversity. ☐ Describe how the carbon cycles constantly recycles carbon between the air and living organisms. ☐ Explain the importance of the water cycle in making water available for living organisms. ☐ Describe how nitrogen in the air is turned into nitrates, to be taken up by plants. ☐ Describe the roles of bacteria involved in the nitrogen cycle. ☐ Explain how crop-rotation and fertilisers can be used to increase nitrates available for plants.	☐ Describe how the survival of some organisms is dependent on others, including parasitism & mutualism ☐ Core Practical: Investigate the relationship between organisms and their environment using field-work techniques, including quadrats and belt transects ☐ Explain how to determine the number of organisms in a given area using raw data from field-work techniques, including quadrats and belt transects ☐ Explain the positive and negative human interactions within ecosystems and their impacts on biodiversity, including: fish farming, non-indigenous species and eutrophication ☐ Explain the benefits of maintaining local and global biodiversity, including the conservation of animal species and the impact of reforestation ☐ Describe how different materials cycle through the abiotic and biotic components of an ecosystem ☐ Explain the importance of the carbon cycle, including the processes involved and the role of microorganisms as decomposers ☐ Explain the importance of the water cycle, including the processes involved and the production of potable water in areas of drought including desalination ☐ 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

Key learning questions	Edexcel Combined Science Biology Year 11 Assessment Phase 3 Examination Preparation
☐ See all previous curriculum overviews.	☐ Use of PPE's and revision materials to prepare for examinations.