



## Year 11 Biology Triple (Separate) Science Course outline

<b>Students have two lessons per cycle taught by specialist Biology teachers.</b> <b>Homework is set one-two per cycle.</b>			
	Topic and approximate duration	Key learning areas	Homework Options: Students will be guided by the class teacher as to which task to complete (according to target grade)
Autumn Term 1	<b>Ecology (AQA)</b>	<p>This term we will complete the Ecology topic. We will explore how humans are threatening biodiversity as well as the natural systems that support it. We will also consider some actions we need to take to ensure our future health, prosperity and well-being. This will include gaining an understanding of the inter-relationship between organisms and the importance of decomposition in ecosystems and communities.</p> <p><b>Assessed practical:</b> Investigation the rate of decomposition (Investigation of population size was completed in Year 10)</p> <p><b>Sub topics include:</b> Biodiversity; human impacts to biodiversity and how to maintain it; sampling techniques; waste management and land use; deforestation; global warming.</p>	Task 1: The impact of humans on biodiversity Task 2: Global warming Task 3: Biodiversity Task 4: Decomposition Task 5: The role of biotechnology
	<b>Nature of landmark assessment</b>	Interim assessment and landmark assessment based on content covered: recall and application questions	
Autumn term 2	<b>Bioenergetics (AQA)</b>	<p>In this term we will explore how plants harness the Sun's energy in photosynthesis in order to make food. This process liberates oxygen which has built up over millions of years in the Earth's atmosphere.</p> <p>Both animals and plants use this oxygen to oxidise food in a process called aerobic respiration which transfers the energy that the organism needs to perform its functions. Conversely, anaerobic respiration does not require oxygen to transfer energy. During vigorous exercise the human body is unable to supply the cells with sufficient oxygen and it switches to anaerobic respiration. This process will supply energy but also causes the build-up of lactic acid in muscles which causes fatigue.</p> <p><b>Assessed practical:</b> Investigating the impact of light intensity on the rate of photosynthesis</p> <p><b>Sub topics include:</b> Photosynthesis, factors affecting photosynthesis, Uses of glucose; aerobic respiration; anaerobic respiration; response to exercise; metabolism</p>	Task 1: Photosynthesis Task 2: Rate of photosynthesis Task 3: Respiration Task 4: The impact of exercise
	<b>Revision</b>	In the 2 <sup>nd</sup> half of term students will focus on revision of topics covered so far: Cell Biology; Organisation; Infection and Response; Inheritance and evolution and Ecology.	Revision based HW tasks
	<b>Nature of landmark assessment</b>	Interim assessment and landmark assessment based on content covered: recall and application questions There will be mock examinations in December.	

Spring term 1	<b>Topic: Homeostasis</b>	<p>In this topic we examine how cells in the body can only survive within narrow physical and chemical limits. They require a constant temperature and pH as well as a constant supply of dissolved food and water. In order to do this the body requires control systems that constantly monitor and adjust the composition of the blood and tissues. These control systems include receptors which sense changes and effectors that bring about changes. In this section we will explore the structure and function of the nervous system and how it can bring about fast responses. We will also explore the hormonal system which usually brings about much slower changes.</p> <p><b>Assessed practical:</b> Investigating the impact of light on the germination of seedlings  <b>Sub topics include:</b> Homeostasis; the nervous system, reflex actions, the brain, the eye, controlling body temperature, hormonal control, controlling blood glucose</p>	<p>Task 1: The nervous system  Task 2: Reflex actions  Task 3: Hormonal vs nervous system  Task 4: Importance of blood glucose control</p>
	<b>Nature of landmark assessment</b>	Interim assessment and landmark assessment based on content covered: recall and application questions	
Spring term 2	<b>Topic: Homeostasis</b>	<p>We will complete this topic by reviewing hormonal coordination in reproduction. Hormonal coordination is particularly important in reproduction since it controls the menstrual cycle. An understanding of the role of hormones in reproduction has allowed scientists to develop not only contraceptive drugs but also drugs which can increase fertility. In addition we will cover how water levels are controlled in the body, the role of the kidneys in this, the impact and treatment of kidney failure. The topic ends by reviewing plant hormones, investigating how plants respond to light and the role of hormones in this.</p> <p><b>Assessed practicals:</b> Investigating the impact of light on the germination of seedlings  <b>Sub topics include:</b> Control of water, the kidneys; kidney failure; hormones and human reproduction; contraception; using hormones for infertility; negative feedback; plant hormones and investigating how they work.</p>	<p>Task 1: The kidneys  Task 2: Treating kidney disease  Task 3: Human reproduction  Task 4: Using hormones for infertility  Task 4: Plant hormones</p>
	<b>Nature of landmark assessment</b>	Interim assessment and landmark assessment based on content covered: recall and application questions	
Summer term	<b>Revision</b>	<p>Before study leave we will revise content and examination application in preparation for the GCSE examinations. This topics are:</p> <ul style="list-style-type: none"> <li>Cell Biology</li> <li>Infection and response</li> <li>Organisation</li> <li>Inheritance and Evolution</li> <li>Bioenergetics</li> <li>Ecology</li> <li>Homeostasis</li> </ul>	