

**TITLE: Biology year 10**

	What should be included	Year 10
<b>Unit</b>	Unit Length	<p style="text-align: center;"><b>Unit 4 Bioenergetics 10 lessons</b></p> <p style="text-align: center;"><b>Unit 5- Homeostasis- Trilogy- 22 lessons, Triple 32 lessons</b></p> <p style="text-align: center;"><b>Paper 1 revision- Summer 2 half term</b></p>
<b>Assessment Objectives</b>	Write out in full the GCSE assessment objectives	<p><b>AO1</b> Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures</p> <p><b>AO2</b> Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures.</p> <p><b>AO3</b> Analyse information and ideas to: interpret and evaluate; make judgements and draw conclusions; develop and improve experimental procedures.</p>
<b>Description of the topic and key learning outcomes.</b>	<p>Unit :</p> <p>Overview: Write a brief description of what the students will learn during this topic.</p>	<p><b>Autumn term- Unit 4 Bioenergetics</b></p> <p><b>Overview: This unit explores how plants harness the sun's energy in photosynthesis in order to make food. The process liberates 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. This section will explore</b></p> <ul style="list-style-type: none"> <li>✓ <b>The process of photosynthesis</b></li> <li>✓ <b>Limiting factors of photosynthesis</b></li> <li>✓ <b>How to increase plant/ crop production</b></li> <li>✓ <b>How the leaf is adapted for photosynthesis</b></li> <li>✓ <b>Aerobic respiration</b></li> <li>✓ <b>Anaerobic respiration in muscle cells and yeast cells</b></li> <li>✓ <b>The body's response to exercise.</b></li> </ul> <p><b>Spring term- Unit 5 Homeostasis</b></p>

		<p><b>Overview:</b> Students must understand that cells in the body can only survive within narrow physical and chemical limits. They require a constant temperature, pH, supply of dissolved substances and water. This section will explore:</p> <ul style="list-style-type: none"> <li>✓ The structure and function of the nervous system, and how it can bring about fast responses.</li> <li>✓ We will also explore the hormonal system, which usually bring about much slower changes.</li> <li>✓ Students must understand how hormonal coordination is particularly important in reproduction as it controls the menstrual cycle and explain how this can be used by scientists to prevent or help increase fertility.</li> </ul> <p><b>Triple only content-</b> The brain, the eye, controlling body temperature, water balance.</p> <p><b>Overview:</b> This section explores communicable and non-communicable diseases. Students need to:</p> <ul style="list-style-type: none"> <li>✓ Describe what pathogens and how they cause infectious disease in both animals and plants.</li> <li>✓ Understand how what they need to survive and reproduce, how they cause damage to tissues and make us ill, and explain our body's defences against them.</li> <li>✓ Explain how vaccination can be used to enhance the body's natural system to prevent certain diseases.</li> <li>✓ Explain how antibiotics can be used to treat bacterial infections.</li> <li>✓ Higher tier students need to explain what antibiotic resistance is and how it occurs.</li> </ul> <p><b>Triple only-</b> Plant defences against disease</p> <p><b>Summer term:</b></p> <p>- <b>Paper 1 revision. Use of pixl, know it, grasp it and think it to cover unit 1 cell biology, unit 2 organisation, unit 3 infection and response and unit 4 bioenergetics.</b></p>
<p><b>Assessment objectives and skills being taught</b></p>	<p>Use abbreviations: AO1, AO2...</p> <p>AO skills that are being taught may differ to the</p>	<p>A01, A02 &amp; A03</p>
<p><b>Milestone assessments</b></p>	<p>A brief description of each assessment paper structure and</p>	<p><u><b>Autumn term:</b></u></p> <p>Half term knowledge audit- Bioenergetics part 1. 1 practical based exam question.</p>

	<p>topics (where relevant) – do for trilogy, add extra for separates.</p>	<p>Bioenergetics end of unit assessment (mixed tier 50 minutes)</p> <p><b>Spring term:</b></p> <p>Half term knowledge audit- bioenergetics and homeostasis part 1. 1 practical based exam question</p> <p>Accumulative end of unit assessment- Bioenergetics and Homeostasis end of unit assessment (mixed tier 1:15 mins)</p> <p><b>Summer term:</b></p> <p>Half term knowledge audit- bioenergetics, homeostasis and inheritance part 1. 1 practical based exam question.</p> <p>Accumulative end of unit assessment- Bioenergetics and Homeostasis and inheritance end of unit assessment (mixed tier 1:15 mins)</p> <p>End of year 10 assessment full paper 1 mock- Cell biology, organisation, infection and response and bioenergetics (foundation and higher 1:15 mins and triple 1:45mins)</p>
<b>Wider reading</b>	<p>Select from a range of activities (in consultation with P McCarthy)</p>	<p>A-S and A-level CGP textbooks (copies in science!)</p> <p>Bodyworlds exhibition- <a href="https://bodyworlds.com/about/philosophy/">https://bodyworlds.com/about/philosophy/</a></p> <p>Research exotic plants that live in extreme environments</p> <p>The human genome project</p> <p>The human genographic project- <a href="https://genographic.nationalgeographic.com/">https://genographic.nationalgeographic.com/</a></p>
<b>Literacy programme</b>	<p>Select from a range of activities (in consultation with P McCarthy)</p>	<p>Learn the meaning and correct spellings of the keywords from units</p> <p>Challenge: Create an etymology chart for the following words: graph and diagram</p>
<b>CIEAG</b>	<p>Teacher, scientific researcher, medicine, doctor, nursing, farming and agriculture, vet</p>	
<b>Wider curriculum links</b>	<p>PE, Health and Social Care, Food technology, Maths, English</p>	
<b>RRSA</b>	<p>Article 6 Every child has the right to life. Governments must do all they can to make sure that children survive and develop to their full potential.</p>	

	<p>Article 15 Every child has the right to meet with other children and to join groups and organisations, as long as this does not stop other people from enjoying their rights.</p> <p>Article 24 Every child has the right to the best possible health. Governments must work to provide good quality health care, clean water, nutritious food and a clean environment so that children can stay healthy. Richer countries must help poorer countries achieve this.</p> <p>Article 27 Every child has the right to a standard of living that is good enough to meet their physical, social and mental needs. Governments must help families who cannot afford to provide this.</p> <p>Article 29 Education must develop every child’s personality, talents and abilities to the full. It must encourage the child’s respect for human rights, as well as respect for their parents, their own and other cultures, and the environment. Article 30 Every child has the right to learn and use the language, customs and religion of their family, regardless of whether these are shared by the majority of the people in the country where they live</p>	
<p><b>Independent Learning Tasks</b></p>	<p>Select from a range of activities (Year 7 to use knowledge organisers)</p>	<p>Knowledge organisers and self-assessment quiz questions for each unit.</p> <p>Pixl independence booklets for each unit (students complete a minimum of 20 credits per week). Completion monitored by staff and self-assessed at the end of the unit.</p> <p>Revision booklets for each unit- Practise GCSE examination questions using revision booklet that contains key point knowledge matts, knowledge questions, ‘grasp it’ questions and exam questions. More able students to also be provided with challenge ‘think it’ questions.</p>