

Yr Group	Topic	Lesson Content (Order)	What do pupils need to know	Skills utilised / subject disciplines	Cross Curricular Links / Transferable knowledge.	Assessment
<p>10 Biology</p> <p>In this section 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. 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</p>	<p>B4 Bioenergetics</p>	<p>Lesson 1 Photosynthesis</p>	<ul style="list-style-type: none"> Name the reactants and products needed for photosynthesis and represent it using a word and symbol equation Describe the uses for the glucose made during photosynthesis Carry out a test for starch and explain the results 	<p>Working scientifically skills – conclusions from the practical work</p>	<p>Literacy - reading for information. Interleaving Opportunity - chlorophyll from 'cells', active transport and osmosis briefly revisited. Test for starch.</p>	<p>Formative assessment opportunities (AfL) Starter quiz assesses KS3 knowledge Exam questions</p>
		<p>Lesson 2: Rate of photosynthesis</p>	<ul style="list-style-type: none"> Identify variables to change, measure and control to test a hypothesis Explain the steps in a given method to test a hypothesis Collect and record data to test the hypothesis Plot a graph of the data collected 	<p>AT skills covered by this practical activity: AT 1, 2, 3, 4 and 5. Maths skills - mean and light intensity calculations, plotting graphs, calculating gradients Working scientifically skills - describing and explaining primary and secondary data (TAN). (HT) These factors interact and any one of them may be the</p>	<p>Literacy – WAGOLLS on PowerPoint Scaffolding- grid provided for method explanations. Give key word bank or sentence starters, provide structured questions rather than the graphs to describe</p>	<p>Formative assessment opportunities (AfL) Exam question Self-assessment of method explanations Self-assessment of mean calculations and light intensity calcs (HT) Self-assessment of graph Discussion and questioning</p>

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.

	<ul style="list-style-type: none"> Describe and explain the relationship between light intensity and rate of photosynthesis Describe and explain the effect of carbon dioxide concentration and temperature on the rate of photosynthesis 	<p>factor that limits photosynthesis. Students should be able to explain graphs of photosynthesis rate involving two or three factors and decide which is the limiting factor.</p>		Graph descriptions
Lesson 3: Manipulating rates of photosynthesis	<ul style="list-style-type: none"> Interpret graphs of photosynthesis rate with multiple factors and decide which is limiting Describe some ways of manipulating conditions for plant growth Evaluate these methods 	<p>(HT) Limiting factors are important in the economics of enhancing the conditions in greenhouses to gain the maximum rate of photosynthesis while still maintaining profit. (HT) These factors interact and any one of them may be the factor that limits photosynthesis. Students should be able to explain graphs of photosynthesis rate involving two or three factors and decide which is the limiting factor.</p>	<p>Literacy. WAGOLL given Scaffolding-Interleaving Opportunity - leaf structure and function of stomata/xylem/phloem from B2 Organisation. Provide them with some previous assessments to identify if progress has been made.</p>	<p>Formative assessment opportunities (AfL) Do now Exam questions Discussion and questioning Evaluation style exam questions</p>
Lesson 4: Respiration and the effects of exercise	<ul style="list-style-type: none"> Define respiration and explain its importance in the body 	<p>Maths skills – percentage change on worksheet, interpretation of secondary data</p>	<p>Literacy. WAGOLL on ppt Scaffolding-Interleaving Opportunity – do</p>	<p>Formative assessment opportunities (AfL) Do now</p>

			<ul style="list-style-type: none"> Describe the changes in the body during exercise Explain why these changes are necessary 	Working scientifically skills – interpreting secondary data	now revisits cell structures and mitochondria. Provide them with some previous cell structure assessments to identify if progress has been made.	Table interpreting secondary data Student task 'respiration'
		Lesson 5: Anaerobic respiration and metabolism	<ul style="list-style-type: none"> Describe the consequences of anaerobic respiration Explain the results of a simple experiment into anaerobic respiration using knowledge and understanding Compare aerobic respiration with anaerobic respiration Define the term metabolism Give examples of reactions in metabolism Describe the formation of lipids, amino acids and urea 	Maths skills – interpretation of data and calculation on exam question Working scientifically skills -	Literacy. Reading for information and summing up – WAGOLLS provided Scaffolding- grid provided Interleaving Opportunity – the products of the digestion of fats, proteins and carbohydrates, enzymes	Formative assessment opportunities (AfL) Do now Exam questions Comparison question
		Lesson 6: Review and Assessment	<ul style="list-style-type: none"> 			EOTT
		Lesson 7: Reteach	<ul style="list-style-type: none"> 			