



# YEAR 13 TERM 1

'An ambitious curriculum that meets the needs of all'

## Medium Term Planning - Topic: The importance of ATP

Curriculum Intent	
Skills/National Curriculum Links	<p>Developing knowledge from GCSE Biology or GCSE Combined Science, pupils will be taught, following National Curriculum guidelines, the following this topic:</p> <ul style="list-style-type: none"> <li>• Chemiosmosis</li> <li>• The mitochondrial and chloroplast membranes</li> <li>• The proton gradient</li> <li>• The electron transport chain</li> </ul> <p>Specified practical work:</p> <ul style="list-style-type: none"> <li>• Investigation of dehydrogenase activity in yeast</li> </ul>
Spiritual, moral, social, and cultural development	<p>SMSC: n/a            PSHE/British Values: n/a            Skills Builder: Practical work, independent investigation, data handling and analysis</p>
Numeracy	
Literacy	<p><b>Vocabulary Tier 2:</b>  <b>Vocabulary Tier 3:</b> ATP, chemiosmosis, coenzyme, dehydrogenase, electron acceptor, ATP synthase, cristae, matrix, thylakoid, inter-granal lamella, stroma grana, electron transport chain  <b>Reading:</b> Students are given opportunity to develop their skills in specified tasks that develop disciplinary literacy. Throughout the A Level Biology course they develop their understanding of the requirements of exam questions and the key terminology in questions. In addition, they read practical methodology and translate this to actions in laboratory tasks.  <b>Writing:</b> Students construct answers independently and through class teaching. Their answers range from single word answers to the planning and writing of 9-mark "extended writing" tasks that require linking of multiple concepts from a topic or across topics. These often develop students' ability to construct written evaluations of contrasting situations, or data, where the use of comparative connectives are required.  <b>Oracy:</b> Students are regularly given the opportunity to practice their scientific vocabulary in class discussion, through choral response, pair or group discussion and in giving instruction to others during practical activities.</p>
Becoming future ready	<p><b>Careers/Employability:</b> A Level Biology students from Crompton House progress on to a wide range of undergraduate degrees, degree apprenticeships and into work. Opportunities to develop effective communication skills, concise written work, following written and verbal instructions as well as extending their problem solving skills are all key skills identified by business leaders for future success.</p>
Adaptation	<p>Throughout this topic, quality first teaching will provide adaptive teaching accessible to all students:</p>
QFT/SEND Provision	<p><b>By product:</b> Assessments have opportunities for students to achieve all grades, with structured questions and opportunities for development of extended writing for all abilities.  <b>By Intervention:</b> by providing different levels of supervision and support in theory and in practical lessons.  <b>By Progressive Questioning:</b> exploring pupils' understanding through interactive dialogue.  <b>By Grouping:</b> according to prior attainment, gender, social preference.  <b>By Task:</b> Pupils are involved in the identification of targets which are meaningful to them and in the selection of an appropriate task to develop specific skills further.  <b>By Offering Optional Activities:</b> In class or as homework, to extend learning.            This QFT/SEND provision will be explicit within the lesson-by-lesson schemes of work.</p>
Implementation Curriculum Delivery	<p>To be able to:</p> <ul style="list-style-type: none"> <li>• Explain that dehydrogenase enzymes produce reduced cofactors, such as reduced NAD, in respiration</li> </ul>

<b>Learning Outcomes (Knowledge)</b>	<ul style="list-style-type: none"> <li>• Understand how the inner membranes of chloroplasts and mitochondria establish proton gradients</li> <li>• Know that electrons pass through a series of carriers to oxygen, the final electron Acceptor</li> <li>• Explain how the action of ATP synthase leads to the production of ATP</li> <li>• Understand the meaning of the term chemiosmosis</li> <li>• Describe how dehydrogenase activity may be monitored with artificial electron acceptors</li> </ul> <p>Red denotes interleaving; aspects of knowledge covered previously.</p>
<b>Current learning to be developed in the future within:</b>	<p>Photosynthesis Respiration</p>
<b>Assessment</b>	<p>Refer to assessment maps for formative and summative assessment opportunities.</p>
<b>Impact</b>	<p>Attainment and Progress – Refer to assessment results / data review documentation.</p>

