



## YEAR 12 TERM 2

'An ambitious curriculum that meets the needs of all'

### Medium Term Planning - Topic: Adaptations for transport in plants

<b>Curriculum Intent</b>	
<b>Skills/National Curriculum Links</b>	<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>• Structure and distribution of vascular tissue</li> <li>• Transport in the xylem</li> <li>• Transpiration</li> <li>• Adaptations of flowering plants to differing water availability</li> <li>• Translocation</li> </ul> <p>Specified practical work:</p> <ul style="list-style-type: none"> <li>• Investigation into transpiration using a simple potometer</li> <li>• Scientific drawing of a dicotyledon leaf</li> </ul>
<b>Spiritual, moral, social, and cultural development</b>	<p>SMSC: n/a</p> <p>PSHE/British Values: n/a</p> <p>Skills Builder: Practical skills, reading a scientific method, recording results</p>
<b>Numeracy</b>	<p>Calculation of transpiration rate</p> <p>Use of appropriate units to describe transpiration rate</p>
<b>Literacy</b>	<p><b>Vocabulary Tier 2:</b> cohesion, adhesion, evaporation,</p> <p><b>Vocabulary Tier 3:</b> xylem, phloem, pericycle, stele, cortex, epidermis, endodermis, mesophyte, xerophyte, hydrophyte, lignin, apoplast, symplast, Casparian strip, transpiration, translocation, potometer, sieve tube,</p> <p><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.</p> <p><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.</p> <p><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>
<b>Becoming future ready</b>	<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>
<b>Adaptation</b>	<p>Throughout this topic, quality first teaching will provide adaptive teaching accessible to all students:</p> <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.</p> <p><b>By Intervention:</b> by providing different levels of supervision and support in theory and in practical lessons.</p> <p><b>By Progressive Questioning:</b> exploring pupils' understanding through interactive dialogue.</p> <p><b>By Grouping:</b> according to prior attainment, gender, social preference.</p> <p><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.</p> <p><b>By Offering Optional Activities:</b> In class or as homework, to extend learning.</p> <p>This QFT/SEND provision will be explicit within the lesson-by-lesson schemes of work.</p>
<b>QFT/SEND Provision</b>	
<b>Implementation Curriculum Delivery</b>	<p>To be able to:</p> <ul style="list-style-type: none"> <li>• Explain why plants need a transport system</li> <li>• Describe the distribution of xylem and phloem in roots, stems and leaves</li> </ul>



<b>Learning Outcomes (Knowledge)</b>	<ul style="list-style-type: none"><li>• Describe the uptake of water and minerals by the root</li><li>• Describe the pathways and mechanisms involved in the movement of water from root to leaf</li><li>• Describe the structure and role of the endodermis</li><li>• Describe the <b>structure of the xylem and the phloem</b> and relate their structure to their functions</li><li>• Describe transpiration and explain how environmental factors affect its rate</li><li>• Explain how hydrophytes and xerophytes have adapted to the prevailing water supply</li><li>• Explain how translocation of organic solutes occurs in plants</li><li>• Know how to use a potometer to investigate transpiration</li></ul> <p>Red denotes interleaving; aspects of knowledge covered previously.</p>
<b>Current learning to be developed in the future within:</b>	
<b>Assessment</b>	Refer to assessment maps for formative and summative assessment opportunities.
<b>Impact</b>	Attainment and Progress – Refer to assessment results / data review documentation.