

### B3 Organising the Digestive System– Science Faculty

Rationale and Context of Unit:	Core curriculum content:	Tier 2 & Tier 3 vocabulary explicitly taught:
<p><i>The role of enzymes is explored further in chemistry, the detail that is needed should be adjusted based on if they have met this first in chemistry or biology.</i></p> <p><i>Recall from year 7 and 9 on specialised cells and brief organisation level will help students understand the detail they need to know for digestive system examples. GCSE B1 will help highlight this detail as well.</i></p> <p><i>The digestive system basic structure is taught in B4. The function and adaptation for efficiency is the extra detail needed to be taught.</i></p> <p><i>Food group and enzymes are met in this unit too. The theory of how enzymes work is not yet known.</i></p> <p><i>Plant transport tissues are briefly met in 9B3. Their detail and location within different plant organs are not well recalled.</i></p>	<ul style="list-style-type: none"> <li>● The organisation of the body form cell to organism</li> <li>● The organisation of the digestive system</li> <li>● The role of enzymes in digestion</li> <li>● The optimum conditions on enzymes and their representation graphically.</li> <li>● Know the food groups, their digested molecules and the specific enzymes.</li> <li>● Know why water, vitamins, minerals and fibre are not digested.</li> <li>● Practical skills: the methodology of food tests</li> <li>● The role of Hydrogen peroxide and its breakdown in the body.</li> <li>● What enzymes are, denaturing and how this can occur.</li> <li>● Lock and key hypothesis</li> <li>● How digestion is efficient (Fick’s Law)</li> </ul>	<ul style="list-style-type: none"> <li>● <i>Metabolism</i></li> <li>● <i>Enzyme</i></li> <li>● <i>Rate</i></li> <li>● <i>Bile 7</i></li> <li>● <i>Lipids</i></li> <li>● <i>Optimum</i></li> <li>● <i>Villi</i></li> </ul>
<p><b>Challenge and Support:</b></p>	<p><b>World wide learning/ links to 21<sup>st</sup> century:</b></p>	<p><b>Cultural capital/ Industry/ Enrichment:</b></p>
<ul style="list-style-type: none"> <li>● <i>The principles of Fick’s law have been met across several Science units, mainly transport. This is where they are</i></li> </ul>	<ul style="list-style-type: none"> <li>● How we have improved food quality and production?</li> </ul>	

<p><i>consolidated and called Fick's Law. Applying this to digestion is a logical leap from other transport examples. The anatomical detail needed to explain each point is very detailed and students often struggle to reach this level of detail.</i></p> <ul style="list-style-type: none"> <li>● <i>Enzyme theory is complex, however covering this in both chem and bio helps understanding.</i></li> <li>● <i>The practical's in this unit give good opportunity to work independently, without teacher leading, raising group and practical skills.</i></li> <li>● <i>Students have a lot of examples to learn and keep clear in their heads. These are commonly mixed up (see common misconceptions box.) Repetition and revision, quick quizzes are all built in to try and help students learn this amount of detail.</i></li> </ul>	<ul style="list-style-type: none"> <li>● <i>The uses of enzymes in everyday life.</i></li> </ul>	<ul style="list-style-type: none"> <li>● <i>The importance of enzymes in industry and production.</i></li> </ul>
<p><b>Historical, Social, Moral, Spiritual, Cultural context:</b></p>	<p><b>Cross curricular links/ literacy/numeracy:</b></p>	<p><b>Common misconceptions:</b></p>
<ul style="list-style-type: none"> <li>● <i>How space exploration and scientific research can lead to unknown areas that improve human quality of life?</i></li> </ul>	<ul style="list-style-type: none"> <li>● <i>Maths, optimums, and graphical interpretation.</i></li> <li>● <i>Literacy: extended writing to explain a theory.</i></li> <li>● <i>Technology: cooking, food groups, &amp; the use of diet foods.</i></li> </ul>	<ul style="list-style-type: none"> <li>● <i>Students commonly confuse several related examples that occur in this topic. These include:</i></li> <li>● <i>Food tests methods and what they are testing for.</i></li> <li>● <i>Which enzyme relates to which substrate and products.</i></li> </ul>

<ul style="list-style-type: none"> <li>● How can diet sugars and other food improvements affect society's issue of obesity?</li> <li>● Should we control diet with legislation?</li> <li>● How is food science perceived?</li> </ul>	<ul style="list-style-type: none"> <li>● Technology: design, the effect of enzymes in production efficiency.</li> <li>● Health and social care: baby nutrition and digestive system development.</li> </ul>	<ul style="list-style-type: none"> <li>● <i>Confusion between xylem and phloem</i></li> <li>● <i>Acid breaks down food is another common misconception.</i></li> <li>● <i>Enzymes die, is often thought as well.</i></li> <li>● <i>Acid is a high pH comes up with the digestive system too.</i></li> </ul>
<b>Assessment timeline:</b>		
<ul style="list-style-type: none"> <li>● <i>regular EPPQs</i></li> <li>● <i>end of unit test</i></li> <li>● <i>EPPQ homework task</i></li> <li>● <i>in lesson questioning and other progress checks</i></li> </ul>		
<b>Home learning</b>		
<ul style="list-style-type: none"> <li>● <i>EPPQ homework booklet</i></li> </ul>		
<b>Feedback</b>		
<ul style="list-style-type: none"> <li>● <i>Students self/peer mark homework booklets and set revision goals based on understanding.</i></li> <li>● <i>Feedback four based on the end of the unit test.</i></li> </ul>		

## **Length of unit (duration indicated in lessons)**

For combined and separate science this unit is the same 8 lessons (7 content and 1 assessment)

**Unit:B3**