

B14 & B15 Variation and Evolution & Genetics and Evolution– Science Faculty		
Rationale and Context of Unit:	Core curriculum content:	Tier 2 & Tier 3 vocabulary explicitly taught:
<p><i>Cloning in plants is first covered in the reproduction unit at GCSE, here it is put into the context of farming.</i></p> <p><i>Stem cell research and its pros and cons are taught in unit 2, this feeds into the cloning knowledge.</i></p> <p><i>Genetic diseases are taught in B13 as is reproduction.</i></p> <p><i>7B7 reproduction provides normal reproduction that can then be adapted to cloning etc.</i></p> <p><i>8B5 genes, covers variation and possible issues in detail.</i></p> <p><i>Genes 2 focuses on natural selection.</i></p>	<ul style="list-style-type: none"> <li>• Variation types and how it is caused in organisms</li> <li>• The process of evolution by natural selection</li> <li>• The process of selective breeding and how it is used</li> <li>• The process of genetic engineering and its pros and cons</li> <li>• Cloning in plants and animals</li> <li>• The ethics of cloning and genetic engineering</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Mutation</i></li> <li>• <i>Natural selection</i></li> <li>• <i>Selective breeding</i></li> <li>• <i>Genetic modification</i></li> <li>• <i>Cloning</i></li> <li>• <i>Tissue Culture</i></li> <li>• <i>Speciation Trip only</i></li> <li>• <i>Fossil</i></li> <li>• <i>Fossil record</i></li> <li>• <i>Antibiotic resistance</i></li> <li>• <i>Kingdom</i></li> <li>• <i>Archaea</i></li> <li>• <i>Binomial Name</i></li> </ul>
Challenge and Support:	World wide learning/ links to 21 <sup>st</sup> century:	Cultural capital/ Industry/ Enrichment:
<ul style="list-style-type: none"> <li>• Students struggle to take the concept of natural selection and apply it to new examples as is common for exam questions. Simplifying this concept into a concise explanation is difficult.</li> <li>• Students often struggle with the plant examples compared to the animal examples.</li> </ul>	<ul style="list-style-type: none"> <li>• How can we use science to increase crop yield</li> <li>• How can we use these advances to overcome genetic disorders</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Industries of farming and agriculture.</i></li> <li>• <i>Medical advancements</i></li> <li>• <i>Local scientific advancement, John Innes and other local labs Bayer etc lead the field globally in crop science. Norfolk is leading the world in this subfield.</i></li> </ul>
Historical, Social, Moral, Spiritual, Cultural context:	Cross curricular links/ literacy/numeracy:	Common misconceptions:
<ul style="list-style-type: none"> <li>• Historical use of selective breeding.</li> <li>• Moral, social, spiritual, -cloning and genetic engineering</li> </ul>	<ul style="list-style-type: none"> <li>• Literacy/ cc/ re writing an argument.</li> <li>• Technology evaluating industrial practices.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>We evolved from monkeys</i></li> <li>• <i>Selective breeding and genetic engineering are the same</i></li> </ul>

	<ul style="list-style-type: none"> <li>• Maths averages and normal distributions</li> </ul>	
<b>Assessment timeline:</b>		
<ul style="list-style-type: none"> <li>• <i>regular EPPQs</i></li> <li>• <i>end of unit test (With B9)</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. (Units B8&amp;9)</i></li> </ul>		

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

For combined science this unit is 12 lesson (10content and 1 assessment) for separate science this is taught as two units B14 8 lesson (7 content and 1 assessment) and B15 11 lessons (10 content and 1 assessment)

**Unit:**