

## Year 11 C10: Organic reactions (separate science only). Chemistry – Science Faculty

Rationale and Context of Unit:	Core curriculum content:	Tier 2 & Tier 3 vocabulary explicitly taught:
<p>This unit builds upon the previous (C9) learning about hydrocarbons. It introduces new functional groups (alkenes, carboxylic acids, alcohols and esters) and looks at the chemical reactions they undergo. The unit links back to C5, looking at why carboxylic acids are described as weak acids.</p>	<ul style="list-style-type: none"> <li>• Alkenes</li> <li>• The structures of alcohols, carboxylic acids and esters</li> <li>• The reactions and uses of alcohols</li> <li>• Carboxylic acids and esters.</li> </ul>	<p>Alkene Esterification Condensation reaction Carboxylic acid Volatile</p>
Challenge and Support:	World wide learning/ links to 21 <sup>st</sup> century:	Cultural capital/ Industry/ Enrichment:
<ul style="list-style-type: none"> <li>• <i>Scaffolding provided to help with the drawing of displayed formulae and naming various organic compounds.</i></li> <li>• <i>Molecular models (molymods) are used to help pupils visualise the compounds they are drawing in 2 dimensions on the page. This allows them to see them in 3 dimensional space and understand how the bonds within the molecule can rotate to accommodate reaction at specific functional groups.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The industrial production of alcohol has been critical in the response to the covid-19 pandemic.</li> <li>• Alkenes are a precursor to plastics, used in virtually all products we consume.</li> </ul>	<ul style="list-style-type: none"> <li>• Esters and are used as synthetic flavours in the food industry.</li> <li>• Esters are used in perfumes.</li> <li>• Esters are used in cosmetic production.</li> <li>• Alcohols have a number of uses (such as sanitisers, solvents and fuels) and are produced industrially.</li> </ul>
Historical, Social, Moral, Spiritual, Cultural context:	Cross curricular links/ literacy/numeracy:	Common misconceptions:
<ul style="list-style-type: none"> <li>• This topic allows pupils to produce esters themselves in a laboratory. They can then smell the aromas produced by the compounds and see how they can be used in foodstuffs to provide fruit flavours artificially. This provides the opportunity for interesting discussions</li> </ul>	<ul style="list-style-type: none"> <li>• Links to Food technology KS3 topics: Year 8's "Nutrition and Health" and Year 9's "Food and Culture", where the use of (or avoidance of) artificial flavours is discussed.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Alcohol is a drink.</i></li> <li>• <i>All acids are harmful</i></li> <li>• <i>Chemical molecules are 2 dimensional.</i></li> </ul>

about the morality of using artificial flavours in foods.		
<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 based on the end of the unit test.</i></li> </ul>		

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

C10.1	C10.2	C10.3	C10.4	C10 test
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**Unit: C10 organic reactions, Chemistry**