

# Yr12 Chemistry – Unit 3.3

## MAGHULL HIGH SCHOOL – CURRICULUM MAP



		Sequence			
<b>TOPIC (S)</b> <b>INTRODUCTION TO ORGANIC CHEMISTRY</b>	1. Nomenclature 2. Reaction mechanisms	3. Isomerism			
<b>Knowledge &amp; Skills development</b>	<ul style="list-style-type: none"> <li>Know organic compounds can be represented by: empirical formula, molecular formula, general formula, structural formula, displayed formula, skeletal formula.</li> <li>Know the characteristics of a homologous series, a series of compounds containing the same functional group.</li> <li>Know IUPAC rules for nomenclature.</li> <li>Draw structural, displayed and skeletal formulas for given organic compounds</li> <li>Apply IUPAC rules for nomenclature to name organic compounds limited to chains and rings with up to six carbon atoms each</li> <li>Apply IUPAC rules for nomenclature to draw the structure of an organic compound from the IUPAC name limited to chains and rings with up to six carbon atoms each.</li> <li>Know reactions of organic compounds can be explained using mechanisms.</li> <li>Know free-radical mechanisms: the unpaired electron in a radical is represented by a dot, the use of curly arrows is not required for radical mechanisms.</li> <li>Write balanced equations for the steps in a free-radical mechanism.</li> </ul>		<ul style="list-style-type: none"> <li>Know in mechanisms: the formation of a covalent bond is shown by a curly arrow that starts from a lone electron pair or from another covalent bond, the breaking of a covalent bond is shown by a curly arrow starting from the bond.</li> <li>Outline mechanisms by drawing the structures of the species involved and curly arrows to represent the movement of electron pairs.</li> <li>Define the term structural isomer</li> <li>Draw the structures of chain, position and functional group isomers</li> <li>Define the term stereoisomer</li> <li>Know E–Z isomerism is a form of stereoisomerism and occurs as a result of restricted rotation about the planar carbon–carbon double bond.</li> <li>Know Cahn–Ingold–Prelog (CIP) priority rules.</li> <li>Draw the structural formulas of E and Z isomers</li> <li>Apply the CIP priority rules to E and Z isomers.</li> <li>Draw further isomers after being given one</li> <li>Understand the origin of E–Z isomerism.</li> <li>Draw different forms of isomers.</li> </ul>		
<b>Assessment / Feedback Opportunities</b>	Exam questions – teacher assessed	Exam questions – self assessed	Extended writing task – teacher assessed	Deep marking of required practical in lab books	Topic assessment
<b>Cultural Capital</b>	<ul style="list-style-type: none"> <li></li> <li></li> </ul>				
<b>SMSC / Promoting British Values</b> (Democracy, Liberty, Rule of Law, Tolerance & Respect)	<ul style="list-style-type: none"> <li>The importance of E-Z isomerism in drug manufacture/implications to society of making mistakes with not testing both isomers of drugs (link to thalidomide)</li> </ul>				

<b>Reading opportunities</b>	<ul style="list-style-type: none"> <li>Recommended Read: <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3678675/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3678675/</a></li> </ul>
<b>Key Vocabulary</b>	Nomenclature, IUPAC, mechanisms, isomerism, empirical, free radical, stereoisomerism, Cahn–Ingold–Prelog (CIP), Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly, Describe, Explain, Compare, Analyse, Calculate, Suggest, Absolute, Uncertainty, Error
<b>Digital Literacy</b>	Using computer software to compare isomers (PHET) MSOffice35 apps including SharePoint
<b>Cross-Curricular Links</b>	Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators
<b>Careers</b>	Pharmacist, pharmaceutical manufacturer, clinical chemist