

# Deyes High School Remote Learning



DEYES  
HIGH  
SCHOOL  
LYDIATE  
LEARNING TRUST

**Y13  
Chemistry:  
SLA**

**Engage, Enable and Empower**

**Work for individual students not attending school**

**Half Term 3: January to February**

**Pupils who are absent should select the activity that they are up to. Click on the link in the activity box below. This will take you to Office 365 where the work is stored. In the lesson it will tell the pupil if they need to submit the work to their teacher.**

## Lessons

Date (week commencing)	Lessons	Focus/Topic/Theme	Hyper link to Activity
4/1/21	1-3	Review: Benzene, Amines and Bonding	<a href="#">Amines whole topic</a> <a href="#">Benzene whole topic</a>
11/1/21	4	PPE week	PPE Week
18/1/21	5-7	Proton NMR looking at: Lesson 5: Proton environments	<a href="#">Lesson 5-8: Proton (H) NMR</a>
25/1/21	8	Lesson 6: Splitting patterns Lesson 7: Identifying molecules from spectra Lesson 8: Review and practise exam questions	
1/2/21	9-11	Reactions of period 3 with oxygen Period 3 oxide properties Period 3 and oxides with water	<a href="#">P3 and Oxygen</a> <a href="#">Properties of P3 oxides</a> <a href="#">P3 oxides and water</a>
8/2/21	12	Period 3 oxides with acids and bases	<a href="#">P3 oxides with acids and bases</a>

A Level	Organic 1	AQA Chemistry
<p><b>3.3.7 Optical isomerism</b> Optical isomerism is a form of stereoisomerism and occurs as a result of chirality in molecules. Limited to molecules with a single chiral centre. An asymmetric carbon atom is one that is bonded to four different groups. Chiral molecules are optically active and rotate the plane of polarised light. Chemical isomers are molecules with the same molecular formula but different structural formulae. Stereoisomers are molecules with the same structural formula but different spatial arrangements of atoms.</p> <p><b>3.3.8 Asymmetric carbon centres</b> Asymmetric carbons are chiral centres. Chemical tests to distinguish between enantiomers include Fehling's solution and optical rotation. Asymmetric carbons can be reduced to primary alcohols, which are secondary alcohols. Some halides, in aqueous solution. These reduction reactions are examples of nucleophilic addition. The nucleophilic addition reactions of carbonyl compounds with <math>\text{H}_2\text{O}</math>, followed by <math>\text{H}^+</math> acid, to produce hydrates. Aldehydes and unsymmetrical ketones form hydrates of equilibrium when they react with <math>\text{H}_2\text{O}</math> followed by <math>\text{H}^+</math> acid. The formula of a hydrate is <math>\text{C}_x\text{H}_y\text{O}_z</math>.</p> <p><b>3.3.10.1 Asymmetric Chemistry Bonding</b> The shape of the bonding is determined by the nature of the bonding and bond length. Molecular models are used to illustrate the distribution of electrons. Molecular models are more stable than the theoretical models. Topic 1.3.3.10.1.</p>	<p><b>3.3.8.1 Carboxylic acids and esters</b> The structure of: - carboxylic acids - esters Carboxylic acids are weak acids but all decarboxylate <math>\text{CO}_2</math> from carbonates. Carboxylic acids and esters react in the presence of an acid catalyst, to give esters. Carboxylic acids and esters are hydrolysed to give carboxylic acids and alcohols. Esters can be hydrolysed in acid or alkaline conditions to form alcohols and carboxylic acids or salts of carboxylic acids. Hydrolysis in acid and alkaline conditions is reversible. Alcohols are obtained from the hydrolysis of hydrogen halide carboxylic acids and esters. Ethanol is produced by reacting vegetable oils with methanol in the presence of a catalyst.</p> <p><b>3.3.8.2 Acylation</b> The structure of: - acid anhydrides - acid chlorides The nucleophilic addition-elimination reactions of alcohols, amines and primary amines with acid chlorides and acid anhydrides. The industrial synthesis of ethanoic anhydride from ethanoic chloride in the manufacture of the drug aspirin.</p>	<p>Required practical 10 Preparation of: - a pure organic salt and test of its purity - a pure organic liquid.</p> <p><b>3.3.10.2 Electrophilic substitution</b> Carboxylic acids and esters react with nucleophiles, limited to nucleophilic substitution. Hydrolysis in aqueous solution is reversible, including the manufacture of esters and formation of anhydrides. Friedel-Crafts alkylation reactions are also important steps in synthesis.</p> <p><b>3.3.11.1 Amines: Preparation</b> Controlled synthesis for skills development. Primary aliphatic amines can be prepared by the reaction of primary and secondary amines and the reduction of nitriles. Aliphatic amines prepared by the reduction of nitriles. Carboxylic acids, anhydrides and primary amine salts.</p> <p><b>3.3.11.2 Basic properties</b> Amines are weak bases. The difference in base strength between aromatic, primary aliphatic and primary amine salts.</p> <p><b>3.3.11.3 Nucleophilic properties</b> Amines are nucleophilic. Nucleophilic substitution reactions of aromatic and aliphatic amines with halogenoalkanes to form primary, secondary, tertiary amines and quaternary ammonium salts. The use of quaternary ammonium salts as cationic surfactants. The nucleophilic addition-elimination reactions of amines and primary amines with acid chlorides.</p>

Who to contact  
You can email **your class teacher** if you have any questions regarding the activities set.  
[s.lally@deyeshigh.co.uk](mailto:s.lally@deyeshigh.co.uk)



Knowledge Organisers  
[Organic 1](#) [Organic 2](#)