

Summer Assignment: Chemistry A2

Context – link to Yr 12/13 work:	This task is a preparation for the organic chemistry unit. It reviews some of the organic chemistry studied during AS course.
Task:	<p>Compose an information booklet about different the different organic compounds (functional groups) and their reactions.</p> <p>Task 1:</p> <p>Research information about the following:</p> <ol style="list-style-type: none">1. Alkanes2. Alkenes3. Haloalkanes4. Alcohols5. Carboxylic acids6. Esters7. Aldehydes8. Ketones9. Benzene10. Acyl chloride11. Acid anhydrides12. Amines13. Amides14. Amino Acids <p>For each functional group above include:</p> <ol style="list-style-type: none">a. A general description of the family of compoundsb. General formula, where appropriatec. Prefixes/suffixes and general nomenclatured. Examples of compoundse. Physical and chemical propertiesf. Interesting facts (optional) <p style="text-align: right;">(70 marks)</p> <p>Task 2:</p> <p>Write an essay on isomerism. The title is <i>Distinguish between Structural and Stereo Isomerism</i>.</p> <p style="text-align: right;">(10 marks)</p> <p>Include diagrams where appropriate.</p>

	<p>Task 3:</p> <p>Research the reactions of the below and provide examples and equations (conditions and mechanisms where appropriate).</p> <ol style="list-style-type: none"> 1. Reactions of carbonyl groups with: <ol style="list-style-type: none"> a. NaBH₄ Reduction b. KCN, explain the production of enantiomers when aldehydes and ketones react with KCN. c. Ammonical silver solution (Tollen's reagent) d. Fehling's solution 2. Reactions of carboxylic acids with: <ol style="list-style-type: none"> a. Alcohols b. LiAlH₄ c. PCl₅ d. Na₂CO₃ 3. Reaction of acyl chlorides and acid anhydrides with: <ol style="list-style-type: none"> a. Water b. Alcohols c. Ammonia d. Primary amines 4. Reaction of primary amines with: <ol style="list-style-type: none"> a. Acid chlorides 5. Reaction of amino acids with: <ol style="list-style-type: none"> a. Acids b. Bases c. Explain what a Zwitterions are <p style="text-align: right;">(20 marks)</p>
Resources required:	<ol style="list-style-type: none"> 1. AS and A2 chemistry text books. 2. Photocopies of relevant pages of chemistry in context 3. Chemguide http://www.chemguide.co.uk/ 4. Photocopies of sample work.
Expectation for completed work (e.g word count, note format, reading record etc.)	<ul style="list-style-type: none"> • Present your booklet in the order of the set tasks under clear headings. You may choose an appropriate layout for presenting the information required for each task. • The word count for the essay should be between 800-1300 words • <i>You will be marked on completing all the requirements of each task, detail included, presentation grammar and punctuation.</i> • <i>You will be awarded a mark out of 100 and a corresponding grade as follows:</i> A* -90-100 A- 80-89

	<p>B- 70-79</p> <p>C- 60-69</p> <p>D- 50-59</p> <p>E- 40-49</p>
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Summer Reading List Yr 12-13 Reading List – (insert subject)

Book	Chapter or extract	Questions to guide reading (to be completed as notes)
A2Chemistry Book- Nelson Thornes	Carbonyl Groups Esters Amines Amides Acylation Arenes	Use this to complete summer homework.
Chemistry in context (photocopies)		Use this to complete summer homework.
Recommended to buy: https://www.amazon.co.uk/Chemistry%C2%B3-Introducing-inorganic-physical-chemistry/dp/0199277893/ref=sr_1_2?s=books&ie=UTF8&qid=1465292077&sr=1-2&keywords=chemistry+cube		