



	Theme	Overview of key learning to take place	How learning will be assessed
Term 2	Topic 14 Organic Chemistry	<p>14.1 Formulae, functional groups and the naming of organic compounds</p> <ul style="list-style-type: none">I can interpret and use the general, structural, displayed and skeletal formulae of the following classes of compound:<ul style="list-style-type: none">(i) alkanes, alkenes and arenes(ii) halogenoalkanes and halogenoarenes(iii) alcohols (including primary, secondary and tertiary) and phenols (iv) aldehydes and ketones(iv) carboxylic acids, esters and acyl chlorides(v) amines (primary only), nitriles, amides and amino acidsI can deduce the possible isomers for an organic molecule of known molecular formulaI can deduce the molecular formula of a compound, given its structural, displayed or skeletal formula. <p>14.2 Characteristic organic reactions</p> <ul style="list-style-type: none">I can interpret and use the following terminology associated with organic reactions<ul style="list-style-type: none">(i) functional group(ii) homolytic and heterolytic fission(iii) free radical, initiation, propagation, termination(iv) nucleophile, electrophile(v) addition, substitution, elimination, hydrolysis, condensation(vi) oxidation and reduction	<p>Examples of Formative Assessment to be used this term: Homework 2 x 60 minute tasks</p> <ol style="list-style-type: none">Exam questions set as homeworkHomework assignments with recall tasks <p>Summative assessment: Topic 14.1 and 14.2 end of unit exam paper (Multiple choice and long answer questions)</p>
Term 2	Topic 14 Organic Chemistry	<p>14.3 Shapes of organic molecules; σ and π bonds</p> <ul style="list-style-type: none">I can describe and explain the shape of, and bond angles in, the ethane, ethene molecules in terms of σ and π bonds	<p>Examples of Formative Assessment to be used this term: Homework 2 x 60 minute tasks</p> <ol style="list-style-type: none">Exam questions set as homework

		<ul style="list-style-type: none"> I can predict the shapes of, and bond angles in, other related molecules <p>14.4 Isomerism: structural and stereoisomerism</p> <ul style="list-style-type: none"> I can describe structural isomerism and its division into chain, positional and functional group isomerism I can explain what is meant by a chiral centre and that such a centre normally gives rise to optical isomerism 	<p>4. Homework assignments with recall tasks</p> <p>Summative assessment: Topic 14.3 and 14.4 end of unit exam paper (Multiple choice and long answer questions)</p>
Term 2	Topic 15 Hydrocarbons	<p>15.1 Alkanes</p> <ul style="list-style-type: none"> I can understand the general unreactivity of alkanes, including towards polar reagents. I can describe the mechanism of free-radical substitution at methyl groups with particular reference to the initiation, propagation and termination reactions I can explain the use of crude oil as a source of both aliphatic and aromatic hydrocarbons <p>15.2 Alkenes</p> <ul style="list-style-type: none"> I can describe addition of hydrogen, steam, hydrogen halides and halogens I can describe oxidation by hot, concentrated, acidified manganate(VII) ions leading to the rupture of the carbon-carbon double bond in order to determine the position of alkene linkages in larger molecules describe the mechanism of electrophilic addition in alkenes, using bromine/ethene and hydrogen bromide/propene as examples <p>15.3 Hydrocarbons as fuels</p> <ul style="list-style-type: none"> I can describe and explain how the combustion reactions of alkanes led to their use as fuels in industry, in the home and in transport 	<p>Examples of Formative Assessment to be used this term: Homework 2 x 60 minute tasks</p> <ol style="list-style-type: none"> Exam questions set as homework Homework assignments with recall tasks <p>Summative assessment: Topic 15.1,15.2 and 15.3 end of unit exam paper (Multiple choice and long answer questions)</p>
Term 2	Topic 16 Halogen derivatives Organic Chemistry	<p>16.1 Halogenoalkanes</p> <ul style="list-style-type: none"> I can describe nucleophilic substitution reactions of bromoethane: hydrolysis, formation of nitriles, formation of primary amines by reaction with ammonia I can describe describe the SN1 and SN2 mechanisms of nucleophilic substitution in halogenoalkanes including the inductive effects of alkyl groups 	<p>Examples of Formative Assessment to be used this term: Homework 2 x 60 minute tasks</p> <ol style="list-style-type: none"> Exam questions set as homework Homework assignments with recall tasks <p>Summative assessment:</p>

		<ul style="list-style-type: none"> I can describe recall that primary halogenoalkanes tend to react via the SN2 mechanism; tertiary halogenoalkanes via the SN1 mechanism and secondary halogenoalkanes by a mixture of the two, depending on structure <p>16.2 Relative strength of the C-Hal bond</p> <ul style="list-style-type: none"> I can explain the uses of fluoroalkanes and fluorohalogenoalkanes in terms of their relative chemical inertness I can recognise the concern about the effect of chlorofluoroalkanes on the ozone layer 	Topic 16.1 and 16.2 end of unit exam paper (Multiple choice and long answer questions)
Term 2	Topic 17 Hydroxy compounds Organic Chemistry	<p>17.1 Alcohols</p> <ul style="list-style-type: none"> I can describe the reaction of alcohols combustion substitution. I can classify hydroxy compounds into primary, secondary and tertiary alcohols I can describe deduce the presence of a CH₃CH(OH)- group in an alcohol from its reaction with alkaline aqueous iodine to form tri-iodomethane 	<p>Examples of Formative Assessment to be used this term: Homework 2 x 60 minute tasks</p> <ol style="list-style-type: none"> Exam questions set as homework Homework assignments with recall tasks <p>Summative assessment: Topic 17.1 end of unit exam paper (Multiple choice and long answer questions)</p>
Term 2	Topic 18 Carbonyl compounds	<p>18.1 Aldehydes and ketones</p> <ul style="list-style-type: none"> I can describe the formation of aldehydes and ketones from primary and secondary alcohols respectively using Cr₂O₇²⁻/H⁺ I can describe the mechanism of the nucleophilic addition reactions of hydrogen cyanide with aldehydes and ketones I can describe the use of 2,4-dinitrophenylhydrazine (2,4-DNPH) reagent to detect the presence of carbonyl compounds I can describe the reaction of CH₃CO- compounds with alkaline aqueous iodine to give tri-iodomethane 	<p>Examples of Formative Assessment to be used this term: Homework 2 x 60 minute tasks</p> <ol style="list-style-type: none"> Exam questions set as homework Homework assignments with recall tasks <p>Summative assessment: Topic 18.1 end of unit exam paper (Multiple choice and long answer questions)</p>

Term 2	<p>Topic 19 Carboxylic acids</p>	<p>19.1 Carboxylic acids</p> <ul style="list-style-type: none"> • I can describe describe the formation of carboxylic acids from alcohols, aldehydes and nitriles • I can describe describe the reactions of carboxylic acids in the formation of: (i) salts, by the use of reactive metals, alkalis or carbonates (ii) alkyl esters (iii) alcohols, by use of LiAlH_4 <p>19.3 Esters</p> <ul style="list-style-type: none"> • I can describe the acid and base hydrolysis of esters • I can state the major commercial uses of esters, e.g. solvents, perfumes, flavourings 	<p>Examples of Formative Assessment to be used this term: Homework 2 x 60 minute tasks</p> <ol style="list-style-type: none"> 1. Exam questions set as homework 2. Homework assignments with recall tasks <p>Summative assessment: Topic 19.1 and 19.3 end of unit exam paper (Multiple choice and long answer questions)</p>
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