



Lessons Sequence													
TOPIC (S) ORGANIC CHEMISTRY	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">1. Crude Oil, hydrocarbons and alkanes</td> <td style="width: 33%;">5. Structure and formula of alkenes</td> <td style="width: 33%;">9. Addition polymerisation</td> </tr> <tr> <td>2. Fractional distillation</td> <td>6. Reactions of alkenes</td> <td>10. Condensation polymerisation</td> </tr> <tr> <td>3. Properties of hydrocarbons</td> <td>7. Alcohols</td> <td>11. Amino acids</td> </tr> <tr> <td>4. Cracking and alkenes</td> <td>8. Carboxylic Acids</td> <td>12. DNA</td> </tr> </table>	1. Crude Oil, hydrocarbons and alkanes	5. Structure and formula of alkenes	9. Addition polymerisation	2. Fractional distillation	6. Reactions of alkenes	10. Condensation polymerisation	3. Properties of hydrocarbons	7. Alcohols	11. Amino acids	4. Cracking and alkenes	8. Carboxylic Acids	12. DNA
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Knowledge & Skills development	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> • Knowledge of the composition of crude oil • Recognise substances as alkanes given their formulae • Explain how fractional distillation works in terms of evaporation and condensation • Knowledge of trends in properties of hydrocarbons including boiling points, viscosity and flammability • Balance chemical equations as examples of cracking given the formulae of the reactants and products. • Give examples to illustrate the usefulness of cracking and explain how modern life depends on the uses of hydrocarbons • Knowledge of the structure and general formula for alkenes • Describe the reactions and conditions for the addition of hydrogen, water and halogens to alkenes • Draw fully displayed structural formulae of the first four members of the alkenes and the products of their addition reactions with hydrogen, water, chlorine, bromine and iodine </td> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> • Knowledge of the conditions used for fermentation of sugar using yeast • Recognise alcohols from their names or from given formulae • Describe what happens when any of the first four carboxylic acids react with carbonates, dissolve in water, react with alcohols • Explain why carboxylic acids are weak acids in terms of ionisation and pH • Recognise addition polymers and monomers from diagrams in the forms shown and from the presence of the functional group C=C in the monomers • Draw diagrams to represent the formation of a polymer from a given alkene monomer • Explain the basic principles of condensation polymerisation by reference to the functional groups in the monomers and the repeating units in the polymers • Describe the structure of amino acids and DNA </td> </tr> </table>	<ul style="list-style-type: none"> • Knowledge of the composition of crude oil • Recognise substances as alkanes given their formulae • Explain how fractional distillation works in terms of evaporation and condensation • Knowledge of trends in properties of hydrocarbons including boiling points, viscosity and flammability • Balance chemical equations as examples of cracking given the formulae of the reactants and products. • Give examples to illustrate the usefulness of cracking and explain how modern life depends on the uses of hydrocarbons • Knowledge of the structure and general formula for alkenes • Describe the reactions and conditions for the addition of hydrogen, water and halogens to alkenes • Draw fully displayed structural formulae of the first four members of the alkenes and the products of their addition reactions with hydrogen, water, chlorine, bromine and iodine 	<ul style="list-style-type: none"> • Knowledge of the conditions used for fermentation of sugar using yeast • Recognise alcohols from their names or from given formulae • Describe what happens when any of the first four carboxylic acids react with carbonates, dissolve in water, react with alcohols • Explain why carboxylic acids are weak acids in terms of ionisation and pH • Recognise addition polymers and monomers from diagrams in the forms shown and from the presence of the functional group C=C in the monomers • Draw diagrams to represent the formation of a polymer from a given alkene monomer • Explain the basic principles of condensation polymerisation by reference to the functional groups in the monomers and the repeating units in the polymers • Describe the structure of amino acids and DNA 										
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Assessment / Feedback Opportunities	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 16.6%;">Targeted questioning throughout topic</td> <td style="width: 16.6%;">Teacher assessment of practical skills during investigation - verbal</td> <td style="width: 16.6%;">Knowledge Recall Quizzes</td> <td style="width: 16.6%;">Deep marking of written task in students books</td> <td style="width: 16.6%;">Topic Test</td> <td style="width: 16.6%;">Targeted exam questions – teacher or self-assessed</td> </tr> </table>	Targeted questioning throughout topic	Teacher assessment of practical skills during investigation - verbal	Knowledge Recall Quizzes	Deep marking of written task in students books	Topic Test	Targeted exam questions – teacher or self-assessed						
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Cultural Capital	<ul style="list-style-type: none"> • Opportunity to attend Salters Festival of Chemistry competition 												
SMSC / Promoting British Values <small>(Democracy, Liberty, Rule of Law, Tolerance & Respect)</small>	<ul style="list-style-type: none"> • Why is crude oil so important for some countries? • Listening to others during presentations • Impact of oil spills on the environment • Working in groups during practicals or research tasks 												
Reading opportunities	<ul style="list-style-type: none"> • Recommended Read: All About Chemistry (Big Questions) (Robert Winston) 												

Key Vocabulary	<p>Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly, Describe, Explain, Compare, Analyse, Calculate, Suggest</p> <p>Hydrocarbons, alkanes, alkenes fractional, distillation, cracking, boiling point, structure, formula, polymer, condensation, condition, alcohol, carboxylic actions, ionisation, monomer, amino acid, dissolve, react, fermentation, functional, formation</p>
Digital Literacy	<p>SharePoint resources including topic quizzes</p> <p>Possible use of excel to plot graphs and analyse data, powerpoint, word, etc to present information, internet for research</p>
Cross-Curricular Links	<p>Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators</p>
Careers	<p>Careers within the oil industry, manufacturing of materials, Chemist</p>