YEAR 11 SCIENCE: CHEMISTRY

Half Term 1

MAGHULL HIGH SCHOOL – CURRICULUM MAP

Unit: **Organic Chemistry** **LESSONS**	1. Crude Oil, hydrocarbons and alkanes 2. Fractional distillation 3. Properties of hydrocarbons 4. Cracking and alkenes	5. Structure and formula of alkenes 6. Reactions of alkenes 7. Alcohols 8. Carboxylic Acids	9. Addition polymerisation 10. Condensation polymerisation 11. Amino acids 12. DNA
Knowledge & Skills Development	• 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	• 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 are • 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	
Assessment / Feedback Opportunities	**Formative Assessment** Teacher questioning Quizzes Exam style questions	**Summative assessment** End of topic assessment Exam questions in future end of topic assessments to assess recall	
Key Vocabulary	Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly, Describe, Explain, Compare, Analyse, Calculate, Suggest 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		
Literacy/Reading Opportunities	Subject specific vocabulary introduced before reading of related texts Word etymology from Latin and Greek roots Reading of simple and complex sentences, paragraphs, articles Scientific writing including structuring methods, comparisons and evaluations		

Cross Curricular Themes	Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators
Personal Development (Including British Values, RSE, Citizenship)	None
Career Opportunities	Careers within the oil industry, manufacturing of materials, Chemist