

Curriculum Sequencing Grid: Chemistry A-level

| Year 12 | Term 1 | Term 2 | Term 3 |
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| Unit (Tablet in 39 week plan) | Bonding Energetics Kinetics Intro to Organics Atomic Structure Amount of Substance | Alkanes Alkenes Equilibria Redox Periodicity | Halogenoalkanes Alcohols Analysis Group 2 Group 7 |
| Key Retainable Knowledge (Required for Y11/13) <ul style="list-style-type: none"> What... How.... Why.... | Atomic structure Mole calculations Titrations Types of bonding Naming organic chemicals Reactions of alkane and alkenes | Periodicity Equilibrium constant Maxwell- Boltzmann distribution IMF Infra red spectroscopy Testing organic chemicals | Behaviour of group 2 Behaviour of group 7 Oxidation reactions Mechanisms Testing organic chemicals |
| Key Technical Vocabulary (To be modelled and deliberately practiced in context.) | Isotopes, mass spectrometry, ionisation, spdf notation, Avogadro's no, isomers, geometric, E-Z nomenclature, electrophile, addition, cracking, polymerisation, free radical | Periodicity, equilibria, Le Chatelier's principle, Van der waals, dipole, electronegativity, hydrogen bonding, population, absorption, transmittance, resonance, Benedicts | Combustion, formation, extrapolation, halogens, precipitation, oxidation, reduction, disproportionation, reflux, distillation, nucleophile, substitution, |
| Opportunities for Reading | Chemguide – Jim Clarke | Bad Science – Ben Goldacre | Bad Science – Ben Goldacre |
| Developing Cultural Capital (exposure to very best- essential) | Sustainable use of hydrocarbon sources, plastics and the environment | Industrial chemistry and environmental effects | |

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| knowledge and skills of educated citizens – appreciation of human creativity and achievement.) | | | |
| Cross Curricular Links (Authentic Connections) | Maths and physics | Maths and biology | Maths and physics |
| Key Assessment | Topic Tests | Topic Test | Topic Tests Mock Papers |
| How Science Work Skills in Science | <ul style="list-style-type: none"> • These skills will continuously throughout the year, some or all of which will be covered within each topic <ul style="list-style-type: none"> ○ Variables ○ Equipment ○ Risk assessments ○ Writing a method ○ Presenting data (bar charts and line graphs) ○ Interpreting data ○ Types of error (measuring, systematic, random) ○ Equations, calculations and units ○ Evaluating ○ Models | | |

| Year 13 | Term 1 | Term 2 | Term 3 |
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| Unit (Tablet in 39 week plan) | Equilibria Organics | Polymers Organic Synthesis | |

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| | Rates Acids and Bases Electrochemistry | Equilibria Transition Metals Aq Ions | |
| Key Retainable Knowledge (Required for Y11/13) <ul style="list-style-type: none"> What... How.... Why.... | Electrode potentials Calculating Ecell Structure of benzene Electrophilic substitution Amines and amino acids DNA | Synthetic routes Synoptic understanding of Organic reactions Inorganic chemistry from Y12 into advancements for Y13 Principles of NMR Properties of transition metals Tests for transition metal ions | |
| Key Technical Vocabulary (To be modelled and deliberately practiced in context.) | Cell, Standard (hydrogen) electrode, aromatic, delocalised, amino acid, protein, DNA, potential difference, Feasible/spontaneous, primary, secondary, tertiary, Delocalised | Nucleophile ,electrophile, free radical, addition, reduction, oxidation, substitution, elimination, Mechanism, Absorption, electron shell level, oxidation state, colour, heterogeneous, homogenous, LORA, yield, recrystallisation | |
| Opportunities for Reading | The selfish gene - Richard Dawkins | The disconnection approach – Stuart Warren | Bad Science – Ben Goldacre |
| Developing Cultural Capital (exposure to very best- essential knowledge and skills of educated citizens – appreciation of human | Environmentally friendly batteries and fuel cells, Diet, Cancer treatments | Drug testing, Importance of environmental conservation | |

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| creativity and achievement.) | | | |
| Cross Curricular Links (Authentic Connections) | Maths and physics | Maths, physics and biology | Maths and physics |
| Key Assessment | Topic Tests Mock Papers | Topic Tests Mock Papers | |
| How Science Work Skills in Science | <ul style="list-style-type: none"> • These skills will continuously throughout the year, some or all of which will be covered within each topic <ul style="list-style-type: none"> ○ Variables ○ Equipment ○ Risk assessments ○ Writing a method ○ Presenting data (bar charts and line graphs) ○ Interpreting data ○ Types of error (measuring, systematic, random) ○ Equations, calculations and units ○ Evaluating ○ Models | | |