

**INTENT-**

- To develop knowledge and understanding of key scientific principles within Chemistry.
- Students to apply this knowledge and explain key ideas within Chemistry, applying them to a range of typical and frequent assessment points.
- Students will be able to analyse scientific data and will be able to evaluate scientific discoveries in order to approach enquiry questions based on the topics studied.

**The bigger picture:**

The year 13 curriculum revisits many ideas from year 12, grouping them in a similar fashion to how they are typically presented in exams (also reflected in the assessments) – this also includes application of knowledge from the 12 required practical's that they carry out. The 12 required practical's will lead to them gaining a practical endorsement at the end of this year.

**Bilton School Planning for Progress over Time  
Programme of Study 2024/25**
**IMPLEMENTATION**

	Term 1							Term 2							Term 3							Term 4							Term 5							Term 6								
<b>KS5</b>	02/09/2024	09/09/2024	16/09/2024	23/09/2024	30/09/2024	07/10/2024	14/10/2024	21/10/2024	<b>HOLIDAY: 1 WEEK</b>	04/11/2024	11/11/2024	18/11/2024	25/11/2024	02/12/2024	09/12/2024	16/12/2024	<b>HOLIDAY: 2 WEEKS</b>	06/01/2025	13/01/2025	20/01/2025	27/01/2025	03/02/2025	10/02/2025	<b>HOLIDAY: 1 WEEK</b>	24/02/2025	03/03/2025	10/03/2025	17/03/2025	24/03/2025	31/03/2025	07/04/2025	<b>HOLIDAY: 2 WEEKS</b>	28/04/2025	05/05/2025	12/05/2025	19/05/2025	<b>HOLIDAY: 1 WEEK</b>	02/06/2025	09/06/2025	16/06/2025	23/06/2025	30/06/2025	07/07/2025	14/07/2025
<b>Year 13</b>	(TTD x2) Aromatic Compounds and Amines L1, L2 Acid, Bases and pH L1, L2, Aromatic Compounds and Amines L3, L4 Acid, Bases and pH L3, L4, Aromatic Compounds and Amines ETT Acids, Bases and pH ETT, Acid, Bases and pH RQP Transition Metals L1 Thermodynamics L1, L2, Transition Metals L2, L3 Thermodynamics L3, L4, Transition Metals L4, L5 Thermodynamics L5, ETT, Transition Metals L6, L7 Electrode Potentials L1, L2, Transition Metals RQP, ETT							Electrode Potentials L3, ETT, Electrode potentials RQP Period 3 Elements L1, L2, PPE Revision PPE1 PPE1 PPE 1 Reteach / Review Polymers L1, L2, Further synthesis and Analysis L1, L2 Polymers L3, Amino acids, proteins, and DNA L1, L2, Further synthesis and Analysis L3, L4							Amino acids, proteins, and DNA L3, ETT, Further synthesis and Analysis L5, L6 Further synthesis and Analysis L7, ETT Chromatography RQP Organic Prep 10b RQP Paper 1 Revision, Paper 2 Revision Paper 1 Revision, Paper 2 Revision Paper 1 Revision, Paper 2 Revision							PPE2 PPE2 Required Practical Revision / Catch-up Required Practical Revision / Catch-up Paper 1 Revision, Paper 2 Revision Paper 1 Revision, Paper 2 Revision Paper 1 Revision, Paper 2 Revision							Paper 3 Revision, Paper 2 Revision Paper 1 Revision, Paper 3 Revision Paper 3 Revision, Paper 2 Revision Paper 1 Revision, Paper 3 Revision															
<b>Progress and assessment</b>	End of topic test (ETT) Follow on questions to test previous knowledge through the Unit.							End of topic test (ETT) Follow on questions to test previous knowledge through the Unit.							End of topic test (ETT) Follow on questions to test previous knowledge through the Unit.																													
<b>Required Practical (RP)</b>	RP 9: Investigate how pH changes when a weak acid reacts with a strong base and when a strong acid reacts with a weak base. RP 11: Carry out test tube reactions to identify transition metal ions in aqueous solution.							RP 8: Measuring the EMF of a electrochemical cell.							RP 12: Chromatography RP 10b: Organic Preparation							RP Catch up																						
<b>Homework</b> <small>(ensure that this is NOT stand alone, but clearly advances or embeds knowledge and understanding)</small>	UpLearn							UpLearn							UpLearn							UpLearn																						

<p><b>Key Vocabulary/literacy opportunities</b></p>	<p><u>Aromatic Chemistry –</u>            Acyl Group            Addition Reaction            Aromatic Compound            Benzene            Delocalisation of p electrons            Electrophile            Electrophilic Substitution            Enthalpy of Hydrogenation            Friedel-Crafts Acylation            Monosubstituted benzene ring            Nitration            Substitution Reaction</p> <p><u>Amines –</u>            Aliphatic            Alkyl group            Amines            Aromatic            Aromatic amines            Aryl group            Lone pair            Nucleophile            Nucleophilic addition-elimination            Nucleophilic substitution            Primary aliphatic amines            Primary/ Secondary/ tertiary ammonium salt            Quaternary ammonium salts</p> <p><u>Acids and Bases –</u>            Acidic buffer            Basic buffer            Bronsted-Lowry acid            Bronsted-Lowry base            Buffer solution            Diprotic acid            End point            Equivalence point            Indicators            Ka            Kw            Monoprotic acid            Neutralisation            pH            pH curve            pH meter            pH scale            Strong acid            Strong base            Titration            Weak acid            Weak base</p> <p><u>Transition Metals –</u>            Adsorption            Autocatalysis            Bidentate ligand            Calibration curve            Catalyst poisoning            Cis-trans isomerism            Cisplatin            Colorimeter            Colours in transition metal complexes            Complex</p>	<p><u>Electrode Potentials and Electrochemical Cells –</u>            Anode            Cathode            Electrochemical cell            Electrode            Electrode potential            EMF            Fuel cell            Non-rechargeable cell            Rechargeable cell            Redox reaction            Salt bridge</p> <p><u>Polymers –</u>            Addition polymers            Biodegradable            Condensation polymer            Hydrolysis            Intermolecular forces            Monomer            Polyalkene            Polyamide            Polyester            Polymer            Repeating unit</p> <p><u>Amino acids, Proteins and DNA –</u>            Active site            Amino acid            Catalyst            Cisplatin            Developing agents            DNA            Enantiomers            Enzyme            Enzyme inhibitor            Hydrogen bonding            Hydrolysis            Ligand            Nucleotide            Pentose sugar            Peptide link            Primary/ Secondary/ Tertiary protein structure            Protein            Substrate            Thin layer chromatography            Zwitterion</p> <p><u>Further Synthesis and Analysis –</u>            Atom economy            Organic compound            Solvent            Synthesis            Aliphatic compound            CCl<sub>4</sub>            Chemical shift            Coupling            Deuterated solvent            Doublet            Equivalent protons            Integrated NMR Spectrum            n+1 rule            NMR            Quartet            Singlet            Spin-spin splitting            TMS            Triplet            Chromatography            Column chromatography            Gas chromatography            Mass spectrometry            Retention time            Rf Value            Stationary phase            TLC</p>	<p><u>Amino acids, Proteins and DNA –</u>            Active site            Amino acid            Catalyst            Cisplatin            Developing agents            DNA            Enantiomers            Enzyme            Enzyme inhibitor            Hydrogen bonding            Hydrolysis            Ligand            Nucleotide            Pentose sugar            Peptide link            Primary/ Secondary/ Tertiary protein structure            Protein            Substrate            Thin layer chromatography            Zwitterion</p> <p><u>Further Synthesis and Analysis –</u>            Atom economy            Organic compound            Solvent            Synthesis            Aliphatic compound            CCl<sub>4</sub>            Chemical shift            Coupling            Deuterated solvent            Doublet            Equivalent protons            Integrated NMR Spectrum            n+1 rule            NMR            Quartet            Singlet            Spin-spin splitting            TMS            Triplet            Chromatography            Column chromatography            Gas chromatography            Mass spectrometry            Retention time            Rf Value            Stationary phase            TLC</p>			
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	<p>Contact Process Coordinate bond Coordination number d-block Heterogeneous catalysts Homogeneous catalysts Ligand Ligand substitution Monodentate ligand Multidentate ligand Optical isomerism Redox titrations Spectroscopy Transition metal Variable oxidation states</p> <p><u>Thermodynamics –</u> Bond enthalpy: Born-Haber cycle: Covalent character: Enthalpy of atomisation: Enthalpy of formation: Enthalpy of hydration: Enthalpy of lattice dissociation: Enthalpy of lattice formation: Enthalpy of solution: Entropy Feasible reaction: First electron affinity: First ionisation energy: Gibbs free-energy change: Ionic character:</p>	<p>Quartet Singlet Spin-spin splitting TMS Triplet Chromatography Column chromatography Gas chromatography Mass spectrometry Retention time Rf Value Stationary phase TLC</p>						
<b>Connected knowledge</b>	<p>KS3 – Atoms and Elements, Compounds and Mixtures, Acids and Alkalis.</p> <p>KS4 – Structure, Bonding and the Properties of Matter, Chemical Changes, Energy Changes, Organic Chemistry.</p> <p>KS5 – Bonding, Organic Chemistry, Energetics</p>	<p>KS3 – Atoms and Elements, Compounds and Mixtures.</p> <p>KS4 – Atomic Structure and the Periodic Table, Structure, Bonding and the Properties of Matter, Chemical Changes, Chemical Analysis, Organic Chemistry.</p> <p>KS5 – Bonding, Organic Chemistry, Oxidation, reduction and redox equations.</p>	<p>KS3 – Atoms and Elements, Compounds and Mixtures.</p> <p>KS4 – Atomic Structure and the Periodic Table, Structure, Bonding and the Properties of Matter, Chemical Changes, Chemical Analysis, Organic Chemistry.</p> <p>KS5 – Bonding, Organic Chemistry, Oxidation, reduction and redox equations.</p>					
<b>Spiritual, Moral, Social and cultural.</b>								
<b>British Values</b>	<p>Respect and tolerance, collaboration during experiments and group work.</p> <p>Following the laboratory rules when conducting practical work.</p>	<p>Respect and tolerance, collaboration during experiments and group work.</p> <p>Following the laboratory rules when conducting practical work.</p>	<p>Respect and tolerance, collaboration during experiments and group work.</p> <p>Following the laboratory rules when conducting practical work.</p>	<p>Respect and tolerance, collaboration during experiments and group work.</p> <p>Following the laboratory rules when conducting practical work.</p>				

<b>Cultural Capital</b>	Science - Careers display on W side corridor.		Science - Careers display on W side corridor.		Science - Careers display on W side corridor.		Science - Careers display on W side corridor.		Science - Careers display on W side corridor.
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