

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 practicals that they carry out. The 12 required practicals 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									
KS5	02/09/2024	09/09/2024	16/09/2024	23/09/2024	30/09/2024	07/10/2024	14/10/2024	21/10/2024	HOLIDAY: 1 WEEK	04/11/2024	11/11/2024	18/11/2024	25/11/2024	02/12/2024	09/12/2024	16/12/2024	HOLIDAY: 2 WEEKS	03/01/2025	06/01/2025	13/01/2025	20/01/2025	27/01/2025	03/02/2025	10/02/2025	HOLIDAY: 1 WEEK	24/02/2025	03/03/2025	10/03/2025	17/03/2025	24/03/2025	31/03/2025	07/04/2025	HOLIDAY: 2 WEEKS	28/04/2025	05/05/2025	12/05/2025	19/05/2025	HOLIDAY: 1 WEEK	02/06/2025	09/06/2025	16/06/2025	23/06/2025	30/06/2025	07/07/2025	14/07/2025
Year 13	(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 ROP, 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 ROP, ETT							Electrode Potentials L3, ETT, Electrode potentials ROP 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 ROP Organic Prep 10b ROP 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																
Progress and assessment	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.																														
Required Practical (RP)	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																							
Homework <small>(ensure that this is NOT stand alone, but clearly advances or embeds knowledge and understanding)</small>	UpLearn							UpLearn							UpLearn							UpLearn																							

<p>Key Vocabulary/literacy opportunities</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 CCl₄ 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 CCl₄ 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>						
Connected knowledge	<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>					
Spiritual, Moral, Social and cultural.								
British Values	<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>				

Cultural Capital	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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