



Meridian Trust

GCSE Chemistry:

Curriculum Overview

Unit order	Rationale for Sequence	Disciplinary knowledge map	Lessons in sequence
C1	<ul style="list-style-type: none"> - This links the atomic structure from KS3 to impacts on properties of elements. - The knowledge of the atom is essential for all of chemistry. - Knowledge of PT is essential for bonding, reactivity, electrolysis, energy and organic chemistry. - Understanding the differences between metals and non-metals and their position in the PT is essential for C2 bonding. 	<p>Models of the atom, how knowledge of the atom & PT has developed over time (including evidence informing changes to understanding). Demo of Group 1 involves risk assessment. Balancing symbol equations, word equations (applied throughout every unit in context)</p>	<ul style="list-style-type: none"> L1: Elements, compounds and mixtures L2: Mixtures and Separation (multiple lessons) L3: Word and Symbol Equations L4: History of the Atom L5: Atomic Structure L6: Isotopes L7: Mendeleev's Periodic Table L8: Metals and Non-metals L9: Group 1 Metals L10: Transition Metals (Chemistry only) L11: Group 7 Halogens
C2	<ul style="list-style-type: none"> - Builds on knowledge from C1. - Builds on KS3 particle model. - Links for particle model in P3. - Types of interaction between different types of atom are essential for energy changes, reactivity, organic chemistry, chemical analysis. - It's essential to be able to identify metal or non-metal interactions and the differences between bonding and intermolecular forces. 	<p>Models and their limitations – dot and cross / ball and stick vs 3D/ Volumes and Surface Area</p>	<ul style="list-style-type: none"> L1: States of Matter L2: Atoms into Ions L3: Metallic Bonding L4: Alloys and Properties L5: Ionic Bonding L6: Properties of Ionic Compounds L7: Covalent Bonding L8: Properties of Simple Covalent Molecules L9: Giant Covalent Substances L10: Classifying Bonding Practical L11: Nanoparticles

C4a	Continuation of metals and how they react from Key Stage 3	RP Making Soluble Salts: Method design / Filtration & Evaporation / Risk assessment/ Use of Equipment RP Neutralisation titration: Method / Choice of equipment / concordant results / means/ Indicators	L1: Metal Oxides and Hydroxides L2: The Reactivity of Metals L3: Displacement Reactions L4: Metal Extraction (Reduction) L5: Reactions of Acids L6: Neutralisation and pH L7: Acid + Base (RP) L8: Titration (RP) L9: Strong and Weak acids (HT)
C4b	Look at ionic compounds and how they behave, building on ionic bonding.	RP Electrolysis of Aq solutions: Collection of evidence / analysis of products/ Appropriate experimental techniques	L1:Electrolysis L2: Molten Electrolysis L3:Electrolysis of Aluminium L4:Electrolysis in Aqueous Solutions L5: Electrolysis in Aqueous Solutions (Required Practical)
C5	<ul style="list-style-type: none"> - This follows bond making to build on breaking (and making). - Builds on knowledge of ions (electrolysis) and reactivity applied to cells. 	RP Temperature Change – Use of apparatus for measurements/ validity / variables / graphing / data analysis / method design and improvement/ Accuracy/ Risk Assessment	L1 Energy Transfer L2 Measuring energy required practical L3 Reaction profiles L4 Calculating bond energy (H) L5 Cells and Batteries (Separate) L6 Fuel Cells
C3	<ul style="list-style-type: none"> - Conceptually challenging. 	Titration: Calculation of concentration. / units & rearranging equations / percentage yield / ratio	L1: Relative Formula Mass L2: Conservation of Mass

	<ul style="list-style-type: none"> - Standard form and multi-step calculations are required, ensuring this is taught in the mathematics curriculum and applied to science helps pupils to be successful in this unit. - Pupils are technically more proficient using calculator functions later in the course. Includes titrations from C4, C3 is essential to be able to access concentration calculations. 		<p>L3: Moles (H) L4: Using moles to balance equations (H) L5: Calculating reacting masses (H) L6: Limiting reactants (H) L7: Concentration of solution L8: Concentration of solutions 2 (H) L9: Concentration calculations (Separate) L10: Atom economy (Separate) L11: Percentage yield (Separate) L12: Volume of gases (Separate) (H)</p>
C6	<ul style="list-style-type: none"> - Allows students to develop the disciplinary knowledge of procedural use of practical equipment. - Pupils calculate gradients, converting between units. Builds on reactions from C4 - They apply knowledge of the mole as a unit. Includes - Haber process from C10, this is positioned here because it links to rate and yield. - This unit is a good topic to link to industry and careers (Gatsby benchmark 4), this helps to promote post-16 chemistry. 	<p>RP Rates of Reaction Temperature (colour change) RP Rates of Reaction Concentration (Gas collection – Measuring cylinder/ Gas syringe) Choice of equipment / Variables/ Calculating Means/ Graphing/ Collecting Results/ Risk Assessment Volumes and Surface Area</p>	<p>L1: Measuring Rates of Reaction L2: Calculating Rates of Reaction L3: Collision Theory L4: Rates and Concentration (RP) L5: Rates and Temperature L6: Rates and Surface Area L7: Catalysts L8: Reversible Reactions L9: Equilibrium L10: Changing Conditions in Equilibrium (HT) L11: Haber Process (Separate Only)</p>
C7	<ul style="list-style-type: none"> - Builds on displayed formula seen in C5 and C2. Links back to separation techniques in C1. 	<p>Displayed formulas / General Formulas/ Polymerisation models/ Qualitative Test for alkenes</p>	<p>L1: Crude Oil and Alkanes L2: Fractional Distillation</p>

	<ul style="list-style-type: none"> - Builds on the knowledge of different reactions. Links back to simple molecules studied in C2 (polymerisation) 		L3: Cracking L4: Alkenes L5: Combustion L6: Addition Reactions of Alkenes L7: Alcohols L8: Making Ethanol L9: Carboxylic Acids L10: Esters L11: Condensation Polymers
C9	Explores further the combustion reactions seen in C7.	Data analysis / graphical representation / theories are developed based on available evidence	L1: The Earth's early atmosphere and evolution L2: Greenhouse gases L3: Carbon Footprint L4: Atmospheric Pollutants and their effects
C10	<ul style="list-style-type: none"> - Builds on knowledge from C1, C4 and C7 – separating mixtures and reactivity in the creation of potable water and treatment of wastewater. - Life cycle analysis links to C9 (sustainability and greenhouse gases). 	RP Water Purification. Data Interpretation/ Evaluation/ Qualitative Observations and Conclusions/ Appropriate experimental techniques/ Evaporation	L1: Using the Earth's Resources L2: Potable and Waste Water RP L3: Life Cycle Assessments L4: Using Materials (Separate Only) L5: The Haber Process (Separate Only) L6: Exam Question Practice
C8	Applies knowledge from C1, 2, 4. Has the greatest disciplinary knowledge demand, so it makes sense to position this at the end where DK has been developed the most.	RP Chromatography: Ratios/ Accurate Measurements/ Interpret Chromatograms/ Appropriate experimental techniques. RP Identifying Ions: Method design/ Choice of Equipment/ Experimental Techniques/ Analysis of evidence/ Risk/ Qualitative Observation	L1: Mixtures and Formulations L2: Chromatography L3: Chromatography RP L4: Gas test L5: Cation tests L6: Anion tests L7: Instrumental methods & Flame emission Spectroscopy L8: Identifying ions RP