



Curriculum Plan *Trilogy Chemistry*



Year 11	Golden Treads: State the big ideas that will be taught across the year (Threshold concepts) Substances and properties, particles and structure, chemical reactions, Earth chemistry				Enrichment: What is offered through the year to support learning in the classroom?		Review and evaluation: Give date for review of the curriculum
	Topics	Assessment	Substantive Knowledge	Disciplinary Knowledge	Misconceptions	Key Vocabulary	Knowledge tracking
	List the key topics taught in this term. Have you checked that the curriculum the department is teaching links to the National Curriculum where this is appropriate?	Give the name, nature/content and date of the assessment in this term.	List the key facts that students need to learn. Substantive vs disciplinary knowledge	What skills, procedures, thinking is required to use substantive knowledge to progress understanding and application. Substantive vs disciplinary knowledge	What are the key misconceptions that students have in this curriculum area?	List the Tier 2 and Tier 3 words that will be encountered in this term.	What prior learning does this term's curriculum link to and what future learning does this term's curriculum link to?
Term 1	Use of Amount of substance in relation to masses of pure substance and review of quantitative chemistry. Taught throughout Topics in Year 10 and 11	Mock Assessment – Paper 1 content	Conservation of mass and balanced chemical equations Relative formula mass Mass changes when a reactant or product is a gas Chemical measurements Moles Amounts of substances in equations (HT only) Using moles to balance equations (HT only) Limiting reactants (HT only) Concentration of solutions		Most students can understand the principle behind conservation of mass, students however struggle to apply this when a reaction involves a gas leading to losses or gains from the surroundings. Students struggle to balance equations. Misconception surrounding the difference between mass and weight. Like many other words used in science, students will have heard the word 'substance' used with a more general everyday meaning akin to 'essence' or 'flavour'. Students struggle to visualise the size of a mole of a substance. Can relate this to concepts students can visualise to give an impression of scale.	Conservation Concentration Excess Limiting	Year 8: Elements and compounds. Year 9: Atomic structure and the periodic table



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	Rates		Calculating rates of reaction Factors affecting the rates of chemical reactions Collision Theory and activation energy Use of catalysts Reversible reactions and dynamic equilibrium The effect of changing conditions on equilibrium (HT only) The effect of changing concentration (HT only) The effect of temperature changes on equilibrium (HT only) The effect of pressure changes on equilibrium (HT only)	Investigating rates of reaction AT Skills 1, 3, 5 and 8	Common misconceptions in this topic include that 'more collisions' lead to an increased rate of reaction, whereas 'more frequent' collisions (per unit time) is the more correct way of explaining this as there may overall be the same number of collisions but in a different amount of time.	Collisions Particles Reactants Products Concentration Equilibrium	Year 8 – Understanding chemical reactions
Term 2	Organic Chemistry	Mock Assessment 2 – Rates of reaction and Organic Chemistry	Crude oil, hydrocarbons and alkanes Fractional distillation and petrochemicals Properties of hydrocarbons Cracking and alkenes		Organic Chemistry: Correct knowledge of functional groups. Identifying different functional groups from diagrams of molecules, e.g. A student may identify a double bond but not be able to recognise that it is part of a larger carboxylic acid functional group.	Organic Chemistry: Alkane Alkene Cracking Hydrocarbon Viscosity Functional group Homologous series Nucleotide	



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					Being able to link individual concepts into a much larger framework of ideas.		
Term 3	Chemical analysis		Chemical analysis Pure substances Formulations Chromatography Test for Hydrogen Test for Oxygen Test for Carbon dioxide Test for Chlorine	Chemical analysis: Chromatography required practical (AT 1,4)	Chemical analysis: Students struggle to use the equation to calculate RF values correctly, remind students to check answers carefully and that answers should not be greater than 1. Students struggle to link the separation of components to an interaction between the mobile and stationary phases.	Chemical analysis: Chromatography Precipitate Formulation Solvent	Year 8: Earths resources Year 9: Bonding Year 9: Atomic structure
Term 4	Chemistry of the Atmosphere		Composition of Earths past and current atmosphere Greenhouse gases Human activities and how they contribute to greenhouse gas levels Global climate change Carbon footprint Atmospheric pollutants from fuels and their properties		Global warming and the greenhouse effect are the same thing The greenhouse effect is bad and will eventually cause all living things to die	Particles Activation energy Collisions Catalyst Reversible Equilibrium Atmosphere	Year 8 – Earths structure
Term 5	Using resources		Using the Earth's resources and sustainable development Potable water Waste water treatment Alternative methods of extracting metals (HT only) Life cycle assessment Ways of reducing the use of resources	Potable water required practical (AT 2, 3, 4)	Topic uses lots of key vocabulary which students will have familiarity too in a non-science setting. This causes students to define key words incorrectly. Students struggle with definitions surrounding purity when looking at potable water.	Carbon footprint Particulates	Year 8 – Recycling, reusing and reducing Year 8 - sustainability



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Term 6	Revision for Y11 Exams						