Year 10

Subject and Year Group	Autumn Year 10	Autumn 2 Year 10	Spring 1 Year 10	Spring 2 Year 10	Summer 1 Year 10	Summer 2 Year 10
Topic/Unit to be studied	C1 (part 1): Atomic structure and the periodic table	C1 (part 2): Atomic structure and the periodic table C4 (part 1): Reactivity of metals	C3 (part 1): Quantitative chemistry C7: Organic chemistry	C7: Organic Chemistry C6: Rate and extent of chemical change	C6: Rate and extent of chemical change	C10: Using resources (T) C9: Chemistry of the atmosphere
Core Knowledge (Substantive knowledge)	Atomic and electronic structure. How the atom and periodic table has developed over time. Trends in the periodic table	Groups 1,7 and 0. Reactivity of metals. Oxidation and reduction reactions. *Transition metals (T)*	Applying knowledge of atoms to calculate Mr, % by mass and balance equations. Alkanes. Separating fuels from crude oil using fractional distillation.	Cracking. Atmospheric effects of burning fossil fuels. *Alkenes and addition reactions of alkenes (T)* *Addition polymerisation (T)* *Alcohols (T)* *Carboxylic acids (T)* *Esters (T)* *Condensation polymerisation (T)* *Natural polymers (T)* Why reactions take place. Factors affecting rates of reaction. **RP5**- The effect of concentration on rate of reaction	Factors affecting rates of reaction continued. Reversible reactions. Controlling chemical equilibria.	*Production of fertilisers (T)* *Materials chemistry; corrosion of metals, ceramics, composites, polymers, and alloys (T)* Understanding how the Earth's atmosphere has evolved over time. Greenhouse effect. Causes and effects of climate change.
Core Skills (Disciplinary knowledge)	- Use of linear equations to calculate number of neutrons. - Use models to develop understanding and an appreciation of how scientific	- Make observations when reviewing reactivity of metals. - Use appropriate techniques, apparatus, and materials during laboratory work,	- Apply mathematical concepts to complete cracking equations. - Understand and use IUPAC (International Union of Pure and Applied	- Identify anomalies and apply mathematical concepts to calculate means. - Present data using appropriate methods, including tables and graphs including curved lines of best fit - Apply mathematical concepts to calculate	- Make predictions using scientific knowledge and understanding.	- Understand the limitations of scientific evidence. - Present observations and data using appropriate methods, including tables and graph.

	thinking and theories develop over time - Understand the importance of peer review when new scientific discoveries have been made	paying attention to health and safety.	Chemistry) chemical nomenclature	mean rate and rate at a specific point using a tangent and gradient. - Use of decimals, and significant figures in calculations rate. - Understand and use SI units. - Apply mathematical concepts to calculate SA:V ratios. - Make predictions using scientific knowledge and understanding. - Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables. - Make and record observations and measurements using a range of methods; and evaluate the reliability of methods and suggest possible improvements. -Interpret data to draw accurate conclusions.		- Understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review
Assessment	End of Unit assessment (MCQ/short answer/long answer) with interleaved content from previous units	End of Unit assessment (MCQ/short answer/long answer) with interleaved content from previous units	End of Unit assessment (MCQ/short answer/long answer) with interleaved content from previous units	End of Unit assessment (MCQ/short answer/long answer) with interleaved content from previous units	End of Unit assessment (MCQ/short answer/long answer) with interleaved content from previous units	End of Unit assessment (MCQ/short answer/long answer) with interleaved content from previous units

(T) = Triple/Separate science only