Year 11 Chemistry & Combined Science Chemistry	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
	Content delivered: **Unit 6 Calculating rate and extent of chemical change:** Calculating rates of reaction Factors affecting rate of reaction Collision theory Catalysts Reversible reactions Equilibrium	**Content delivered:** **Unit 7 Organic chemistry:** Crude oil Hydrocarbons Alkanes Fractional distillation Alkenes Cracking Reactions of alkenes Alcohols (Chemistry only) Carboxylic acids (Chemistry only) Esterification (Chemistry only) Addition polymerisation (Chemistry only) Condensation polymerisation (Chemistry only)	**Content delivered:** **Unit 8 Chemical analysis:** Pure substances Formulations Chromatography Identification of common gases Identifying anions and cations (Chemistry only)	**Content delivered:** **Unit 9 Chemistry of the atmosphere:** Gases in the atmosphere Earths early atmosphere How atmospheric gases changed Greenhouse gases Global climate change Reducing carbon footprint Atmospheric pollutants	**Content delivered:** **Unit 10:** Using Earth's resources and sustainable development Potable water Waste water treatments Alternative metal extraction methods Life cycle assessment Reducing the use of limited resources Corrosion (Chemistry only) Alloys (Chemistry only) Ceramics (Chemistry only) Haber process (Chemistry only)	**Summer exams**
Key Words **Level 2** **Level 3**	Gradient, concentration, kinetic energy, collision, catalyst, reversible, equilibrium	Alkane, alkene, fractional distillation, cracking, bromine water, viscosity, volatility, alcohol, carboxylic acid, ester, polymerisation	Pure, impure, formulation, chromatography, stationary, mobile, phase	Pollutant, climate change, carbon footprint, particulate, global dimming, photosynthesis, greenhouse gas	Life-cycle assessment, potable, pure, impure desalination, osmosis, sedimentation, sterilisation, phytomining, bioleaching	
Where previous knowledge has occurred and future development **KS2 → KS3 → KS4 → KS5**	KS2: Properties and changes of materials KS3: The particle model KS4: States of matter KS5: Rates, equilibrium and pH	KS2: Rocks KS3: Composites, Polymers and Ceramics KS4: Chemistry of the atmosphere KS5: Aromatics, polymerisation, carbonyls, synthesis, spectroscopy	KS2: States of matter, properties and changes of materials KS3: Separating mixtures KS4: Separating mixtures KS5: Testing for ions	KS2: Earth and space KS3: The Earth's atmosphere and greenhouse effect KS4: Organic chemistry KS5: Analysis	KS2: States of matter KS3: Composites, Polymers and Ceramics KS4: Extracting metals, properties of metals, equilibrium KS5: Dealing with polymer waste	
Common Misconceptions	When the concentration of reactants increases, a reaction will take longer because there will be more particles to collide.	When a substance melts or boils, all of the bonds are broken	All substances will eventually move all the way up the paper in paper chromatography	Confusing climate change, global warming and ozone. Global warming and climate change are opinionated. Most of our atmosphere is oxygen.	Identified and addressed from mock exams	
Literacy	Scientific writing (HSW): Rates of reaction NHTW reviews as starter activities	Writing to describe: process of fractional distillation NHTW reviews as starter activities	Scientific writing (HSW): Chromatography Scientific writing (HSW): Anion and cation tests NHTW reviews as starter activities	Writing to describe: evolution of atmosphere Writing to argue: Alternative extraction methods Scientific writing (HSW): Water testing NHTW reviews as starter activities	Writing to argue: Life cycle assessment Writing to describe: Haber process NHTW reviews as starter activities	
Numeracy	Tangents Gradients from graphs Calculating means	Calculating means	Calculating Rf values (ratios)	Interpreting graphs Calculating means	Standard form	
Homework	Completion of kerboodle/Seneca/carousel quizzes	Completion of kerboodle/Seneca/carousel quizzes	Completion of kerboodle/Seneca/carousel quizzes	Completion of kerboodle/Seneca/carousel quizzes	Completion of kerboodle/Seneca/carousel quizzes	
Assessment this half-term	Unit 6 test with units 1-5 included	Mock exams – mixed paper 1&2	Units 7&8 with units 1-6 included	Mock exams – mixed paper 2	Paper 1 exam – Mon 19th May AM	
Career opportunities **Employment Links**	LIFE SKILLS: Understanding the speed of different reactions EMPLOYMENT: Product/ process chemist, chemical engineer	LIFE SKILLS: Understanding where oil and its products come from EMPLOYMENT: Analytical chemist, medicinal chemist	LIFE SKILLS: Understanding the causes of climate change EMPLOYMENT: Forensic scientist, soil scientist	LIFE SKILLS: Understanding the 'life cycle' of different products EMPLOYMENT: Atmospheric chemist, environmental chemist	LIFE SKILLS: Resilience and organisation EMPLOYMENT: Environmental /sustainability manager	
Enrichment			Chemistry olympiad			
Practical activities/HSW	Concentration and rates Temperature and rates Surface area and rates	Distillation Cracking Testing for alkenes	Paper chromatography Gas tests Testing for anions and cations	Complete and incomplete combustion	Required practical reviews	
Employability Skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	
IT Skills	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	