	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Year 12 Chemistry	Content delivered: Unit 2.1: Isotopes Atomic structure RAM Ionic formulae Balancing equations Avogadros number Empirical formulae Ideal gas equation Stoichiometric relationships Percentage yield Atom economy Formulae of acids and alkalis Dissociations in acids Neutralisation Preparing standard solutions Unit 2.2: Electron configurations Orbitals Order of filling orbitals Ionic bonding as electrostatic attraction Giant ionic lattices Structure and physical properties of ionic compounds Covalent bonding (single, multiple and dative) Shapes and bond angles Electron pair repulsion	Content delivered: Unit 2.1: Acid-base titrations Titration calculations Oxidation numbers Redox Unit 2.2: Electronegativity Polar bonds Hydrogen bonding Anomalous properties of water Structure and bonding in covalent compounds Unit 3.1: Periodic table lonisation energies Metallic bonding Physical properties of giant metallic and giant covalent lattices Variations in melting points Unit 4.1: Application of IUPAC Types of formulae	Content delivered: Unit 3.1: Trends in reactivity Reactivity of group 2 Halogens as diatoms Group 7 electron configuration Group 7 trends in reactivity Disproportionation Using chlorine in water treatment Precipitation reactions Qualitative analysis of ions Unit 4.1: Movement of electron pairs Diploes Alkanes Tetrahedral shapes Bond angles Dipole-dipole interactions Reactivity of alkanes Combustion of alkanes Radical substitution	Content delivered: Unit 3.2: Enthalpy Standard conditions Enthalpy change of formation Enthalpy change of reaction Enthalpy change of combustion Enthalpy change of neutralisation  q = mc∆T Average bond enthalpy Hess' law Unit 4.1: Alkenes Trigonal planar shapes Stereoisomerism Reactivity of alkenes Addition reactions in alkenes Electrophilic addition by heterolytic fission Markownikoffs rule Addition polymerisation Sustainability of processing waste polymers Polarity of alcohols Classification of alcohols Combustion of alcohols Oxidation of alcohols Oxidation of alcohols	Content delivered: Unit 3.2: Determining enthalpy change directly and indirectly Factors affecting rate Calculating reaction rate Homogenous and heterogeneous catalysts Boltzmann distribution Dynamic equilibrium Unit 4.2: Eliminating water from alcohols Hydrolysis of haloalkanes Mechanism of nucleophilic substitution in hydrolysis Trends in rates of hydrolysis Halogen radicals Quickfit Identification of functional groups Interpreting the IR spectrum Monitoring air pollution using IR spectroscopy Using mass spec Analysing fragmentation peaks Structures of organic compounds Synthetic routes for preparing organic compounds IR radiation and covalent bonds Absorption of IR radiation by atmospheric gases 3.2: Enthalpy, lattice enthalpy, enthalpy	Content delivered: Unit 3.2: Le Chatelier's principle Use of catalysts Equilibrium constant Estimating position of equilibrium Unit 4.2: IR radiation and covalent bonds Absorption of IR radiation by atmospheric gases Revise all Y12 content
Level 2 Level 3	proton, electron, relative abundance, relative atomic mass, relative isotopic mass, relative molecular mass, mass spectrometer/y, relative isotopic mass, compound ion, state symbol, nitrate, sulfate, phosphate, hydroxide, mole, balancing, Avogadro's Constant, ideal gas  2.2: Electron configuration, shell, subshell, Enthalpy, bonding pair, lone pair, dative covalent bond.	neutralisation, burette, pipette, oxidation, reduction, redox  2.2: Electron configuration, shell, subshell, Enthalpy, bonding pair, lone pair, dative covalent bond, intermolecular forces, dipole, dispersion, polar, nonpolar, electronegativity, enthalpy  3.1: Electron configuration, lonisation energy, atomic radius, shielding, lattice, electrostatic, electronegativity, disproportionation, redox, precipitation, intermolecular forces  4.1: Hydrocarbon, homologous series, alkane, alkene, alkyl, alicyclic, saturated, unsaturated, isomer/ism, structural isomer, organic compound,	energy, atomic radius, shielding, lattice, electrostatic, electronegativity, disproportionation, redox, precipitation, intermolecular forces  3.2: Enthalpy, lattice enthalpy, enthalpy of formation, enthalpy of combustion, enthalpy of solution, Born-Haber cycle, electron affinity  4.1: Curly arrow, reaction mechanism, substitution reaction, Radical, initiation, propagation, termination, addition, heterolytic, homolytic, isomerism, electrophile, primary, secondary, tertiary, CIP, Markownikoff, Hydrocarbon, homologous series, alkane, alkene, alkyl, alicyclic, saturated, unsaturated, isomer/ism, structural isomer, organic compound, displayed/structural/skeletal molecular formula(e)	of formation, enthalpy of combustion, enthalpy of solution, Born-Haber cycle, electron affinity  4.1: Addition, heterolytic, homolytic, isomerism, electrophile, primary, secondary, tertiary, CIP, Markownikoff, Curly arrow, reaction mechanism, substitution reaction, Radical, initiation, propagation, termination	of formation, enthalpy of combustion, enthalpy of solution, Born-Haber cycle, electron affinity, Boltzmann, gradient, tangent, collision theory, homogeneous, heterogeneous, catalyst, activation energy  4.2: Primary, secondary, tertiary, oxidation, combustion, aldehyde, ketone, carboxylic acid, addition, elimination, substitution, hydrolysis, reflux, distillation, liebig condenser, separating funnel, fragmentation, fragment ion, M peak, M+1 Peak	All Rey Words 30 rdi
Where previous knowledge has occurred and future development KS2 → KS3 → KS4 → KS5	KS2: Properties of materials KS3: Composites, Polymers and Ceramics KS4: Organic chemistry, the atom KS5: Used through out all units	KS2: Solids, liquids and gases KS3: Acids and alkalis, chemical reactions KS4: Quantitative chemistry, the atom KS5: Balancing equations	KS2: Changes of state KS3: Metals and non-metals, periodic table KS4: Organic chemistry, bonding, the atom KS5: Electron configuration	KS2: Changes of state KS3: Chemical reactions, physical and chemical changes KS4: The atom, energy changes, organic chemistry KS5: Reactivity of alkanes	KS2: Drawing graphs KS3: Chemical reactions KS4: Energy changes, rates, organic chemistry KS5: Structures and physical properties of compounds	KS2: Drawing graphs KS3: Digestion KS4: Chemical analysis, rates, organic chemistry KS5: Covalent bonding
Common Misconceptions	<ul><li>2.1: Compound ions</li><li>2.1.: Moles due to dissociations</li><li>3.1: Difference between base and alkali</li></ul>	2.2: Oxidising agents/oxidised 3.1: Miscalculating ox. nos 3.2: Identifying types of enthalpy	2.2: Identifying IM forces 3.2: Confusing the – and + in the equation 4.1: Naming from the wrong end	3.2: Confusing the – and + in the equation 4.1: Intermolecular and intramolecular forces 4.1: conservation of charge	3.2: Confusing the – and + in the equation 4.2: identifying reaction types 4.2: Reversing the order of reactivity of halogens 4.2: Confusing peaks and troughs	All misconceptions so far

Literacy	Scientific writing (HSW): PAG 1 Moles determination NHTW reviews as starter activities	Scientific writing (HSW): PAG 2 Acid-base titration Writing to describe: Benefits for sustainability of developing chemical processes with high atom economy NHTW reviews as starter activities	Writing to argue: Sustainability of processing waste polymers NHTW reviews as starter activities	Scientific writing (HSW): PAG 3 Enthalpy determination Scientific writing (HSW): PAG 4 Qualitative analysis of ions NHTW reviews as starter activities	Scientific writing (HSW): PAG 5 Synthesis of an organic liquid NHTW reviews as starter activities	NHTW reviews as starter activities
Numeracy	Rearranging formula Calculating percentages	Rearranging formula			Drawing and interpreting graphs Gradients Rearranging equations	
Homework	Completion of Seneca section quizzes	Completion of Seneca section quizzes	Completion of Seneca section quizzes	Completion of Seneca section quizzes	Completion of Seneca section quizzes	Completion of Seneca section quizzes
Assessment this half-term	Test on content delivered so far PAG 1 Moles determination	Test on content delivered so far PAG 2 Acid-base titration	Test on content delivered so far	Test on content delivered so far PAG 4 Qualitative analysis of ions	Test on content delivered so far PAG 3 Enthalpy determination PAG 5 Synthesis of an organic liquid PAG 10 Rates of reaction - continuous monitoring PAG 9 Rates of reaction – initial rates	Mock exams – AS Papers
Career opportunities Employment Links	LIFE SKILLS: Understanding what chemical formula represents EMPLOYMENT: Crystallographer	LIFE SKILLS: Understanding efficiency EMPLOYMENT: Process engineer	LIFE SKILLS: Understanding different reaction types EMPLOYMENT: Product development chemist	LIFE SKILLS: Understanding enthalpy EMPLOYMENT: Chemical engineer	LIFE SKILLS: Understanding how to change the rate of a reaction EMPLOYMENT: Fertiliser manufacturing	LIFE SKILLS: Understanding how to detect and monitor air pollution EMPLOYMENT: Environment Agency
Practical activities/HSW	PAG 1 Moles determination	PAG 2 Acid-base titration Burning hydrocarbons		PAG 4 Qualitative analysis of ions	PAG 3 Enthalpy determination PAG 5 Synthesis of an organic liquid	PAG 10 Rates of reaction - continuous monitoring PAG 9 Rates of reaction – initial rates
Employability Skills	Aiming high Creativity Leadership Listening Presenting Problem solving  Literacy Numeracy Lindependence Communication Teamwork Problem solving  Staying positive	Aiming high Creativity Leadership Listening Presenting Problem solving  Literacy Numeracy Independence Communication Teamwork Problem solving Staying positive	Aiming high Creativity Leadership Listening Presenting Problem solving  Literacy Numeracy Independence Communication Teamwork Problem solving Staying positive	Aiming high Creativity Leadership Listening Presenting Problem solving  Literacy Numeracy Independence Communication Teamwork Problem solving Staying positive	Aiming high Creativity Leadership Listening Presenting Problem solving  Literacy Numeracy Independence Communication Teamwork Problem solving Staying positive	Aiming high Creativity Leadership Listening Presenting Problem solving  Literacy Numeracy Independence Communication 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	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes