

Year 12	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge	<p>Module 2: Foundations in chemistry</p> <ul style="list-style-type: none"> Atomic structure and isotopes Relative masses Electron structure Formulae equations Amount of substance and the mole Determination of formulae Reacting quantities 	<p>Module 2: Foundations in chemistry</p> <ul style="list-style-type: none"> Moles and volume of gases and solutions Acids, Base and neutralisation Titration calculations Acid base titrations Redox Ionic bonding and structure Covalent bonding Shapes of molecules and ions Electronegativity and polarity Intermolecular forces Hydrogen bonding 	<p>Module 3: Periodic table and energy</p> <ul style="list-style-type: none"> The periodic table Ionisation energies Periodic trends in bonding and structure Group 2 and the halogens <p>Module 4: Core organic chemistry</p> <ul style="list-style-type: none"> Basic concepts Nomenclature of organic compounds Representing the formulae of organic compounds Isomerism- both structural and stereoisomerism 	<p>Module 3: Periodic table and energy</p> <ul style="list-style-type: none"> Qualitative analysis Enthalpy changes Measuring enthalpy changes Bond enthalpies Hess's law and enthalpy cycles <p>Module 4: Core organic chemistry</p> <ul style="list-style-type: none"> Introduction to organic mechanism Properties of alkanes Chemical reactions of alkanes Properties of alkenes Reactions of alkenes Electrophilic addition of alkenes Polymerisation of alkenes 	<p>Module 3: Periodic table and energy</p> <ul style="list-style-type: none"> Reaction rates Catalysts Boltzmann distribution Dynamic equilibrium and le Chatelier's principle The equilibrium constant <p>Module 4: Core organic chemistry</p> <ul style="list-style-type: none"> Properties of Alcohols and reactions of alcohols The chemistry of halo alkane Organo-halogen compounds in the environment Analytical techniques (IR and MS) Synthetic routes 	<p>Module 5: Physical chemistry and transition elements</p> <ul style="list-style-type: none"> Orders, rate equations, and rate constants Concentration-time graphs Rate-concentration graphs <p>Module 6: Organic chemistry and analysis</p> <ul style="list-style-type: none"> Carbonyl compounds Identifying aldehydes and ketones
Numeracy in Chemistry	<ul style="list-style-type: none"> make use of appropriate units in calculation use expressions in decimal and ordinary form use appropriate amount of significant figures 	<ul style="list-style-type: none"> Find arithmetic means Uncertainties in measurements Concentration calculations 	<ul style="list-style-type: none"> Change the subject of the equation Substitute numerical values in to algebraic equations 	<ul style="list-style-type: none"> Percentage yield of products Rates of reaction calculations Kc expression and calculations 	<ul style="list-style-type: none"> Plotting graphs and translating information between graphical, numerical and algebraic forms Determining the slope from the graph 	<ul style="list-style-type: none"> Graphs Determining intercept values of linear graphs Rate calculations from graph tangents
Required Practical's and Skills	PAG 1 Mole determination	PAG 2 Acid-Base titration	PAG 3 Enthalpy determination	PAG 4 Qualitative analysis of inorganic ions	PAG 5 Synthesis of an organic liquid	Organic synthesis- practical techniques in organic chemistry
Links	2.1.1-2.1.2-atomic-structure.pdf 2.1.3-amount-of-substance.pdf 2-2-1-electronics-structure.pdf	2-1-5-redox.pdf 2.2.2-bonding-and-structure.pdf 2-1-4-acids.pdf	3-1-1-periodicity.pdf 3-1-2-group-2.pdf 4.1.1-revision-guides-basic-concepts-and-hydrocarbons.pdf	4.1.1-revision-guides-basic-concepts-and-hydrocarbons.pdf 3-1-3-halogens.pdf	4.2.1-revision-guide-alcohols.pdf 4.2.2-revision-guide-haloalkanes.pdf	

Year 13	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge	<p>Module 5: Physical chemistry and transition elements</p> <ul style="list-style-type: none"> Orders, rate equations, and rate constants Concentration-time graphs Rate-concentration graphs Rate-determining step Rate constants and temperature <p>Module 6: Organic chemistry and analysis</p> <ul style="list-style-type: none"> Carbonyl compounds Identifying aldehydes and ketones Carboxylic acids and its derivatives 	<p>Module 5: Physical chemistry and transition elements</p> <ul style="list-style-type: none"> Transition elements-d-block elements The formation and shapes of complex ions Stereoisomerism in complex ions Ligand substitution and precipitation Redox and qualitative analysis <p>Module 6: Organic chemistry and analysis</p> <ul style="list-style-type: none"> Aromatic compounds-introducing Benzene Electrophilic substitution reactions The chemistry of Phenol Di-substitution and directing groups 	<p>Module 5: Physical chemistry and transition elements</p> <ul style="list-style-type: none"> Bronsted-Lowry acids and bases The pH scale and strong acids The acid dissociation constant K_a The pH of weak acids pH and strong bases <p>Module 6: Organic chemistry and analysis</p> <ul style="list-style-type: none"> Nitrogen compounds-Amines Amino acids, amides and chirality Condensation polymers 	<p>Module 5: Physical chemistry and transition elements</p> <ul style="list-style-type: none"> Enthalpy, entropy and free energy <p>Module 6: Organic chemistry and analysis</p> <ul style="list-style-type: none"> Chromatography and spectroscopy (NMR) 	<p>Module 5: Physical chemistry and transition elements</p> <ul style="list-style-type: none"> Redox and electrode potentials <p>Module 6: Organic chemistry and analysis</p> <ul style="list-style-type: none"> Polymers Organic synthesis <p>Revision and Consolidation</p>	
Numeracy in Chemistry	<ul style="list-style-type: none"> Graphs Determining intercept values of linear graphs Rate calculations from graph tangents 	<ul style="list-style-type: none"> K_p and K_c calculations Use of angles and shapes in 2-D and 3-D structures 	<ul style="list-style-type: none"> Logarithmic scales Inverse log calculations Graphs drawing both by hand and by using excel 	<ul style="list-style-type: none"> Electrode potential calculations Understanding symmetry 		
Required practical and Skills	PAG 7,10 Qualitative analysis of organic compounds Rates of reaction-initial rate method	PAG 9 Rate of reaction- continuous monitoring method	PAG11 pH titration pH of buffers	PAG 6, 12 Synthesis of an organic solid Research Skills	PAG 8 Electrochemical cells	
Independent Learning Link	5.1.1-revision-guide-how-fast.pdf 6.1.2-revision-guide-carbonyls.pdf	5.1.2-revision-guide-how-far.pdf 6-1-3-revision-guide-carboxylic-acids-and-esters.pdf	5.1.3-revision-guide-acids-bases-and-buffers.pdf 6.2.2-revision-guides-amino-acids-amides.pdf	5-2-1-5-2-2-revision-guide-energy.pdf 6.3.2-revision-guide-spectroscopy.pdf	6-2-5-revision-guides-organic-synthesis.pdf 5.2.3-revision-guide-redox-and-electrode-potentials.pdf	

