





ANNUAL PLAN FOR CHEMISTRY, KEY STAGE 5, A LEVEL, EDEXCEL (2021-22)

		Key Concepts 	
Term 1, September – December	<ul style="list-style-type: none"> Further Kinetics 	<ul style="list-style-type: none"> Techniques for measuring the rate of reaction Rate of reactions, rate constants and orders of reaction Determining orders of reaction Rate equations and mechanisms Activation energy and catalysis Effect of temperature on the rate constant 	120
	<ul style="list-style-type: none"> Entropy and energetics 	<ul style="list-style-type: none"> Introduction to entropy Total entropy Understanding entropy changes Lattice energy and Born Haber cycles Experimental and theoretical lattice energies Enthalpy changes of solution and hydration 	
	<ul style="list-style-type: none"> Chemical Equilibria 	<ul style="list-style-type: none"> Equilibrium constant, K_c Equilibrium constant, K_p Factors affecting equilibrium constants 1 Factors affecting equilibrium constants 2 Relating entropy to equilibrium constants 	
	<ul style="list-style-type: none"> Acid-base Equilibria 	<ul style="list-style-type: none"> The Bronsted-Lowry theory Hydrogen ion concentration and the pH scale Ionic product of Water, K_w Analysing data from pH measurements Acid-base titrations, pH curves and indicators Buffer solutions Buffer solutions and pH curves 	
	<ul style="list-style-type: none"> Organic chemistry: carbonyls, carboxylic acids and chirality 	<ul style="list-style-type: none"> Chirality and enantiomers Optical activity Optical activity and reaction mechanisms Carbonyl compounds and their physical properties Redox reactions of carbonyl compounds Nucleophilic addition reactions Carboxylic acids and their physical properties Preparations and reactions of carboxylic acids Carboxylic acids derivatives: acyl chlorides Carboxylic acid derivatives: Esters Carboxylic acid derivatives: Polyesters Simple chromatography Determining structures using mass spectra Chromatography: HPLC and GC Chromatography and mass spectrometry Principles of NMR Spectroscopy C NMR Spectroscopy H NMR Spectroscopy Splitting patterns in H NMR Spectra 	
	<ul style="list-style-type: none"> Redox Equilibria 	<ul style="list-style-type: none"> Standard electrode potentials Electrochemical cells Standard electrode potentials and thermodynamic feasibility Redox in action – Fuel cells Redox titrations 	

Term 2, January – March	<ul style="list-style-type: none"> Transition metals Benzene and its compounds. Arenes Organic Nitrogen compounds: Amines, Amides, Amino acids and Proteins Organic synthesis Practical Skills 2 	<ul style="list-style-type: none"> Transition metal electronic configurations Ligands and complexes The origin of colour in complexes Common shapes of Complexes Square planar complexes Multidentate ligands Different types of reactions for transition metals Reactions of cobalt and iron complexes The chemistry of chromium Reactions of manganese complexes The chemistry of vanadium Reactions of nickel and Zinc complexes Transition metals as catalysts. Heterogeneous catalysts. Homogeneous catalysts The Benzene ring: A molecule with two models Reactions of arenes Electrophilic substitution mechanisms Phenol Amines and their preparations Acid-base reactions of amines Other reactions of amines Amides and Polyamides Amino acids Peptides and proteins Organic analysis Organic synthesis Hazards, risks and control measures Practical techniques in Organic Chemistry 	88
Term 3, April – June	<ul style="list-style-type: none"> Revision 		104
	Exams	Exams	312