

Key Stage Five Curriculum – Carre’s Grammar School

Subject							
	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6	
Year 13	<p><u>Structure determination</u></p> <ol style="list-style-type: none"> 1. Nuclear magnetic resonance spectroscopy 2. Proton NMR 3. Carbon NMR 4. Interpreting spectra <p><u>Nomenclature and isomerism</u></p> <ol style="list-style-type: none"> 1. Naming organic compounds 2. Reactions of the carbonyl group in aldehydes and ketones 3. Synthesis of optically active compounds <p><u>Compounds containing the carbonyl group</u></p> <ol style="list-style-type: none"> 1. Introduction to aldehydes and ketones 2. Reactions of the carbonyl group in aldehydes and ketones 3. Carboxylic acids and esters 4. Reactions of carboxylic acids and esters 5. Acylation <p><u>Thermodynamics</u></p> <ol style="list-style-type: none"> 1. Enthalpy change 2. Born-Haber cycles 3. More enthalpy changes 4. Whys do chemistry reactions take place? 	<p><u>Amines</u></p> <ol style="list-style-type: none"> 1. Introduction 2. Properties of amines as bases 3. Amines as nucleophiles and their synthesis <p><u>Aromatic chemistry</u></p> <ol style="list-style-type: none"> 1. Introduction 2. Arenes – physical properties, naming and reactivity 3. Reactions of arenes <p><u>Polymerisation</u></p> <ol style="list-style-type: none"> 1. Condensation polymers <p><u>Amino acids, proteins and DNA</u></p> <ol style="list-style-type: none"> 1. Introduction to amino acids 2. Peptides, polypeptides and proteins 3. Enzymes 4. DNA 5. The action of anti-cancer drugs <p><u>Kinetics</u></p> <ol style="list-style-type: none"> 1. The rate of a chemical reaction 2. The rate expression and order of reaction 3. Determining the rate equation 4. The rate determining step 	<p><u>Equilibrium constant Kp</u></p> <ol style="list-style-type: none"> 1. Equilibrium constant, Kp, for homogeneous systems <p><u>Acids bases and buffers</u></p> <ol style="list-style-type: none"> 1. Defining an acid 2. The pH scale 3. Weak acids and bases 4. Acid-base titrations 5. Choice of indicators for titrations 6. Buffer solutions <p><u>Periodicity</u></p> <ol style="list-style-type: none"> 1. Reactions of Period 3 elements 2. The oxides of elements in Period 3 3. The acidic / basic nature of Period 3 oxides <p><u>Organic synthesis and analysis</u></p> <ol style="list-style-type: none"> 1. Synthetic routes 2. Organic analysis <p><u>Chromatography</u></p> <ol style="list-style-type: none"> 1. Chromatography <p><u>Electrode potentials and electrochemical cells</u></p> <ol style="list-style-type: none"> 1. The electrochemical series 2. Predicting the direction of redox reactions 3. Electrochemical cells 	<p><u>The transition metals</u></p> <ol style="list-style-type: none"> 1. General properties of transition metals 2. Complex formation and shapes of complex ions 3. Coloured ions 4. Variable oxidation states of transition elements 5. Catalysts <p><u>Reactions of inorganic compounds in aqueous solutions</u></p> <ol style="list-style-type: none"> 1. The acid-base chemistry of aqueous transition metal ions 2. Ligand substitution reactions 3. Summary of acid-base substitution reactions of selected metal ions. 	<p><u>Revision</u></p> <ol style="list-style-type: none"> 1. Paper 3 core practicals revision. 2. Structured past paper revision. 		
		<p>Assessment October – End of term test. This test covers topics taught in Y12. December – End of term test. This test covers topics taught in Autumn 2</p>		<p>Assessment February – End of term test. This test covers topics All Y12 and Y13 topics to date. April- End of term test. This test covers topics taught in Spring 4.</p>			

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