Subject	Chemistry		
	Interpretation of National Curriculum into Year group Endpoints		
Year	**Term 1**	**Term 2**	**Term 3**
13	Students will desribe and explain the concepts of: **Equilibrium and pH** The largely qualitative treatment of equilibria encountered in Year 12 is developed within a quantitative and graphical context. This section also allows learners to develop practical quantitative techniques involved in the determination pH. There are many opportunities for developing mathematical skills, including use of logarithms and exponents, when studying the content of this section and when carrying out quantitative practical work. **Energy** Born–Haber cycles are used as a theoretical model to illustrate the energy changes associated with ionic bonding. Entropy and free energy are then introduced as concepts used to predict quantitatively the feasibility of chemical change. **Aromatic compounds, carbonyls and acids** Extends the range of functional groups encountered in year 12. Aromatic compounds are introduced, including the central role of delocalisation within the chemistry of arenes and phenols. Directing groups are also introduced, including their importance to organic synthesis. The important carbonyl compounds, aldehydes and ketones, are then studied. Finally, carboxylic acids and their related functional groups, acyl chlorides and esters, are studied. The importance of acyl chlorides in organic synthesis is emphasised.	Students will desribe and explain the concepts of: **Energy (continued)** Redox chemistry permeates chemistry and the introductory work in Year 12 is developed further within this section, including use of volumetric analysis for redox titrations and an introduction of electrochemistry in the context of electrode potentials. **Transition elements** This section provides learners with a deeper knowledge and understanding of the periodic table within the context of the transition elements. This section includes the role of ligands in complex ions, stereochemistry, precipitation, ligand substitution and redox reactions. The colour changes and observations in these reactions increase the toolkit of qualitative inorganic tests for identifying unknown ionic compounds. **Nitrogen compounds, polymers and synthesis** Focuses on organic nitrogen compounds, including amines, amides and amino acids. Chirality and optical isomerism is also introduced. Condensation polymerisation is introduced and compared with addition polymerisation. The importance of carbon–carbon bond formation in organic synthesis is stressed. Learners also consider multi-stage synthetic routes towards an organic product and acquire the related practical skills. **Analysis** This section demonstrates how analytical techniques of infrared spectroscopy, mass spectrometry and elemental analysis may be used in combination with NMR spectroscopy to provide evidence of structural features in molecules. This section also looks at how unknown organic functional groups can be analysed and identified using simple test-tube tests (brings together lots of the functional groups met throughout	Students will take the three exams which make up the assessment for A-Level Chemistry.