Bishop Stopford's School

Curriculum Map Year 12 **Chemistry**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of work	**Section 1 Physical chemistry** **Atomic structure** **Energetics** **Amount of substance**	**Section 1 Physical chemistry** **Bonding** **Kinetics** **Equilibria**	**Section 1 Physical chemistry** **Oxidation, reduction and redox reactions** **Section 3 Organic Chemistry 1** **Alkanes** **Periodicity**	**Section 2 Inorganic Chemistry 1** **Group 2, the Alkaline Earth Metals** **Group 7 (17), the Halogens** **Section 3 Organic Chemistry 1** **Haloalkanes** **Alkenes**	**Section 3 Organic chemistry 1** **Organic Analysis** **Alcohols**	**Revision and Trial Exams** **A2** **Thermodynamics** **Periodicity (Period 3)**
Core Skills	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy	• Enquiry • Communication (literacy) • Develop extended writing • Critical thinking • Analysis • Critical evaluation • Make judgements • Make arguments • Draw informed decisions • Synthesis of information • Inference • Numeracy
Core Knowledge	Section 1 Physical chemistry Atomic structure • Fundamental particles • Mass number, atomic number and isotopes • The arrangement of the electrons • The mass spectrometer • More about electron arrangements in atoms • Electron arrangements and ionisation energy Energetics • Exothermic and endothermic reactions • Enthalpy • Measuring enthalpy changes • Hess's Law • Enthalpy changes of combustion • Representing thermochemical cycles • Bond Enthalpies Amount of substance • Relative atomic and molecular masses, the Avogadro constant and the mole • Moles in solution • The ideal gas equation • Empirical and molecular formulae • Balanced equations and related calculations • Balanced equations, atom economics and percentage yields	Section 1 Physical chemistry Bonding • The nature of ionic bonding • Covalent bonding • Metallic bonding • Electronegativity – bond polarity in covalent bonds • Forces acting between molecules • The shapes of molecules and ions • Bonding and physical properties Kinetics • Collision theory • The Maxwell-Boltzmann distribution • Catalysts Equilibria • The idea of equilibrium • Changing the conditions of an equilibrium reaction • Equilibrium reactions in Industry • The Equilibrium constant, Kc • Calculations using equilibrium constant expressions • The effect of changing conditions on equilibria	Section 1 Physical chemistry Oxidation, reduction and redox reactions • Oxidation and reduction • Oxidation states • Redox Equations Section 3 Organic Chemistry 1 Alkanes • Carbon compounds • Nomenclature – naming organic compounds • Isomerism • Fractional distillation of crude oil • Industrial cracking • Combustion of alkanes • The formation of halogenoalkanes Section 2 Inorganic Chemistry 1 Periodicity • The Periodic table • Trends in the properties of elements – period 3 • More trends in the properties of the elements in period 3 • A closer look at ionising energies	Section 2 Inorganic Chemistry 1 Group 2, the Alkaline Earth Metals • The physical and chemical properties of group 2 Group 7 (17), the Halogens • The halogens • The chemical reactions of the Halogens • Reactions of halide ions • Uses of chlorine Section 3 Organic Chemistry 1 Haloalkanes • Halogenoalkanes – Introduction • Nucleophillic substitution in halogenalkanes • Elimination reaction in halogenoalkanes Alkenes • Alkenes • Reactions of alkenes • Addition polymers	Section 3 Organic chemistry 1 Organic Analysis • Test-tube reactions • Mass spectrometry • Infrared spectroscopy Alcohols • Alcohols – Introduction • Ethanol production • The reactions of alcohols	All Section 1 Physical chemistry Thermodynamics • Enthalpy change • Born-Haber cycles • More enthalpy changes • Why do chemistry reactions take place Section 2 Inorganic Chemistry 2 Periodicity • Reactions of period 3 elements • The oxides of elements in period 3 • The acid/base nature of the period 3 oxides
Assement & Feedback	Formative HW tasks. tasks. End of topic test. Once per two weeks Peer Assessment (PA) and Self Assessment (SA) using green pen. Next steps to be acted upon and monitored.	Formative HW tasks. tasks. End of topic test. Once per two weeks Peer Assessment (PA) and Self Assessment (SA) using green pen. Next steps to be acted upon and monitored.	Formative HW tasks. tasks. End of topic test. Once per two weeks Peer Assessment (PA) and Self Assessment (SA) using green pen. Next steps to be acted upon and monitored.	Formative HW tasks. tasks. End of topic test. Once per two weeks Peer Assessment (PA) and Self Assessment (SA) using green pen. Next steps to be acted upon and monitored.	Formative HW tasks. tasks. End of topic test. Once per two weeks Peer Assessment (PA) and Self Assessment (SA) using green pen. Next steps to be acted upon and monitored.	Formative HW tasks. tasks. End of topic test. Once per two weeks Peer Assessment (PA) and Self Assessment (SA) using green pen. Next steps to be acted upon and monitored.
Link to prior learning	KS 4 National Curriculum - Atomic structure, exothermic and endothermic reactions, mole calcualtions, formulae, atom economy	KS 4 National Curriculum - types of bonding, equilibrium, collision theory	KS 4 National Curriculum - organic chemistry, hydrocarbons, the periodic table	KS 4 National Curriculum - Halogens, alkenes and polymers	Uses of mass spectrometry	Bond energies