Bishop Stopford's School

Curriculum Map Year 13 **Chemistry**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of work	Section 1 Physical chemistry Thermodynamics Kinetics Acids, bases and buffers Equilibrium Constant Kp Electrode potentials and electrochemical cells Section 2 Inorganic Chemistry 2 Periodicity Section 3 organic chemistry Compounds containing the carbonyl group continued	Section 1 Physical chemistry Acids, bases and buffers Equilibrium Constant Kp Electrode potentials and electrochemical cells Section 3 organic chemistry Compounds containing the carbonyl group continued	Section 3 Organic chemistry 2 Aromatic chemistry Polymerisation The Transition metals Reactions of inorganic compounds in aqueous solutions	Section 3 Organic chemistry 2 Structure determination Amino acids, proteins and DNA	Section 3 Organic chemistry 2 Structure determination Chromatography Revision	Revision and Exams
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 Thermodynamics • Enthalpy change • Born-Haber cycles • More enthalpy changes • Why do chemistry reactions take place Kinetics • The rate of chemical reactions • The rate expression and order of reaction • Determining the rate equation • The Arrhenius equation • The rate determining step Electrode potentials and electrochemical cells • The electrochemical series • Predicting the direction of redox reactions • Electrochemical cells Acids, bases and buffers • Defining an acid • The pH scale • Weak acids and bases • Acid-base titrations • Choice of indicators for titrations • Buffer solutions Equilibrium Constant Kp • Equilibrium constant Kp for homogeneous systems 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 Section 3 organic chemistry Compounds containing the carbonyl group continued • Carboxylic acids and esters • Reactions of carboxylic acids and esters • Acylation	Section 1 Physical chemistry Electrode potentials and electrochemical cells • The electrochemical series • Predicting the direction of redox reactions • Electrochemical cells Acids, bases and buffers • Defining an acid • The pH scale • Weak acids and bases • Acid-base titrations • Choice of indicators for titrations • Buffer solutions Equilibrium Constant Kp • Equilibrium constant Kp for homogeneous systems Section 3 organic chemistry Compounds containing the carbonyl group continued • Carboxylic acids and esters • Reactions of carboxylic acids and esters • Acylation	Section 3 Organic chemistry 2 Aromatic chemistry • Introduction to arenes • Arenes – physical properties, naming and reactivity • Reaction of arenes Amines • Introduction to amines • The properties of amines as bases • Amines as nucleophiles and their synthesis Polymerisation • Condensation polymers Section 2 Inorganic chemistry 2 The Transition metals • The general properties of transition metals • Complex formation and the shape of complex ions • Coloured ions • Variable oxidation states of transition elements • Catalysts Reactions of inorganic compounds in aqueous solutions • The acid – base chemistry of aqueous transition metal ions • Ligand substitution reactions • A summary of acid-base and substation reactions of some metal ions	Section 3 Organic chemistry 2 Amino acids, proteins and DNA • Introduction to amino acids • Peptides, polypeptides and proteins • Enzymes • DNA • The action of anticancer drugs Section 3 Organic chemistry 2 Structure determination • Nuclear magnetic-resonance (NMR) spectroscopy • Proton NMR • Interpreting proton, 1H, NMR spectra	Chromatography • Chromatography Organic synthesis and analysis • Synthetic routes • Organic Analysis	Revision and Exams
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	Section 1 Physical chemistry Atomic structure Amount of substance Bonding Energetics Kinetics Equilibria Oxidation, reduction and redox reactions Section 2 Inorganic Chemistry 1 Group 2, the Alkaline Earth Metals Group 7 (17), the Halogens Periodicity Section 3 Organic Chemistry 1 Alkanes Haloalkanes Alkenes Alcohols Organic Analysis	Section 1 Physical chemistry Atomic structure Amount of substance Bonding Energetics Kinetics Equilibria Oxidation, reduction and redox reactions Section 2 Inorganic Chemistry 1 Group 2, the Alkaline Earth Metals Group 7 (17), the Halogens Periodicity Section 3 Organic Chemistry 1 Alkanes Haloalkanes Alkenes Alcohols Organic Analysis	Section 1 Physical chemistry Atomic structure Amount of substance Bonding Energetics Kinetics Equilibria Oxidation, reduction and redox reactions Section 2 Inorganic Chemistry 1 Group 2, the Alkaline Earth Metals Group 7 (17), the Halogens Periodicity Section 3 Organic Chemistry 1 Alkanes Haloalkanes Alkenes Alcohols Organic Analysis	Section 1 Physical chemistry Atomic structure Amount of substance Bonding Energetics Kinetics Equilibria Oxidation, reduction and redox reactions Section 2 Inorganic Chemistry 1 Group 2, the Alkaline Earth Metals Group 7 (17), the Halogens Periodicity Section 3 Organic Chemistry 1 Alkanes Haloalkanes Alkenes Alcohols Organic Analysis	Section 1 Physical chemistry Atomic structure Amount of substance Bonding Energetics Kinetics Equilibria Oxidation, reduction and redox reactions Section 2 Inorganic Chemistry 1 Group 2, the Alkaline Earth Metals Group 7 (17), the Halogens Periodicity Section 3 Organic Chemistry 1 Alkanes Haloalkanes Alkenes Alcohols Organic Analysis	Section 1 Physical chemistry Atomic structure Amount of substance Bonding Energetics Kinetics Equilibria Oxidation, reduction and redox reactions Section 2 Inorganic Chemistry 1 Group 2, the Alkaline Earth Metals Group 7 (17), the Halogens Periodicity Section 3 Organic Chemistry 1 Alkanes Haloalkanes Alkenes Alcohols Organic Analysis