year		8 weeks autumn 1	7 weeks autumn 2
year 12	study modules	**Topic 1: atomic structure and periodic table, Topic 2a: bonding & structure, start Topic 5: Formulae, Equations and Amounts of Substance**	**Topic 2b: bonding & structure, Topic 3: Redox, Topic 4a: elements of group 1 & 2 Topic 4b: elements of group 7, finish Topic 5: Formulae, Equations and Amounts of Substance**
	assessment	**Transition Test (topics 1 & 5)**	**Topic 2 EOT test, Topic 3 EOT test Topic 4 EOT test**
	builds upon	Topic 1: Relative mass and charge of subatomic particles, atomic structure, atomic mass number, relative atomic mass calculations, isotopes, using periodic table, electron configurations of frist 20 elements, relation between number of outer electrons and position in periodic table. Topic 2: The electron configurations of first 36 elements, metallic,ionic and covalent bonding, dot and cross diagrams, physical properties of types of structure Topic 5: use approproate apparatus to measure masses and volumes, recording values to the appropriate precision. Converting between different units of mass and volume. Writing and balacing chemical equations using state symbols. Using the mole as a unit of the amount of substance.	2: SEE PREVIOUS 5: SEE PREVIOUS Topic 3: how metals and non-metals react, oxidation, reduction, redox reactions Topic 4: energy levels, trends of Group 1 and 7, symbol and ionic equations, redox reactions, oxidation number

	Introduces	Topic 1: development of atomic model, evidence for quantum shells, subshells and orbitals, electronic configuration of first 36 elements, periodicity Topic 2: dative covalent bonding, intermolecular interactions, hydrogen bonding, shapes, electronegativity and polarity of molecules, explaining physical properties Topic 5: using moles to calculate mass, volume, concentraion and formula, titrations, error and uncertainty, percentage yield and atom economy, oberservations	2: SEE PREVIOUS 5: SEE PREVIOUS Topic 3: oxidation numbers, disproportionation, ionic half-equations, name compounds using oxidation numbers as Roman numerals, oxidising and reducing agents Topic 4: Trends, reactions, solubility and thermal stability of Group 2 and 7, redox reactions, tests for anions and cations
year 13	study modules	**Topic 13: energetics II, topic 14: redox II, Topic 11: equilibrium II, topic 15: transition metals**	**topic 15: transition metals, Topic 12: acid-base equilibria, Topic 17 & 18: further organic chemistry**
	assessment	**Transition Test, Topic 11 EOT test, Topic 13 EOT test, Topic 14 EOT test**	**Topic 15 EOT test, Topic 17a & b EOT test. PPE's**
	builds upon	13: SEE PREVIOUS. 14. SEE PREVIOUS. Topic 11: reversible reactions and dynamic equilibrium; the qualitative effect of change in concentration, temperatur and pressure on the position of equilibrium; deducing expression for Kc for both homogeneous and heterogeneous systems. Topic 15: Writing electronic configuration; using oxidation numbers to consider whether species are oxidised or reduced; how dative covalent bonds form; hot to predict the shapes of molecules and ions; the meaning of cis and trans in stereoisomerism; predict how changes in conditions affect the position of equilibrium.	15: SEE PREVIOUS. 12: Reactions of acids and bases; a qualitative appreciation of the significance of pH of aqueous solutions; calculation of equilibrium constants based on concentrations; an understanding of the effect of changes of temperature on the value of the equilibrium constants. 17 & 18: how to use different kinds of formula to represent organic compounds; using IUPAC rules to name organic compounds; recognising different types of isomerism including geometrical isomerism; how to convert one organic compound into another; how to write reaction mechanisms.

	Introduces	13: SEE PREVIOUS. 14. SEE PREVIOUS. Topic 11: how to deduce an expression for the equilibrium constant, Kp, in terms of partial pressure; the quantitative efftec of change in concentration; how to predict the effect of change in temperature on values of Kc and Kp; hw to predict the effect of a change in temperature on the position of equilibrium in terms of changes to Kc and Kp; why the value of an equilibrium constant is not altered by the addition of a catalyst. Topic 15: understand how the variety of oxidation numbers can be explained in terms of electronic configurations; the meanings of some new terms, such as ligand, complex, monodentate ad multidentate; how carbon monoxide prevents the transport of oxygen through the blood; the two different ways in which transition metals and theitr compounds can act as catalysts; how carbon monoxide and oxides of nitrogen are removed from vehicle exhausts by catalytic converters.	15: SEE PREVIOUS. 12: Acid-base reactions in terms of proton transfer; the relationship between hydrogen ion concentration and pH; how to calculate the pH of aqueous solutions; the difference between strong and weak acids; how to draw and intrepret titration curves; how to select a suitable indicator for an acid-base titration; teh concept of buffer solutions. 17 & 18: Chirality and optical isomerism; examples of converting one organic compound into another; different types of reaction mechanisms; how aromatic compounds are different from aliphatic compounds; the similarities between manufacturing polyamides and the formation of proteins from amino acids.

6 weeks spring 1	6 weeks spring 2	6 weeks summer 1
Topic 6a: introduction to organic chemistry, Topic 6b: alkanes, Topic 6c: alkenes, Topic 7a: Mass spec, Topic 7b: IR spectroscopy, topic 8: energitics I	**topic 8: energitics I, , Topic 6d: halogenoalkanes, Topic 6e: alcohols, Topic 9: Kinetics I**	**Topic 9: Kinetics I, Topic 10: equilibrium, Topic 13: energetics II**
Topic 6abc EOT test, Topic 7 EOT test	**Topic 6de EOT test Topic 8 EOT test**	**Topic 9 EOT test, Topic 10 EOT test. PPE's**
Topic 6: simple organic naming, homologous series and general formula, oxidation of ethanol, empirical and molecular formula, structural formula Topic 7: Use mass spec to determine Ar and Mr, structural formula of organic compounds Topic 8: Exothermic and endothermic reactions, energy level diagrams, determining temperature changes in chemical reactions,	8: SEE PREVIOUS 6: SEE PREVIOUS Topic 9: factors affecting rates of reaction, catalysts, experiments measuring rate of reaction, collision theory	9: SEE PREVIOUS Topic 10: Reversible reactions, dynamic equilibrium, factors that affect the position of equilibrium Topic 13: standard conditions of temperature and pressure for thermodynamic measureents; enthalpy changes and Hess's law; energy level diagrams and enthalpy profile diagrams; bond enthalpies and mean bond enthalpies.

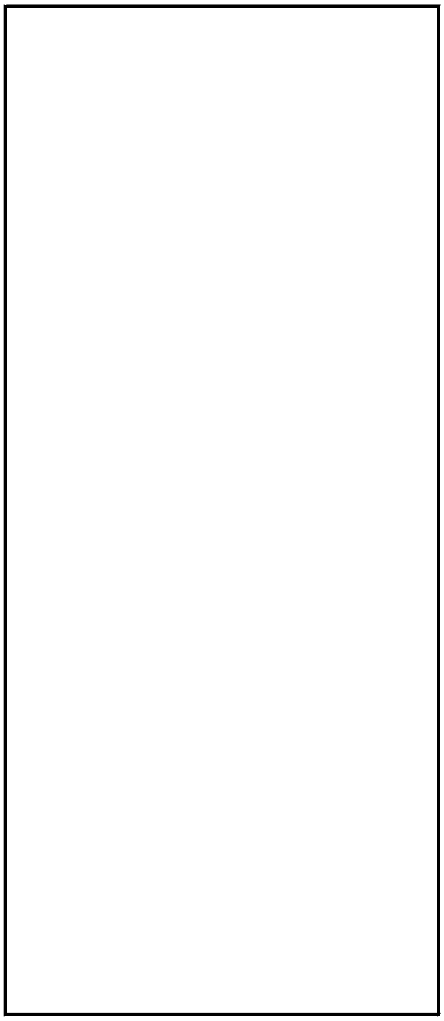
Topic 6: use different formula to represent organic compounds, isomerism, combustion, reaction mechanisms, polymers, preparing and purifying organic compounds. Topic 7: Using mass spec and infared spectra to identify structures of organic compounds Topic 8: enthalpy change, standard conditions, Hess's law, bond enthalpies	8: SEE PREVIOUS 6: SEE PREVIOUS Topic 9: activation energy, maxwell-boltzman model, catalysts, reaction profiles	Topic 10: Factors affecting position of equilibrium and the effect on yield in industry, equilibrium constant Topic 13: Lattice energies and Born-Haber cycles; enthalpy changes of atomisation, solution and hydration; electron affinity; polarisation of anions by cations to explain the degree of calavent character of ionic compounds; entropy; Gibbs energy; the relationship between entropy, Gibbs energy and equilibrium constants.

Topic 17 & 18: further organic chemistry, Topic 12: acid-base equilibria, Topic 16: kinetics II	**Topic 17 & 18: further organic chemistry, Topic 16: kinetics II, Topic 19: analytic compounds**	**Topic 18: further organic chemistry, Topic 19: analytic compounds; REVISION**
Topic 12 EOT test, Topic 17c EOT test	PPE's	**Topic 18 EOT test, Topic 19 EOT test. external exams start**
Topic 17 & 18: SEE PREVIOUS. Topic 12: SEE PREVIOUS. 16: the concept of activation energy; the Maxwell-Boltzmann model of distribution of molecular energies; the role of catalysts in increasing the rate if chemical reactions; reaction profiles for both uncatalysed and catalysed reactions.	Topic 17 & 18: SEE PREVIOUS. Topic 16: SEE PREVIOUS. 19: how to use mass spectrometry and infrared spectroscopy to determine the structures of organic compounds.	Topic 18: SEE PREVIOUS, Topic 19: SEE PREVIOUS

Topic 17 & 18: SEE PREVIOUS. Topic 12: SEE PREVIOUS. 16: order of reaction and rate equations; selection of an appropriate technique to follow the rate of a reaction; initial rate and continuous rate methods for following reactions; reaction mechanisms; homogeneous and heterogeneous catalysis.	Topic 17 & 18: SEE PREVIOUS. Topic 16: SEE PREVIOUS, 19: the analytical technique of nuclear magnetic resonance spectroscopy.	Topic 18: SEE PREVIOUS, Topic 19: SEE PREVIOUS

7 weeks summer 2
Topic 13: energetics II, topic 14: redox II
13: SEE PREVIOUS. 14: redox reactions, including disproportionation; calculating oxidation numbers; using oxidation numbers to balance chemical equations; using oxidation numbers to name compounds and write chemical formula.

13: SEE PREVIOUS. 14: how to construct electrochmical cells and to calculate cell potential (emf); how to determine standard electrode (redox) potentials; sing standard electrode (redox) potentials to predict feasibility of chemical reactions; storage cells; redox titrations.



year	study modules	7 weeks autumn 1	8 weeks autumn 2
year 12	study modules	***Topic 1: atomic structure and periodic table, Topic 2a: bonding & structure, start Topic 5: Formulae, Equations and Amounts of Substance***	***Topic 2b: bonding & structure, Topic 3: Redox, Topic 4a: elements of group 1 & 2 Topic 4b: elements of group 7, finish Topic 5: Formulae, Equations and Amounts of Substance***
	assessment	Transition Test (topics 1 & 5)	*Topic 2a EOT test Topic 2b EOT test Topic 3 EOT test Topic 4 a & b EOT test*
	builds upon		
	Introduces		
year 13	study modules	**Finish topic 15: transition metals, Finish topic 11: equilibrium II, Topic 17a: chirality, Topic17b: carbonyl compounds, Topic 17c: carboxylic acids**	***Topic 18a: arenes, Topic 18b: organic nitrogen compounds, Topic 12: acid-base equilibria***
	assessment	Transition Test, Topic 11 EOT test, Topic 17a EOT test, Topic 17b EOT test, Topic 17c EOT test, Topic 15 EOT test	*Topic 18a EOT test, Topic 18b EOT test, Topic 12 EOT test*
	builds upon	17 & 18: how to use different kinds of formula to represent organic compounds; using IUPAC rules to name organic compounds; recognising different types of isomerism including geometrical isomerism; how to convert one organic compound into another; how to write reaction mechanisms.	18:
	Introduces		

6 weeks spring 1	6 weeks spring 2	5 weeks summer 1
Topic 6a: introduction to organic chemistry Topic 6b: alkanes Topic 4c: analysis of inorganic compounds Topic 7a: Mass spec	***Topic 6c: alkenes Topic 6d: halogenoalkanes Topic 7b: IR spectroscopy***	***Topic 6e: Alcohols Start Topic 10: equilibrium I Start topic 8: energitics I***
Topic 6a & b EOT test Topic 4c EOT test Topic 7a EOT test	*Topic 6c & d EOT tests Topic 7b EOT test*	*Topic 6e EOT test*

Topic 19: analytic compounds, topic 14: redox II	Topic 13: energetics II, topic 16: kinetics II	REVISION
MOCK EXAMS 1, Topic 19 EOT test, Topic 14 EOT test	topic 13 EOT test, topic 16 EOT test	MOCK EXAMS 2

7 weeks summer 2
Finish Topic 10: equilibrium I Start Topic 11: equilibrium II Finish topic 8: energetics I Start topic 15: transition metals
Topic 10 EOT test Topic 8 EOT test
