Chemistry A Level Curriculum Map Yr.12.

Exam Board - Pearson Edexcel

Term	Autumn	Spring	Summer
Teacher A.	**Topic 05: Formulae, Equations and Amounts of Substance.** Students work to analyse data and make calculations of uncertainty and their sources. They will be able to make unit conversions using standard form, Avogadro's constant and Molar quantities	**Topic 05: Formulae, Equations and Amounts of Substance.** **Topic 06: Organic Chemistry I.** Students will describe the properties and reactions of alkanes and alkenes, halogenoalkanes and alcohols. They will complete a number of functional group identifications, considering potential hazards and precautions. **Topic 07: Modern Analytical Techniques I.** Students are familiarised with different analysis methods for the process of biochemical testing or chemical change study (such as mass spectrometry).	**Topic 09: Kinetics I.** Students use collision theory and Maxwell-Boltzmann distribution to explain how different variables affect the rate of reaction. **Topic 10: Equilibrium I.** Students develop and understanding of equilibrium processes, describe how equilibria can be used to make quantitative predictions, and can calculate Kc.
Teacher B.	**Topic 01: Atomic Structure and the Periodic Table.** Students consider how models for the atom have developed as evidence becomes available. They will also use data to explain relationships in properties. **Topic 02: Bonding and Structure.** Students assess the strengths and weaknesses of bonding models, and understand how predictions and generalisations have been made about electron-pair-repulsion theory. **Topic 03: Redox I.** Students consider how the oxidation number can be used to balance chemical equations, and complete balanced redox reactions from their ionic half-equations	**Topic 04: Inorganic Chemistry and the Periodic Table.** Students explain how data is used to make predictions about properties from patterns and relationships within the periodic table	**Topic 08: Energetics I.** Students investigate enthalpy changes and use Hess's Law and assess the use of mean bond enthalpy for theoretical calculations.
Core Practicals	**CP 1:** Measure the molar volume of a gas. **CP 2:** Prepare a standard solution from a solid acid and use it to find the concentration of a solution of sodium hydroxide. **CP 3:** Find the concentration of a solution of hydrochloric acid.	**CP 4:** Investigation of the rates of hydrolysis of some halogenoalkanes. **CP 5:** The oxidation of ethanol **CP 6:** Chlorination of 2-methylpropan-2-ol using concentrated hydrochloric acid. **CP 7:** Analysis of some inorganic and organic unknowns.	**CP 8**: To determine the enthalpy change of a reaction using Hess's Law
Students should expect assessed homework and a test for each topic. Core Practicals will involve work in the laboratory as well as research and planning which will be done as homework			

Chemistry A Level Curriculum Map Yr.13.

Term	Autumn	Spring	Summer
Teacher A.	**Topic 14: Redox II.** Students calculate redox potentials and balance half equations. They will develop some understanding of how chemistry can be used to create cells. **Topic 15: Transition Metals.** Students link electron orbital filling and reactions, identifying limitations of the models. Students should appreciate how these metals form coloured complexes and appreciate the importance of ligand exchange reactions. Students also study the behaviour of catalysts.	**Topic 16: Kinetics II** Students assess different methods of collecting data to measure reaction rates. They should be able to use data to justify mechanism models, and the shape of graphs. They will be required to use graphs and calculations to find orders of reaction and activation energies.	**Topic 19: Modern Analytical Techniques II.** Students consider more instrumental analysis methods such as NMR and chromatography and research the different applications of these techniques.
Teacher B.	**Topic 11: Equilibrium II.** Students develop and understanding of equilibrium processes, describe how equilibria can be used to make quantitative predictions, and can calculate Kc and Kp values. **Topic 12: Acid-base Equilibria.** Students calculate pHs, explain acidic and basic behaviour, how buffer solutions work and link their knowledge to biological applications. **Topic 13: Energetics II.** Students understand how models are evaluated by comparing real values with theoretical data. Students use entropy to understand stability and the direction of chemical change.	**Topic 17: Organic Chemistry II.** Students understand the use and chemical mechanisms of organic chemical synthesis to produce useful materials. They are able to represent chiral molecules with diagrams. They study carbonyls and carboxylic acids. **Topic 18: Organic Chemistry III.** Practical organic chemistry. Students explain the evidence supporting the benzene structure, and purify organic compounds. They study arenes, amines, amides, amino acids and proteins.	**Topic 18: Organic Chemistry III.** Practical organic chemistry. Students study the techniques used in the preparation and purification of organic compounds and also learn the art of organic synthesis.
Core Practicals	**CP 9**: Finding the Ka value for a weak acid **CP 10**: Investigating some electrochemical cells **CP 11**: Redox titration **CP 12**: The preparation of a transition metal complex	**CP 13a and 13b**: Rates of reaction **CP 14**: Finding the activation energy of a reaction. **CP 15**: Analysis of some inorganic and organic unknowns.	**CP 16**: The preparation of aspirin
Students should expect assessed homework and a test for each topic. Core Practicals will involve work in the laboratory as well as research and planning which will be done as homework			