Curriculum Map: OCR A level Chemistry; Organic Chemistry

THE KING'S ACADEMY
Emmanuel Schools Foundation

A Level Chemistry will give you an exciting insight into the contemporary world of chemistry. It covers the key concepts of chemistry and practical skills are integrated throughout the course.

PAG
Academy Rehearsal Exams
Other Assessment Points
Unit Link
Exams
Progression Week
Acids

Year 13

Autumn

- What are aromatic compounds? — 6.1.1 Aromatics
- What reactions do compounds with a carbonyl group undergo? How does the chemistry of carboxylic acid derivatives work? — 6.1.2 Carbonyls, 6.1.3 Carboxylic Acids & Esters
- Why are amines, amino acids, and amides important molecules? What are optical isomers and chiral compounds? — 6.2.1 Amines, 6.2.2 Amides & Chirality (4.1.1)
- How do polyesters and polyamides form? — 6.2.3 Polymers (4.1.3)
- How can carbon chains be extended? — 6.2.4 C-C Bonds

AP5
AP6 - Year 13 Rehearsal Exams

Spring

- How is IR spectroscopy used to analyse compounds? How is mass spectrometry used to analyse compounds? How are chemicals purified? — 4.2.4 Analytical Techniques
- How do chemists synthesise organic chemicals? How do haloalkanes affect the environment? — 4.2.3 Organic Synthesis
- Why does the rate of hydrolysis of haloalkanes differ? — 4.2.2 Haloalkanes
- How are alcohols classified, and how do they react? — 4,2.1 Alcohols

AP 4 - Year 12 Rehearsal Exams
AP3

Summer

- What is the bonding like within alkanes, and how does this affect properties? — 4.1.2 Alkanes (3.2.1)
- Which reactions do alkanes and alkenes undergo? How do alkenes react, and how does their structure give rise to stereoisomers? What do curly arrows represent, and what are mechanisms? — 4.1.3 Alkenes
- How can we name and represent organic molecules? — 4.1.1 Basic Organic Concepts

AP2

Year 12

Spring

- What is neutralisation, and how do titrations work? — 2.1.4 Acids
- How do you calculate concentrations of solutions and volumes of gases? How do chemists calculate the formula of a compound? What is the mole, and how is it used in calculations? — 2.1.3 Amount of Substance

AP1

Autumn

- How are ionic formulae derived? — 2.1.2 Formulae & Equations (Throughout Chemistry)
- How does TLC and gas chromatography work? — 6.3.1 Analysis
- How is NMR used to help identify organic molecules? — 6.3.2 Spectroscopy (4.2.4)
- Can you recall and use the full synthetic routes diagram? — 6.2.5 Organic Synthesis (4.2.3)

AP7

Curriculum Map: OCR A level Chemistry; Inorganic and Physical

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PAG

Academy Rehearsal Exams

Other Assessment Points

Unit Link

Year 12

Autumn

- How are atoms structured? — 2.1.1 Atomic Structure
- How are electrons organised into orbitals and notated? — 2.2.1 Electron Configuration
- What do atomic orbitals look like? — 2.2.1 Electron Configuration
- How does the bonding within compounds affect their properties? — 2.2.2 Bonding & Structure
- What is oxidation and reduction? — 2.1.5 Redox

Spring

- How is the modern periodic table organised? — 3.1.1 Periodicity
- Which factors affect ionisation energies? — 3.1.1 Periodicity
- What are the trends and explanations down group 2? — 3.1.2 Group 2
- What are the trends and explanations down group 7? — 3.1.3 Group 7
- How can ions be identified using test tube reactions? — 3.1.4 Qualitative Analysis
- How is enthalpy measured and calculated? — 3.2.1 Enthalpy
- How can the rate of a reaction be measured and increased? — 3.2.2 Rates

Summer

- What do catalysts do? — 3.2.2 Rates
- How does the Boltzmann distribution explain rates? — 3.2.3 Equilibria
- What is an equilibrium and how can its position be shifted? — 3.2.3 Equilibria
- How can you calculate K_c, the equilibrium constant, and what does it mean? — 3.2.3 Equilibria
- How can you calculate K_p and what does it mean? — 3.2.3 Equilibria

Year 13

Autumn

- How are rate orders calculated? — 5.1.1 How Fast?
- How far? — 5.1.2 How Far?
- Which models do we use to model acids and bases? — 5.1.3 Acids, Buffers, Bases
- Acid calculations; pH, K_a, pK_a, K_w — 5.1.3 Acids, Buffers, Bases
- What are buffers and how do they work? — 5.1.3 Acids, Buffers, Bases
- How are Bonn-Haber cycles used to calculate lattice enthalpies? — 5.2.1 Lattice Enthalpy
- What is entropy and free energy? — 5.2.2 Enthalpy & Entropy
- How do electrochemical cells work? — 5.2.3 Redox & Electrode Potentials
- Why are transition elements interesting? — 5.3.1 Transition Elements
- How can ions be identified using test tube reactions? — 5.3.2 Qualitative Analysis

Spring

- Why are redox titrations useful? — 5.2.3 Redox & Electrode Potentials

Exams

- AP1
- AP2
- AP3
- AP4 - Year 12 Rehearsal Exams
- AP5
- AP6 - Year 13 Rehearsal Exams
- AP7