

**Key Stage: 5****Subject: Chemistry.****Aims of the subject:**

A level Chemistry attempts to answer the big questions 'what is the world made of?', 'why does that substance do that?', 'can I make it do it better?' Students will learn about atomic nature of matter, structure and bonding in materials, how this understanding leads to the discovery and development of new materials. How reactions are investigated and controlled and how chemical substances can be synthesised from the vast array of earth's resources. The possibilities of chemistry are endless.

**A-Level Examination Board: AQA****Paper 1:**

- 2hrs.
- 105 marks (long/short answers).
- 35% of A-level.

**What is assessed?**

- Relevant Physical Chemistry topics (3.1.1-3.1.4, 3.1.6-3.1.8 and 3.1.10-3.1.12).
- Inorganic Chemistry (3.2).
- Relevant practical skills.

**Paper 2:**

- 2hrs.
- 105 marks (long/short answers).
- 35% of A-level.

**What is assessed?**

- Relevant Physical Chemistry topics (3.1.2-3.1.6 and 3.1.9).

- Organic Chemistry (3.3).
- Relevant practical skills.

**Paper 3:**

- 2hrs.
- 90 marks (40 marks practical techniques and data analysis, 20 marks across specification and 30 marks multiple choice).
- • 30% of A-level.

**What is assessed?**

Any content, any practical skills from the entire course.

**Practical endorsement:**

Awarded to students who meet the CEPAC assessment criteria covered as part of the practical skills program in timetabled lessons.

Course	What will I study?	Assessment
Year 1	Term 1 3.1.1 - Atomic structure. 3.1.2 - Amount of substance. 3.1.3 – Bonding. 3.1.4 – Energetics. 3.3.1 – Introduction to Organic Chemistry. 3.3.2 - Alkenes.  Term 2 3.1.5 – Kinetics. 3.1.6 – Chemical equilibria and Le Chatelier’s Principle and Kc. 3.1.7 – Oxidation and reduction and redox equations. 3.3.3 – Halogenoalkanes. 3.3.4 – Alkenes. 3.3.5 – Alcohols.	Pre-tasks Compulsory practicals: 1 – Make up a volumetric solution and carry out a simple acid base titration. 2 – Measurement of an enthalpy change. End of topic tests.  Pre-tasks Compulsory practicals: 3 – Investigation of how the rate of reaction changes with temperature. 5 – Distillation of a product from a reaction. End of topic tests.

	<p>Term 3</p> <p>3.2.1 – Periodicity.</p> <p>3.2.2 - Group 2, the Alkaline Earth Metals.</p> <p>3.2.3 – Group 7 (12) the Halogens.</p> <p>3.3.6 – Organic analysis.</p> <p>3.1.9 – Rate equations.</p> <p>3.1.8 - Thermodynamics.</p>	<p>Pre-tasks.</p> <p>Compulsory practicals:</p> <p>4 – Carry out simple test tube reactions to identify cations and anions in aqueous solution.</p> <p>6 – Tests for alcohols, aldehydes, alkenes</p> <p>End of topic tests</p> <p>Mock examination</p>
Year 2	<p>Term 1:</p> <p>3.1.8 Thermodynamics (cont).</p> <p>3.1.12 Acids and bases.</p> <p>3.2.4 Electrode potentials and electrochemistry.</p> <p>3.2.5 Transition metals.</p> <p>3.2.6 Reactions of ions in aqueous solutions.</p> <p>3.1.9 Rate equations.</p> <p>3.1.10 Equilibria and <math>K_p</math> for homogenous systems.</p> <p>Term 2:</p> <p>3.3.7 Optical Isomerism.</p> <p>3.3.8 Aldehydes and ketone.</p> <p>3.3.9 Carboxylic acids and derivatives.</p> <p>3.3.10 Aromatic chemistry</p> <p>3.3.11 Amines.</p> <p>3.3.12 Polymers.</p> <p>3.3.13 Amino acids, proteins and DNA.</p> <p>3.3.14 Organic synthesis.</p> <p>3.3.15 NMR.</p> <p>3.3.16 Chromatography</p>	<p>Pre-tasks.</p> <p>Compulsory practicals:</p> <p>9- Investigate pH changes in reactions between strong and weak acids and bases.</p> <p>8- Measuring the EMF of an electrochemical cell.</p> <p>7- Measuring rate of reaction by initial rate and continuous monitoring methods.</p> <p>10- Preparation of a pure organic solid and a pure organic liquid.</p> <p>11-Identification of transition metal ions in aqueous solution by simple test-tube reactions.</p> <p>12- Separation of species by thin-layer Chromatography.</p>

	Term 3: Consolidation and revision.	
--	-------------------------------------	--

**Enrichment opportunities:**

- Chemistry Olympiad.
- Links with Lancaster University Chemistry Department.
- Analytical Chemistry Competition (year 12).
- Use of NMR facilities (year 13 organic chemistry).

**Suggestions for wider reading:**

- Chemistry review (available in JCL)
- RSC publications and resources available online.