

A Level Chemistry in Year 12

Course Content:

A-Level Chemistry in Year 12 will be broken down into 3 main areas:

- Physical Chemistry
- Inorganic Chemistry
- Organic Chemistry

You will study the following topic areas in Chemistry follow the three following areas of subject content. Material covered in Year 13 is labelled (A level only).

3.1 Physical chemistry

3.1.1 Atomic structure

3.1.2 Amount of substance

3.1.3 Bonding

3.1.4 Energetics

3.1.5 Kinetics

3.1.6 Chemical equilibria and Le Chatelier's principle

3.1.7 Oxidation, reduction and redox equations

3.1.8 Thermodynamics (A-level only)

3.1.9 Rate equations (A-level only)

3.1.10 Equilibrium constant K_c for homogeneous systems (A-level only)

3.1.11 Electrode potentials and electrochemical cells (A-level only)

3.1.12 Acids and bases (A-level only)

3.2 Inorganic chemistry

3.2.1 Periodicity

3.2.2 Group 2, the alkaline earth metals

3.2.3 Group 7(17), the halogens

3.2.4 Properties of Period 3 elements and their oxides (A-level only)

3.2.5 Transition metals (A-level only)

3.2.6 Reactions of ions in aqueous solution (A-level only)

3.3 Organic chemistry

3.3.1 Introduction to organic chemistry

3.3.2 Alkanes

- 3.3.3 Halogenoalkanes
- 3.3.4 Alkenes
- 3.3.5 Alcohols
- 3.3.6 Organic analysis
- 3.3.7 Optical isomerism (A-level only)
- 3.3.8 Aldehydes and ketones (A-level only)
- 3.3.9 Carboxylic acids and derivatives (A-level only)
- 3.3.10 Aromatic chemistry (A-level only)
- 3.3.11 Amines (A-level only)
- 3.3.12 Polymers (A-level only)
- 3.3.13 Amino acids, proteins and DNA (A-level only)
- 3.3.14 Organic synthesis (A-level only)
- 3.3.15 Nuclear magnetic resonance spectroscopy (A-level only)
- 3.3.16 Chromatography (A-level only)

There is a practical element to the course that includes 6 required practicals in Year 12 that have to be completed throughout the course:

1. Make up a volumetric solution and carry out a simple acid–base titration
2. Measurement of an enthalpy change
3. Investigation of how the rate of a reaction changes with temperature
4. Carry out simple test-tube reactions to identify cations and anions in aqueous solution
5. Distillation of a product from a reaction
6. Tests for alcohol, aldehyde, alkene and carboxylic acid

There are 6 more practicals in Year 2 of the A level and if you meet the Common Practical Assessment Criteria (CPAC) you will have an endorsement that goes on your A level certificate. The understanding of these practicals is also assessed in the examinations.

Year 12 Internal UCAS Exam Week

Students will sit one 2 hour paper on all Year 1 content in Physical Chemistry, Inorganic Chemistry, Organic Chemistry and the 6 Year 1 required practicals.

Specification and Examination Board:

Chemistry 7475:

<http://www.aqa.org.uk/subjects/science/as-and-a-level/chemistry-7404-7405>