



A-LEVEL CHEMISTRY

TOGETHER WE SUCCEED
ACHIEVEMENT ASPIRATION HIGH EXPECTATIONS COMMUNITY

A-LEVEL BIOLOGY

EXAM BOARD: AQA

Aims of the course:

The course is designed to encourage students to understand the key concepts of chemistry by using hands-on practical skills and data analysis skills. Students will learn to appreciate how science works and its relevance beyond the laboratory. It will also encourage students to develop an enthusiasm for chemistry through independent study and allow them to demonstrate their synoptic understanding of chemistry in a contemporary context.

Programme of Study at Year 1:

Content

- Physical chemistry - atomic structure, amount of substance, bonding, energetics, kinetics, chemical equilibria, redox
- Inorganic chemistry - periodicity, Group 2 and Group 7 chemistry
- Organic chemistry - alkanes, halogenoalkanes, alkenes, alcohols, organic analysis

Programme of Study at Year 2:

Content – everything from Year 1 A2 level is expected plus...

- Physical chemistry - thermodynamics, rate equations, equilibrium constants, electrode potentials, acid and bases
- Inorganic chemistry - properties of period 3 elements and oxides, transition metals, reactions of ions in aqueous solution
- Organic chemistry - optical isomerism, aldehydes, ketones, carboxylic acids and derivatives, aromatic chemistry, amines, polymers, amino acids, proteins, DNA, NMR

Assessment for A2 level– in June of Y13:

Remember that any internal assessments from Y12 do not count and the assessments will cover all material from Years 1 and 2 of the A2 course.

Paper 1 – All inorganic chemistry, some physical chemistry and practical skills (35% of A2: 105 marks)

Paper 2 – All organic chemistry, some physical chemistry and practical skills (35% of A2: 105 marks)

Paper 3 – Any content, any practical skills (30% of A2: 90 marks)

Approaches to Learning:

The practical nature of the subject will require students to participate in experimental study and analysis on a regular basis. Critical analysis will require use of mathematics, whether working individually or in groups, as well as organisational skills. Independent study will also be encouraged to allow additional research of how science works application, as well as extending class learning.

This course is for you if you have a high level of interest in Chemistry and have an enthusiasm for practical work as an individual or part of a team. The course also requires good mathematical skills and a high level of commitment and organisational skills.

This course will prepare you for most medical and technological research careers e.g. Medicine, Nursing, Dentistry, Veterinary Science, Forensic Science, Pharmacology, Physiotherapy/Sports Science, Food Technology, Industrial/Manufacturing Chemistry, Chemical Engineering just to name a few.

Minimum Entry Requirements:

Five grade 9-5 GCSE passes including English and Maths. You are required to have a 9-6 in Maths. In addition to this you must also have a 66 in Double Science (Trilogy) or a 6 in Chemistry.

STEP-UP INDEPENDENT STUDY TASKS

How will the tasks support your understanding of the course?

By completing this work you will begin to gain an understanding of two of the key themes that run throughout every topic of the syllabus.

What skills will you begin to develop by completing this work?

The first task will help you learn fundamental skills including mathematical competency, that accounts for 20%, and then deducing chemical formula and balancing equations. During the second task you will apply the fundamental skills from the first task in calculating the amount of substances area and atom economy.

Task 1 - Fundamentals

Purpose - a practical chemist must be proficient in standard form, significant figures, decimal places, SI and unit conversion. To determine chemical formula and balance equations.

Resources - use the link to the A level chemistry website

<https://www.aqa.org.uk/resources/science/as-and-a-level/teach/maths-skills-briefings>

[The mole - Higher - Higher tier only calculations - Edexcel - GCSE Chemistry \(Single Science\) Revision - Edexcel - BBC Bitesize](#)

Task - complete the question sheet on mathematical skills aiming for A level standard and then the chemical formula and balancing equation practice

Support

[AQA | AS and A-level | Chemistry | Mathematical requirements and exemplifications](#)

[AQA | Maths skills briefings for A-level sciences](#)

<https://www.my-gcscience.com/tips-writing-chemical-formulae/>

<https://www.my-gcscience.com/balancing-chemical-equations/>

Task 2 - Application of Chemistry

Purpose - amount of substance or moles is a fundamental of all chemistry topics. In chemistry, you sometimes need to rearrange/change the subject of an equation to find the desired values then determine percentage yield and atom economy, using the steps described on the worksheet.

Resources

[A Level Chemistry Revision "Calculating the Amount of Substance from Mass" - Bing video](#)

Use BBC bitesize

<https://www.bbc.co.uk/bitesize/guides/z9fwrwx/revision/5>

Task - complete the booklet Support

[A Level Chemistry Revision "Calculating the Amount of Substance from Mass" - Bing video](#)

https://docbrown.info/page04/4_73calcs14other2a.html

TO DEEPEN YOUR UNDERSTANDING

Use the AQA website for A level chemistry for an overview

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

[AQA | AS and A-level | Chemistry | Mathematical requirements and exemplifications](#)

[AQA | Maths skills briefings for A-level sciences](#)

Seneca learn www.senecalearning.com class code **o4aub3ch5m** GCSE

Issac physics www.isaacphysics.org class code **2LYJMH** A level

COMPLETED TASK

Student Name			
Subject Teacher		Date:	
Form Tutor:		Date:	