



Kimberley
School

Science

Sixth Form

AS/A2 Level

2017-2019

Chemistry

What is Chemistry?

Chemistry is the science of reactions and materials. Chemists are responsible for the manufacture of thousands of materials e.g. pharmaceuticals, clothing, polymers and all the latest materials such as those used for stealth technology. Chemists also use spectroscopic techniques to analyse molecules and atoms e.g. to detect forged paintings, drug testing, purifying medicines and determining the formula of unknown compounds.

Course requirements

Grade B GCSE Chemistry and Maths. In addition, students will be monitored closely for effort and quality of work throughout their year 11 studies. Students who do not demonstrate the necessary attitude and effort in their studies, in the opinion of their science teachers, will be discouraged from taking biology A level. The final decision on acceptance onto the course will be taken by the Science Department in conjunction with Head of Sixth Form.

Who is it for?

A level Chemistry is aimed at Students who have an interest in the further study of Chemistry, or a career that requires Chemistry e.g. Medicine, Pharmacy, Chemical Engineering, Forensics and even teaching!

It can also be used for entry into other careers such as scientific research, banking, law, teaching, etc.

The A Level Reform

Starting in September 2015, the system of Science A Levels (biology, chemistry, physics) in England and Wales underwent radical change, with the government replacing the AS/A2 system which has been in existence since 2000.

How will the new A Level system be different from the present one?

- Science A-Levels have moved to a linear structure where all the work completed in Year 12 and 13 will be examined at the end of Year 13.
- The AS examination will still exist, but the marks will not count towards the final grade as is currently the case.
- The AS, therefore, will become a stand-alone qualification taken at the end of Year 12.

This means that if a student sits the AS Level exam at the end of Year 12, and then continues his studies to A-level qualification, the AS grade will become redundant and the student will be assessed on all of the first year modules again in the A-level exam.

Is there any point, therefore, in sitting the AS exam if a student has decided to continue to A-level?

The Kimberley School will enter its sixth form science students for the AS exam, irrespective of whether the student will continue the course to A-level.

There are two main reasons for this:

1. Students will gain invaluable experience in sitting real public exams.
2. The grade achieved will be a true indicator of progress made and therefore will be a deciding factor on whether the student is invited to continue onto the A-level course.

The course is made up of:

AS Level Chemistry

Module 1: Development of Practical Skills in Chemistry

This module covers the practical skills that students will develop throughout the course. The practical skills in this module can be assessed within written examinations.

Module 2: Foundations in Chemistry

Includes:

Atoms, compounds, molecules and equations; Amount of substance (mole calculations); Acid-base and redox reactions; Electrons, bonding and structure.

Module 3: Periodic Table and Energy

Includes:

The periodic table and periodicity; Group 2 and the halogens; Qualitative analysis; Enthalpy changes; Reaction rates and equilibrium (qualitative).

Module 4: Core Organic Chemistry and Analysis

Includes:

Basic concepts; Hydrocarbons; Alcohols and haloalkanes; Organic synthesis; Analytical techniques (infra-red spectroscopy and mass spectrometry).

How will you be assessed?

AS Papers 1 and 2 can assess any content from Modules 1 to 4 above

AS Chemistry A (H032) - First Exam June 2016					
ASSESSMENT OVERVIEW					
Paper			Marks	Duration	Weighting
Paper 1	Breadth in chemistry		70	1 hr 30 mins	50%
	Section A	Multiple choice	20		
	Section B	Structured questions and extended response questions covering theory and practical skills	50		
Paper 2	Depth in chemistry		70	1 hr 30 mins	50%
	Structured questions and extended response questions, covering theory and practical skills		70		

A Level Chemistry

Modules 1 – 4. Same as for AS Level

Module 5: Physical Chemistry and Transition Elements

Includes:

Reaction rates and equilibrium (quantitative); pH and buffers; Enthalpy, entropy and free energy; Redox and electrode potentials; Transition elements.

Module 6: Organic Chemistry and Analysis

Includes:

Aromatic compounds; Carbonyl compounds; Carboxylic acids and ester; Nitrogen compounds; Polymers; Organic synthesis; Chromatography and spectroscopy (NMR).

Paper		Marks	Duration	Weighting	
Paper 1	Periodic table, elements and physical chemistry	100	2 hr 15 mins	37%	
	Section A	Multiple choice			15
	Section B	Structured questions and extended response questions covering theory and practical skills			85
Paper 2	Synthesis and analytical techniques	100	2 hr 15 mins	37%	
	Section A	Multiple choice			15
	Section B	Structured questions and extended response questions covering theory and practical skills			85
Paper 3	Unified chemistry	70	1 hr 30 mins	26%	
	Structured questions and extended response questions covering theory and practical skills	70			

How will you be assessed?

Practical endorsement for chemistry

In addition to the 3 written exam papers, candidates complete a minimum of 12 practical activities throughout the two years to demonstrate practical competence. The performance is reported separately from the A-level grade as a pass/fail by the teacher.