Kimberley School

A Level CHEMISTRY

SIXTHFORM SCIENCE

East Midlands Education Trust

SUBJECT BOOKLET

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 6 GCSE Chemistry (Triple Science) and grade 6 Maths, OR grade 6 in Combined Science with at least a grade 6 in the Chemistry component. 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 Chemistry 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 course is made up of:

Year 12 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 Biology

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:
Trends in bonding and structure, ionisation energy, groups 2 and 7, qualitative analysis of chemicals, enthalpy changes, bond enthalpies, Hess's Law, Rates of reaction, catalysts, equilibrium.

Module 4: Core organic chemistry

Includes:
Nomenclature (naming molecules), isomerism, alkanes, alkenes, alcohols, haloalkanes, organic synthesis and spectroscopy.

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.

Year 13 Chemistry

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		

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