

AS/A2 Level Chemistry

Teachers: Ms Lett, Mr Higginson, Ms Parish & Mr Constantinides

The course is the Cambridge Modular Syllabus OCR.

Assessment

Knowledge and Understanding

A candidate should be able to demonstrate knowledge and understanding in relation to:

- scientific phenomena, facts, laws, definitions, concepts and theories.
- scientific vocabulary, terminology, convention including symbols, quantities and units.
- present reasoned explanations for phenomena, patterns and relationships in practical.
- scientific instruments and apparatus, including techniques of operation and aspects of safety.
- quantitatively determine scientific quantities.

In each exam between 55 - 60 % of marks are awarded for knowledge and understanding as explained above. Whereas, between 40 - 45% of marks are awarded for application of knowledge. In the syllabus it defines the factual knowledge which candidates may be required to recall and explain. Questions testing these objectives will often begin with one of the following words: define, state, describe, explain or outline.

Handling, and evaluating information

A candidate should be able to:-

- handle information, distinguishing the relevant from the extraneous
- manipulate numerical data and translate from one form to another
- analyse and evaluate information so as to identify patterns, report trends and draw inferences
- construct arguments to support hypotheses or to justify a course of action
- apply knowledge, including principles, to novel situations
- evaluate information and hypothesis

The ability to apply knowledge and understanding of concepts and laws to novel situations, determines whether a candidate is able to achieve the higher grades.

Experimental skills and investigations

In both AS and A2, there is no coursework. Instead, there will be three short "practical examinations" each lasting approximately one double lesson. Students will be prepared by undertaking similar practical work to what will be involved in the examination. In total, this will contribute 20% of the marks both to AS and A2

A candidate should be able to:-

- use techniques, apparatus and materials.
- make and record observations, measurements and estimates.
- interpret and evaluate observations and experimental results.
- select techniques, apparatus and materials.
- evaluate methods and suggest possible improvements.

Examinations

The subject has 3 Units of Assessment in each year. To get a certificate for both AS and A2, you will need to have been assessed on your performance in three units for each course - two written examinations and the practical tests as described above.

The title of the four theory modules over the two years and when they are examined are as follows:

AS

Atoms, Bonds and Groups 30% – June Year 12, compulsory short answer questions and questions requiring a longer answer. (1 hour).

Chains, Energy and Resources 50% – June Year 12, compulsory short answer questions AS and questions requiring a longer answer. (1 hour 45 minutes)

Practical tests 20% – throughout the year, three short practical “examinations”

A2

Rings, Polymers and Analysis 30% - probably January Year 13, compulsory short answer questions and questions requiring a longer answer. (45 minutes)

Equilibria, Energetics and Elements 50% - June Year 13, compulsory short answer questions A2 and questions requiring a longer answer. (1 hour 45 minutes)

Practical tests 20% – throughout the year, three short practical “examinations”

Summary of each module

Atoms, Bonds and Groups AS

In this module you will learn about the structure of the atom, the importance of atomic masses, formulae and equations, chemical bonding and structure, and trends and patterns in the Periodic table.

Chains, Energy and Resources AS

In this module you will learn about the chemical ideas that underpin organic chemistry, some of the important chemicals produced from oil, the chemistry of alcohols and organic halogen compounds and the role chemists in developing fuels and combating pollution. Also, you will learn about energy changes in chemical reactions, the rate of chemical reactions and the use of catalysts, and the control of reversible reactions to produce useful industrial chemicals.

Rings, Polymers and Analysis A2

In this module you will learn about how chemists use organic compounds to manufacture useful materials such as pharmaceuticals, antiseptics, perfumes, dyes and polymers. You will learn about how spectroscopy is used to find the structure of carbon compounds.

Equilibria, Energetics and Elements A2

This is very much an extension of the “energy and equilibria” sections of AS but it is largely quantitative at A2 level. Also, in this module you will learn about lattice energy, and the Periodic table including trends of compounds in Period 3 and patterns shown by the Transition Elements.