

A LEVEL

Specification

CHEMISTRY A

H432

First Issue: September 2017

Version 2.6 (December 2020)

ocr.org.uk/alevelchemistry

2 The specification overview

2a. Overview of A Level in Chemistry A (H432)

Students must complete all components (01, 02, 03 and 04).

Content Overview	Assessment Overview	
Content is split into six teaching modules: - Module 1 – Development of practical skills in chemistry - Module 2 – Foundations in chemistry - Module 3 – Periodic table and energy - Module 4 – Core organic chemistry - Module 5 – Physical chemistry and transition elements - Module 6 – Organic chemistry and analysis Component 01 assesses content from modules 1, 2, 3 and 5. Component 02 assesses content from modules 1, 2, 4 and 6. Component 03 assesses content from all modules (1 to 6).	Periodic table, elements and physical chemistry (01) 100 marks 2 hours 15 minutes written paper	37% of total A level
	Synthesis and analytical techniques (02) 100 marks 2 hours 15 minutes written paper	37% of total A level
	Unified chemistry (03) 70 marks 1 hour 30 minutes written paper	26% of total A level
	Practical Endorsement in chemistry (04) (non-exam assessment)	Reported separately (see Section 5)

All components include synoptic assessment.

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A Level in Chemistry A

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2b. Content of A Level in Chemistry A (H432)

The A Level in Chemistry A specification content is divided into six teaching modules and each module is further divided into key topics.

Each module is introduced with a summary of the chemistry it covers and each topic is also introduced with a short summary text. The module content is then divided into two columns: **learning objectives** and **additional guidance**.

The learning objectives may all be assessed in the examinations (with the exception of some of the skills in module 1.1 which will be assessed directly through the Practical Endorsement). The additional guidance column is included to provide further advice on delivery and the expected skills required from learners.

References to *refer* (Section 5) are included in the guidance to highlight opportunities to encourage a wider understanding of science.

The mathematical requirements in Section 5 are also referenced by the profile of the the mathematical skills required for A Level Chemistry (as examples of chemistry content where those mathematical skills could be linked to learning).

The specification has been designed to be compatible with the standards of A Level in Chemistry A. The first four modules cover the A Level in Chemistry A course and learners studying the A Level continue with the content of modules 5 and 6, that separately constitute Practical Endorsement skills and form part of the full A Level course (Module 1-2).

A summary of the content for the A Level course is as follows:

Module 1 – Development of practical skills in

- Acid-base and redox reactions
- Electrons, bonding and structure
- Module 2 – Periodic table and energy**
 - The periodic table and periodicity
 - Group 2 and the halogens
 - Qualitative analysis
 - Enthalpy changes
 - Reaction rates and equilibrium (quantified)

Module 4 – Core organic chemistry

- Basic concepts
- Hydrocarbons
- Alcohols and haloalkanes
- Organic synthesis
- Analytical techniques (IR and NMR)

Module 5 – Physical chemistry and transition elements

- Reaction rates and equilibrium (quantified)
- pH and buffers
- Enthalpy, entropy and free energy
- Redox and electrode potentials
- Transition elements

Module 6 – Organic chemistry and analysis

- Reversible compounds
- Functional groups and

2c. Content of modules 1 to 6

Module 1. Development of practical skills in chemistry

Chemistry is a practical subject and the development of practical skills is fundamental to understanding the nature of chemistry. Chemistry A gives learners many opportunities to develop the fundamental skills.

1.1 Practical skills assessed in a written examination

Practical skills are embedded throughout all the content of this specification.

needed to collect and analyse empirical data. Skills in planning, implementing, analysing and evaluating, as outlined in 1.5, will be assessed in the written papers.

Learners will be required to develop a range of practical skills throughout the course in preparation for the written examinations.

1.1.1 Planning

Learning objectives	Additional guidance
Learners should be able to demonstrate and apply their knowledge and understanding of: 01 experimental design, including to solve problems, set in a practical context.	Including selection of suitable apparatus, equipment and techniques for the proposed experiment.
02 identification of variables that must be controlled, where appropriate.	Learners should be able to apply scientific knowledge based on the content of the specification to the practical context (open).
03 evaluation that an experimental method is appropriate to meet the expected outcomes.	(open).

1.1.2 Implementation

Learning objectives	Additional guidance
Learners should be able to demonstrate and	

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