



National 3
Course
Specification



National 3 Chemistry Course Specification (C713 73)

Valid from August 2013

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Please refer to the note of changes at the end of this Course Specification for details of changes from previous version (where applicable).

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Course outline

Course title: National 3 Chemistry

SCQF: level 3 (18 SCQF credit points)

Course code: C713 73

Mandatory Units

Chemical Changes and Structure (National 3)	6 SCQF credit points
Nature's Chemistry (National 3)	6 SCQF credit points
Chemistry in Society (National 3)	6 SCQF credit points

Recommended entry

Entry to this Course is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by the following or equivalent qualifications and/or experience:

- ◆ National 2 Science in the Environment

In terms of prior learning and experience, relevant experiences and outcomes may also provide an appropriate basis for doing this Course.

Progression

This Course or its Units may provide progression to:

- ◆ other qualifications in Chemistry, Science or related areas
- ◆ further study, employment and/or training

Further details are provided in the Rationale section.

Equality and inclusion

This Course Specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence. For further information, please refer to the *Course Support Notes*.

Rationale

All new and revised National Courses reflect Curriculum for Excellence values, purposes and principles. They offer flexibility, provide more time for learning, more focus on skills and applying learning, and scope for personalisation and choice.

In this Course, and its component Units, there will be an emphasis on skills development and the application of those skills. Assessment approaches will be proportionate, fit for purpose and will promote best practice, enabling learners to achieve the highest standards they can.

This Course provides learners with opportunities to continue to acquire and develop the attributes and capabilities of the four capacities as well as skills for learning, skills for life and skills for work.

All Courses provide opportunities for learners to develop breadth, challenge and application, but the focus and balance of the assessment will be appropriate for the subject area.

Relationship between the Course and Curriculum for Excellence values, purposes and principles

Chemistry is the study of matter and its interactions. It contributes essential knowledge and understanding across all aspects of our lives. Chemistry explains the links between the nature of matter and the properties of the world. Chemistry research and development is essential for the introduction of new products. The chemical industry is a major contributor to the economy of the country.

The National 3 Chemistry Course encourages resourcefulness, which leads to becoming a confident individual. Successful learners in Chemistry think analytically, independently and solve problems. Chemistry aims to produce responsible citizens through studying the impact it makes on their lives, on the environment and on society.

An experimental and investigative approach is used to develop knowledge and understanding of chemistry concepts.

Purpose and aims of the Course

The purpose of the Course is to develop learners' curiosity, interest and enthusiasm for chemistry in a range of contexts. The skills of scientific inquiry and investigation are integrated and developed throughout the Course. The relevance of chemistry is highlighted by the study of the applications of chemistry in everyday contexts. This will enable learners to become scientifically literate citizens, able to review the science-based claims, which they will meet.

The Course provides opportunities for learners to recognise the impact chemistry makes on developing sustainability, and its effects on the environment, on society and on the lives of themselves and others.

The National 3 Chemistry Course is practically-based and covers the broad areas of how we use the Earth's resources, the chemical reactions which affect our everyday lives and the chemistry which impacts on our environment.

The Course offers a broad, versatile and adaptable skills set which is valued in the work place and forms the basis for progress to other Chemistry Courses, while also providing a knowledge base which is useful for the study of all the sciences.

The aims of the Course are to enable learners to:

- ◆ develop basic knowledge and understanding of chemistry
- ◆ develop an understanding of chemistry's role in scientific issues and relevant applications of chemistry in society and the environment
- ◆ develop scientific inquiry and investigative skills
- ◆ develop scientific analytical thinking skills in a chemistry context
- ◆ develop the use of technology, equipment and materials, safely, in practical scientific activities
- ◆ develop problem solving skills in a chemistry context
- ◆ use scientific literacy in everyday contexts
- ◆ establish the foundation for more advanced learning in chemistry

Information about typical learners who might do the Course

The Course is suitable for learners who have experienced learning across the sciences experiences and outcomes. The Course may be suitable for those wishing to study Chemistry for the first time.

This Course has a skills-based approach to learning. It takes account of the needs of all learners and provides sufficient flexibility to enable learners to achieve in different ways.

Chemistry Courses are offered from SCQF level 3 to SCQF level 7. Vertical progression is possible through these levels, while lateral progression is possible to other qualifications in the sciences. This Course can also assist entry to employment, training and further education.

Course structure and conditions of award

Course structure

The Course consists of three mandatory Units. Each of the component Units is designed to provide progression to the related Unit at National 4.

Units are statements of standards for assessment and not programmes of learning and teaching. They can be delivered in a number of ways.

Units can be taught sequentially or in parallel to each other. However, learning and teaching approaches should provide opportunities to integrate skills, where possible.

Chemical Changes and Structure (National 3)

In this Unit, learners will develop scientific skills and knowledge of the chemicals in our world. The properties and reactions of common elements, and how these relate to their position in the periodic table, will be investigated. Focusing on everyday elements, compounds and mixtures, learners will work towards the concept of chemical reactions and word equations. Through practical experience, learners will study the everyday uses and reactions of acids and bases, and the impact they have on the environment.

Nature's Chemistry (National 3)

In this Unit, learners research the Earth's rich supply of natural resources which are used by each and every one of us. Learners will investigate how fossil fuels were formed and how their use is changing as sustainable energy sources are developed. Plants as a source of oils, carbohydrates and nutrients are explored. Learners will find out about how chemists use plants in the development of products associated with everyday life. They will be given the opportunity to practically investigate one of these processes.

Chemistry in Society (National 3)

In this Unit, learners will develop skills and carry out practical and other learning activities related to investigation of materials. Learners will focus on environmental issues while investigating the reactions, applications and corrosion of metal. The use of metals in chemical cells is explored. Through research, learners will compare and contrast the properties and applications of metals, plastics, and new materials. They will research the use of chemicals used in industry, with an emphasis on the environmental issues.

Conditions of award

To achieve the National 3 Chemistry Course, learners must pass all of the required Units. The required Units are shown in the Course outline section.

National 3 Courses are not graded.

Skills, knowledge and understanding

Full skills, knowledge and understanding for the Course are given in the *Course Support Notes*. A broad overview of the subject skills, knowledge and understanding that will be covered in the Course is given in this section.

This includes:

- ◆ using, with guidance, chemistry knowledge and understanding
- ◆ solving simple problems and making decisions
- ◆ carrying out experiments safely
- ◆ using, with guidance, information handling skills, by selecting, presenting and processing information
- ◆ making basic generalisations from evidence/information
- ◆ drawing valid conclusions from evidence/information
- ◆ communicating findings/information

Skills, knowledge and understanding to be included in the Course will be appropriate to the SCQF level of the Course. The SCQF level descriptors give further information on characteristics and expected performance at each SCQF level (www.sqa.org.uk/scqf).

Assessment

Further information about assessment for the Course is included in the *Course Support Notes*.

Unit assessment

All Units are internally assessed against the requirements shown in the Unit Specification.

They can be assessed on an individual Unit basis or by using other approaches which combine the assessment for more than one Unit.

They will be assessed on a pass/fail basis within centres. SQA will provide rigorous external quality assurance, including external verification, to ensure assessment judgments are consistent and meet national standards.

The assessment of the Units in this Course will be as follows.

Chemical Changes and Structure (National 3)

Learners who complete the Unit will be able to:

- ◆ apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit, to carry out an experiment
- ◆ draw on knowledge and understanding of the key areas of this Unit and apply scientific skills

Nature's Chemistry (National 3)

Learners who complete the Unit will be able to:

- ◆ apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit, to carry out an experiment
- ◆ draw on knowledge and understanding of the key areas of this Unit and apply scientific skills

Chemistry in Society (National 3)

Learners who complete the Unit will be able to:

- ◆ apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit, to carry out an experiment
- ◆ draw on knowledge and understanding of the key areas of this Unit and apply scientific skills

Development of skills for learning, skills for life and skills for work

It is expected that learners will develop broad, generic skills through this Course. The skills that learners will be expected to improve on and develop through the Course are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and drawn from the main skills areas listed below. These must be built into the Course where there are appropriate opportunities.

2 Numeracy

- 2.1 Number processes
- 2.2 Money, time and measurement
- 2.3 Information handling

5 Thinking skills

- 5.2 Understanding
- 5.3 Applying

Amplification of these skills is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills will be appropriate to the level of the Course. Further information on building in skills for learning, skills for life and skills for work for the Course is given in the *Course Support Notes*.

Administrative information

Published: June 2013 (version 1.1)

History of changes to National Course Specification

Course details	Version	Description of change	Authorised by	Date
	1.1	Skills, knowledge and understanding section: amendment to wording to clarify benchmarking. The word 'planning' has been deleted from the third bullet point, and in the fourth bullet point the problem solving skills list has been corrected.	Qualifications Development Manager	June 2013

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