

Draft National Unit Specification



Unit title: Chemistry: Nature's Chemistry (National 4)

SCQF: level 4 (6 SCQF credit points)

Unit code: to be advised

Unit outline

The general aim of this Unit is to develop skills of scientific inquiry, investigation, and knowledge and understanding of concepts of nature's chemistry. This can be done by using a variety of approaches, including investigation and problem solving. Learners will apply these skills when considering the applications of nature's chemistry on our lives, as well as environmental and/or ethical implications. Learners will research issues, apply scientific skills and communicate information related to their findings, which will develop skills of scientific literacy.

Learners who complete this Unit will be able to:

- 1 Draw on knowledge, understanding and skills to investigate, through experimentation, chemistry relating to fossil fuels or foods
- 2 Draw on knowledge, understanding and skills of chemistry to explore the uses of fossil fuels
- 3 Use knowledge and understanding of nature's chemistry

This Unit is a mandatory Unit of the Chemistry (National 4) Course and is also available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes* which provide advice and guidance on delivery, assessment approaches and development of skills for learning, skills for life and skills for work. Exemplification of the standards in this Unit is given in the *National Assessment Resource*.

The Added Value Unit Specification for the Chemistry (National 4) Course gives further mandatory information on Course coverage for learners taking this Unit as part of the Chemistry (National 4) Course.

Recommended entry

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

- ◆ Access 3 Chemistry Course or relevant component Units
- ◆ Access 3 Science Course or relevant component Units

In terms of prior learning and experience, relevant experiences and outcomes may also provide an appropriate basis for doing this Unit. Further information on relevant experiences and outcomes will be given in the *Unit Support Notes*.

Equality and inclusion

This Unit 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 *Unit Support Notes*.

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Standards

Outcomes and assessment standards

Outcome 1

The learner will:

- 1 Draw on knowledge, understanding and skills to investigate, through experimentation, chemistry relating to fossil fuels or foods by:**
 - 1.1 Describing a relevant chemical reaction
 - 1.2 Planning an experiment including an aim, using familiar practical procedures and including safety requirements
 - 1.3 Carrying out an experiment, using equipment in a safe way
 - 1.4 Recording observations and collecting data
 - 1.5 Processing the results
 - 1.6 Drawing valid conclusions that are consistent with data
 - 1.7 Suggesting a way of improving an experimental procedure

Outcome 2

The learner will:

- 2 Draw on knowledge, understanding and skills of chemistry to explore the uses of fossil fuels by:**
 - 2.1 Outlining why fossil fuels are important in everyday life
 - 2.2 Describing an environmental issue associated with their use

Outcome 3

The learner will:

- 3 Use knowledge and understanding of nature's chemistry to:**
 - 3.1 Give straightforward descriptions of processes and chemical reactions
 - 3.2 Solve straightforward given problems

Evidence Requirements for the Unit

Assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used.

Evidence can be drawn from a variety of sources and presented in a variety of formats.

Evidence may be presented for individual Outcomes or gathered for the Unit as a whole, through combining assessment holistically in a single activity. If the latter approach is used, it must be clear how the evidence covers each Outcome.

Concepts to be covered in the Unit will include fossil fuels, conservation of mass, alternative sources of energy, carbohydrates and alcohol, and exothermic reactions.

In these concepts, evidence will be drawn from:

- ◆ **fossil fuels:** formation and extraction processes, uses, hydrocarbons, calculations involving mass balance, environmental impact of the use of fuels – carbon cycle, alternative energy sources, including biomass, hydrogen, ethanol and biodiesel
- ◆ **food/plants:** carbohydrates and oils from plants, exothermic reactions, combustion of foods, alcoholic drinks' sources and production, units in drinks and health issues and law, and photosynthesis and relevance to carbon cycle

Exemplification of assessment will be provided in the *National Assessment Resource*. Advice and guidance on possible approaches to assessment is provided in the *Unit Support Notes*.

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

It is expected that learners will develop broad, generic skills through this Unit. The skills that learners will be expected to improve on and develop through the Unit 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 Unit where there are appropriate opportunities.

1 Literacy

1.1 Reading

2 Numeracy

2.1 Number processes

2.2 Money, time and measurement

2.3 Information handling

5 Thinking skills

5.3 Applying

5.4 Analysing and evaluating

Amplification of these is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills should be at the same SCQF level of the Unit and be consistent with the SCQF level descriptor. Further information on building in skills for learning, skills for life and skills for work is given in the *Unit Support Notes*.

Administrative information



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Superclass: to be advised

History of changes

Version	Description of change	Authorised by	Date

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Note: readers are advised to check SQA's website: www.sqa.org.uk to ensure they are using the most up-to-date version of the Unit Specification.