



National Unit Specification: general information

UNIT Science and Technology in Society (SCQF level 5)

CODE F3T9 11

SUMMARY

This Unit enables candidates to develop basic research skills, information handling skills and the ability to appraise when investigating scientific and technological issues which affect society. It can be used within a programme of science or technology Units or may be used in its own right. It provides an introduction to the skills required for the Graded Unit in the Higher National Certificate in Applied Science at SCQF level 7. The Unit may also be useful in the development of process skills.

OUTCOMES

- 1 Investigate an issue of science and technology in society.
- 2 Analyse the issue and its effects on society.
- 3 Evaluate the issue.

RECOMMENDED ENTRY

While entry is at the discretion of the centre, candidates would normally be expected to have attained one of the following, or equivalent:

- ◆ Standard Grade Biology, Chemistry, Physics or Science at General level
- ◆ Intermediate 1 Units in Biology, Chemistry or Physics

Administrative Information

Superclass: RA

Publication date: May 2008

Source: Scottish Qualifications Authority

Version: 01

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CREDIT VALUE

1 credit(s) at Intermediate 2 (6 SCQF credit points at SCQF level 5*).

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

CORE SKILLS

This Unit contains the automatic certification of Core Skills *Critical Thinking* at level 5.

National Unit Specification: statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

OUTCOME 1

Investigate an issue of science and technology in society.

Performance Criteria

- (a) Identify and describe the scientific and technological facts relevant to the issue.
- (b) Identify and explain the effects of this issue on society.
- (c) Use a variety of secondary sources as part of the investigation.

OUTCOME 2

Analyse the issue and its effects on society.

Performance Criteria

- (a) Describe a variety of opinions on the issue.
- (b) Explain own recommendations for how the issue should be addressed by society.
- (c) Explain the disadvantages to society of the science and technology involved.

OUTCOME 3

Evaluate the issue.

Performance Criteria

- (a) Explain own conclusions on the issue.
- (b) Explain own recommendations for how the issue should be addressed by society.
- (c) Justify own conclusions and recommendations with reasons based on analysis.

National Unit Specification: statement of standards (cont)

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EVIDENCE REQUIREMENTS FOR THIS UNIT

Evidence is required to demonstrate that candidates have achieved all Outcomes and Performance Criteria.

Candidates must produce written and/or oral evidence on their own in their own words at appropriate points throughout the Unit.

Candidates should be given a clear brief explaining that evidence must cover:

- ◆ investigation of the chosen issue including a statement of at least **four** secondary sources utilised in the research
- ◆ analysis covering at least **two** advantages and **two** disadvantages for society and at least **two** differing opinions other than their own
- ◆ an evaluation stating at least **two** conclusions with supporting reasons

The Assessment Support Pack for this Unit provides sample assessment material. Centres wishing to develop their own assessments should refer to the Assessment Support Pack to ensure a comparable standard.

National Unit Specification: support notes

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This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

This Unit is a mandatory Unit in the National Certificate in Applied Sciences at SCQF level 6 but it can also be taken as a free-standing Unit.

In this Unit, investigative methods will be used to produce individual projects relating to the implications of science and technology in society and to critically appraise a scientific argument. The context of this Unit will be negotiated with the candidate. It is important that the topic selected for study has appropriate and accessible resources available for the individual candidate. This should include access to the internet for research and the library for texts, journals and newspapers.

Topics for study could include: global warming, the nuclear debate, the energy crisis, environmental issues, pollution, climate change, genetic engineering, stem cell research, cloning, human DNA profiling database, GM foods, sustainable development or any other topic deemed appropriate by teacher/lecturer.

In the investigation, candidates will be selecting and gathering information appropriate to the chosen topic and could preparing a report with a conclusion of their investigation, the specific content of which will be dictated by the negotiated logic.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

The Unit is candidate-centred with candidates carrying out their own individual investigation. The candidate should select the topic he/she wishes to investigate in consultation with the teacher/tutor/lecturer. This consultation will ensure that the candidate has chosen an appropriate topic that can be addressed in terms of the resources and time available. It is important that candidates are briefed clearly as to what is required for assessment purposes. Care should be taken to ensure candidates do not plagiarise when producing their evidence.

Group work and class discussions may be used to enable candidates to select their chosen topic and gain insight into other opinions however the research and evidence must be the candidate's own work.

Support should be given to ensure that candidates have the skills required to search for information using the internet as well as the library resources. The use of ICT in the production of the report should be encouraged.

National Unit Specification: support notes (cont)

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OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

Opportunities exist within this Unit for the development of Core Skills in *IT* and *Written Communication*. Candidates may develop their IT skills when carrying out their investigative research and in their use of ICT to produce their report. Written communication skills may be developed in the production of a structured report which should contain an introduction, main body, an analysis of the findings and a final evaluation.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by information and communications technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

Candidates should be given a clear detailed briefing of the requirements of the Unit assessment before choosing the topic for investigation. It is advised that a candidate selects the topic for investigation prior to progressing to the work required for Outcomes 1, 2 and 3 and this is checked by the assessor to ensure appropriateness of the investigation. A suitable Instrument of Assessment would be a report which includes a brief introduction, with the body of information providing the evidence for Outcome 1, the analysis for Outcome 2 and the evaluation for Outcome 3. Candidates may be given a suitable template to help them complete their report.

The information for the investigation should be sourced from at least four sources from the Internet or from texts, journals and newspapers in the library. It is suggested that at least two pieces of information should be presented using one or more of the following forms: (i) an illustration in the form of a photograph, drawing or sketch, (ii) a table of statistical data (iii) a graph or chart. The candidate should consider at least two findings relating to the advantages, two findings related to disadvantages and at least two conclusions relating to the implications for society with supporting reasons.

A check-listing approach can be used to ascertain whether the candidate has achieved all Performance Criteria. Where a candidate is unsuccessful in achieving an Outcome due to insufficiency or quality of content, provision should be made for remediation and reassessment.

The report must be in the candidate's own words. Plagiarism is not acceptable. If a quotation is used the source should be stated.

National Unit Specification: support notes (cont)

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CANDIDATES WITH DISABILITIES AND/OR ADDITIONAL SUPPORT NEEDS

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (www.sqa.org.uk).