

Draft National Unit Specification



Unit title: Science: Fragile Earth (Access 3)

SCQF: level 3 (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 the ability to apply knowledge and understanding in the context of Fragile Earth. 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 Fragile Earth on our lives, as well as environmental/societal 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, topics/processes from this Unit
- 2 Draw on knowledge, understanding and skills to outline concepts and investigate applications from this Unit

This Unit is a mandatory Unit of the Access 3 Science 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*.

Recommended entry

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

- ◆ Access 2 Science in the Environment 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, topics/processes from this Unit by:

- 1.1 Discussing and outlining, with support, an aim for an experiment
- 1.2 Planning data collection and recognising safety requirements
- 1.3 Carrying out an experiment, using equipment safely and recording general observations
- 1.4 Presenting and processing relevant information
- 1.5 Suggesting an improvement for the experiment
- 1.6 Making a generalisation based on information and communicating findings

Outcome 2

The learner will:

2 Draw on knowledge, understanding and skills to outline concepts and investigate applications from this Unit by:

- 2.1 Outlining science concepts and principles
- 2.2 Applying science knowledge to solve a problem
- 2.3 Outlining a process/topic and its application
- 2.4 Outlining a scientific issue in terms of the effect on the environment/society

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.

Transfer of evidence: Outcome 1 in this Unit may be used as evidence of the achievement of Outcome 1 in the *Applications in Science* and *Human Health* Units of this Course.

Concepts to be covered in the Unit are:

- ◆ conflicts, benefits, and solutions to issues in the uses of water, including sources and origins of drinking water, and production and extraction of water
- ◆ conflicts and issues associated with food production, including plant and livestock farming, impact of technology on food production, impact of farming on the environment
- ◆ conflicts and issues with production and use of energy, including the generation of power from a range of sources (fossil fuels, plants, renewables), risks and benefits of energy sources, sustainability of energy sources, concept of conservation of energy
- ◆ conflicts and issues with extraction and uses of metals, including properties of metals, methods of extraction of metals, abundance and sources of metals, impact of metal extraction on the environment, recycling metals

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.

2 Numeracy

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

4 Employability, enterprise and citizenship

- 4.1 Citizenship

5 Thinking skills

- 5.2 Understanding
- 5.3 Applying

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

Published: December 2011 (draft version 1.0)

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.