

# National Added Value Unit Specification



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**Unit title:** Science Added Value Unit (National 4)

**SCQF:** level 4 (6 SCQF credit points)

**Unit code:** to be advised

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## Unit outline

This is the Added Value Unit in the Science (National 4) Course. The general aim of this Unit is to demonstrate challenge and application in skills of scientific inquiry, investigation, analytical thinking, and knowledge and understanding. Learners will investigate topical scientific issues, using knowledge and skills drawn from *Fragile Earth*, *Human Health* or *Science at Work* contexts. Learners will use a variety of approaches and will consider applications of science on our lives, as well as environmental/ethical implications. They will communicate information related to their method used or their record of process, findings and conclusion. They will also analyse scientific sources of evidence on an issue, which will allow demonstration of scientific literacy skills.

Learners who complete this Unit will be able to:

- 1 Investigate a topical issue in science and how it affects society and/or the environment
- 2 Interpret a range of straightforward scientific evidence related to a scientific issue

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

## Recommended entry

Entry to this Unit is at the discretion of the centre. It is recommended that the learner should be in the process of completing, or have completed, the following Units in the Science (National 4) Course:

- ◆ Science: Fragile Earth (National 4)
- ◆ Science: Human Health (National 4)
- ◆ Science: Science at Work (National 4)

## **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 *Course Support Notes*.

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# Standards

## Outcomes and assessment standards

### Outcome 1

The learner will:

- 1 Investigate a topical issue in science and how it affects society and/or the environment by:**
  - 1.1 Choosing, with support, a topical issue in science
  - 1.2 Outlining key scientific aspects of the issue
  - 1.3 Planning, with support, how to investigate the issue
  - 1.4 Carrying out the investigation
  - 1.5 Drawing straightforward, reasoned conclusions based on knowledge and understanding of the science of the issue
  - 1.6 Explaining how the issue affects society and/or the environment
  - 1.7 Communicating the findings of the investigation

### Outcome 2

The learner will:

- 2 Interpret a range of straightforward scientific evidence related to a scientific issue by:**
  - 2.1 Identifying the key points in at least two sources of evidence
  - 2.2 Providing a basic evaluation of the usefulness of the sources of evidence, drawing on knowledge and understanding of the science of the issue
  - 2.3 Drawing straightforward, reasoned conclusions

## Evidence Requirements for the Unit

This Added Value Unit is assessed internally by the teacher/lecturer.

Evidence is required to show that the learner has met the Outcomes and Assessment Standards.

### Outcome 1

Evidence for this Outcome will be generated through an assignment on a topical issue, using skills and knowledge drawn from *Fragile Earth*, *Human Health*, or *Science at Work* contexts. The topical issue could have either a negative or positive impact on society/environment and could be from an unfamiliar context or from a familiar context investigated in greater depth, or from integrating aspects of one or more Units.

- ◆ The assignment topic will be agreed between the learner and the teacher/lecturer.
- ◆ The assignment should be carried out under open-book conditions.
- ◆ The teacher/lecturer will provide overall guidelines for the assignment, which will lead learners through the assignment in clear stages.
- ◆ The teacher/lecturer may also give learners support and guidance to help them progress through each stage of the assignment.

- ◆ Evidence should include:
  - the method used or record of process
  - the findings and conclusions
- ◆ Learners should have flexibility in how they communicate their method used or record of process, findings and conclusions. This can include one or more of the following:
  - a written report
  - an oral presentation which may be supplemented by additional material
  - an audio/visual or digital presentation using ICT
  - a learning log or journal which may be in electronic or digital form

## **Outcome 2**

Evidence for this Outcome will be generated through a case study in which the learner will use skills, knowledge and understanding of *Fragile Earth*, *Human Health* or *Science at Work* contexts.

The learner will evaluate evidence on a science issue. The learner will be presented with at least two sources of evidence. The sources might include extracts from specialist or mainstream media, graphs, or statistical tables. Sources of evidence can be paper-based, web-based, visual or oral.

- ◆ The case study will be provided by the teacher/lecturer.
- ◆ The case study should be carried out under open-book conditions.
- ◆ The teacher/lecturer will provide a series of instructions which prompt the learner to analyse the sources of evidence.
- ◆ Instructions will prompt the learner to draw on their scientific knowledge to compare the sources by:
  - identifying essential relevant points from the sources of evidence
  - commenting on the relevance and usefulness of the information
  - commenting on information included or omitted
  - drawing straightforward conclusions, providing reasons for these. This might involve suggesting a course of action or expressing a personal point of view on the issue
- ◆ Learners should have flexibility in how they record their analysis and conclusions. This can be written, oral or in another appropriate form.

Further information is provided in the exemplification of assessment in the *National Assessment Resource*. Advice and guidance on possible approaches to assessment is provided in the *Course Support Notes*.

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

Please refer to the Course Specification for information about skills for learning, skills for life and skills for work.

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## **Further Mandatory Information on Course coverage for the Science (National 4) Course**

The following gives mandatory skills, knowledge and understanding for the Science (National 4) Course. Assessment of this Added Value Unit will involve selecting appropriate skills, knowledge and understanding from those listed below, in line with the Evidence Requirements above. This list of skills, knowledge and understanding also provides the basis for the assessment of all of the Units in the Course.

### ***Fragile Earth***

- ◆ conflicts, benefits, and solutions to issues in the uses of water, including sources and origins of drinking water; 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

### ***Human Health***

- ◆ understanding of the impact of nutrition on health
- ◆ threats to health and preventative measures (including understanding of the immune system and use of vaccines)
- ◆ the use of technology in monitoring health and improving the quality of life

### ***Science at Work***

- ◆ principles and applications of telecommunications
- ◆ uses and properties of electromagnetic waves
- ◆ materials technology, including properties of substances; properties and uses of novel materials and impacts, risks and benefits of their use
- ◆ risks and health and safety measures associated with science at work, including chemical, radiation and electrical risks and safety

## Administrative information



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**Superclass:** to be advised

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### History of changes

Version	Description of change	Authorised by	Date

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