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## Investigative Biology (Advanced Higher) Unit

**SCQF:** level 7 (8 SCQF credit points)

**Unit code:** H7W7 77

### Unit outline

The general aim of this Unit is to develop the skills, knowledge and understanding to carry out research and practical investigations. This will emphasise the principles and practice of investigative biology and its communication. Learners will do this through investigation of scientific method; scientific literature and communication; scientific ethics; pilot study; variables and minimising their effect; experimental design; controls; sampling; ensuring reliability; evaluating background information, evaluating experimental design; evaluating data analysis and evaluating conclusions. The collection of experimental data will provide an opportunity to develop planning and organising skills. Learners will research issues and apply scientific skills which will develop their scientific literacy.

This Unit can be integrated across the other Units of the Course. The Unit covers the key areas of: scientific principles and process; experimentation; critical evaluation of biological research.

Learners who complete this Unit will be able to:

- 1 Apply skills of experimentation and draw on knowledge and understanding of scientific principles and process to carry out a biological investigation
- 2 Draw on knowledge and understanding to analyse and evaluate reports of biological research

This Unit is a mandatory Unit of the Advanced Higher Biology 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 *Unit Assessment Support*.

The *Course Assessment Specification* for the Advanced Higher Biology Course gives further mandatory information on Course coverage for learners taking this Unit as part of the Advanced Higher Biology 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, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

- ◆ Higher Biology or Higher Human Biology Course or relevant component Units

### **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*.

# Standards

## Outcomes and Assessment Standards

### Outcome 1

The learner will:

- 1 Apply skills of experimentation and draw on knowledge and understanding of scientific principles and process to carry out a biological investigation by:**
  - 1.1 Designing investigative procedures appropriate to the aim
  - 1.2 Taking account of ethical considerations, as appropriate, in, for example, the use of living materials, human subjects and the conservation of natural habitats
  - 1.3 Identifying potential hazards, assessing associated risks and applying appropriate control measures
  - 1.4 Collecting data with precision and accuracy
  - 1.5 Using initial results to develop or confirm procedures in the experimental design

### Outcome 2

The learner will:

- 2 Draw on knowledge and understanding to analyse and evaluate reports of biological research by:**
  - 2.1 Evaluating the scientific method
  - 2.2 Analysing the experimental design
  - 2.3 Evaluating the analysis and presentation of data
  - 2.4 Evaluating conclusions

## 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 by 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 of this Course can be used as evidence of the achievement of Outcome 1 in the *Biology: Cells and Proteins* and the *Biology: Organisms and Evolution* Units of this Course.

Exemplification of assessment is provided in *Unit Assessment Support*. 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

1.2 Writing

## **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

5.5 Creating

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 as 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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**Published:** April 2015 (version 2.0)

**Superclass:** RH

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## History of changes

Version	Description of change	Authorised by	Date
2.0	Outcome numbering changed. Change to Evidence Requirements (Transfer of evidence).	Qualifications Development Manager	April 2015

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