

## National Unit Specification: general information

<b>UNIT</b>	Biology Investigation (Advanced Higher)
<b>NUMBER</b>	D034 13
<b>COURSE</b>	Biology (Advanced Higher)

### SUMMARY

This unit is designed to provide opportunities to further develop investigative skills through the completion of an investigation. It also provides the opportunity for self motivation and organisation. This is a component unit of Advanced Higher Biology.

### OUTCOMES

- 1 Develop a plan for an investigation.
- 2 Collect and analyse information obtained from the investigation.

### RECOMMENDED ENTRY

While entry is at the discretion of the centre, the candidate would normally be expected to have attained Higher Biology or Higher Human Biology.

### CREDIT VALUE

0.5 credit at Advanced Higher.

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### Administrative Information

<b>Superclass:</b>	RH
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## **National Unit Specification: general information (cont)**

**UNIT**                      Biology Investigation (Advanced Higher)

### **CORE SKILLS**

Core skills for this qualification remain subject to confirmation and details will be available at a later date.

Additional information about core skills is published in the *Catalogue of Core Skills in National Qualifications* (SQA, 2001).

## **National Unit Specification: statement of standards**

### **UNIT**                      **Biology Investigation (Advanced Higher)**

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 the Scottish Qualifications Authority.

#### **Note on range for the unit**

The biology associated with the investigation must be at a standard commensurate with Advanced Higher Biology level.

#### **OUTCOME 1**

Develop a plan for an investigation.

##### **Performance criteria**

- (a) A record is maintained in a regular manner.
- (b) The aims of the investigation are clearly stated.
- (c) Hypothesis or questions relevant to the aims of the investigation are formulated.
- (d) Experimental, observational and sampling procedures, techniques and apparatus devised are appropriate for the investigation.
- (e) The need for controls and replicate treatments or survey samples is considered.
- (f) Relevant problems associated with the use of living materials or natural habitats are considered.

##### **Evidence requirements**

A record giving brief summaries to indicate the planning stage. Ideas rejected and important contributions made by the teacher/lecturer or other individuals should be included.

#### **OUTCOME 2**

Collect and analyse information obtained from the investigation.

##### **Performance criteria**

- (a) The collection of the experimental information is carried out with due accuracy.
- (b) Relevant measurements and observations are recorded in an appropriate format.
- (c) Recorded experimental information is analysed and presented in an appropriate format.

##### **Evidence requirements**

A record of the collection and analysis of the information, both of which must be the individual work of the candidate.

## **National Unit Specification: support notes**

### **UNIT**                      **Biology Investigation (Advanced Higher)**

This part of the unit specification is offered as guidance. The support notes are not mandatory.

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

#### **GUIDANCE ON CONTENT AND CONTEXT FOR THIS UNIT**

The investigation may relate to the planning, collection and analysis of information through experimental, observational or survey work. Candidates can select any suitable topic for investigation provided the biology is at an appropriate level of demand. The topic chosen may be outwith the biology covered in the other units of the Advanced Higher Biology course. Care should be taken that the investigation is sufficiently biological and not a purely technical exercise in, for example, statistics or computing.

#### **GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT**

Project work is most successful where candidates choose investigations which match personal interests or career intentions. Motivation is often lost where projects are repeated over a number of years or are chosen from a narrow range of content. The candidate should be allowed to consider a variety of approaches. Independent organisation of both time and resources should be encouraged.

#### **GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT**

##### ***Outcome 1***

Candidates should provide a completed record with:

- regular entries during the investigation
- notes/comments on ideas rejected
- notes/comments on planning and design
- contributions made by other individuals
- notes/comments on selection of method used.

##### ***Outcome 2***

Related to performance criteria a. the teacher/lecturer/lecturer checks by observation that the collection of information:

- is the individual work of the candidate
- has been obtained with due accuracy.

Candidates should provide a record of experimental information obtained during the investigation which relates to the performance criteria detailed overleaf.

## National Unit Specification: support notes (cont)

### UNIT Biology Investigation (Advanced Higher)

- b) Readings or observation should be recorded in a clear table with: correct headings, appropriate units, readings/observations entered correctly.
- c) Data should be analysed and presented in a tabular, graphical format or as a scatter diagram or equivalent, as appropriate:
- for a tabular presentation this may be an extension of the table used for PC (b) above, and must include: suitable headings and units showing averages or other appropriate computations
  - for a graphical presentation this must include: data presented as a histogram, bar chart, connected points or line of best fit as appropriate, with suitable scales and axes labelled with variable and units and with data correctly plotted.

The bullet points under each performance criterion give an indication of what should be addressed to achieve a pass. The relevance of the bullet points will vary according to the investigation. These bullet points are intended as helpful guidance. The decision of pass or fail is to be made by the professional judgement of the presenting centre (subject to moderation) against the performance criteria. It is appropriate to give limited support to candidates to meet the performance criteria. The extent of the support should be briefly documented by the candidate in their record.

Candidates may, if they wish, present their records in a word-processed format. Candidates may use Excel (or any other suitable data analysis software) when tackling Outcome 3. However, candidates must not be given a spreadsheet with pre-prepared column headings nor formulae, as they are being assessed on their ability to enter quantities and units into a table. At Advanced Higher, Excel may be used to analyse large amounts of experimental data and to plot error bars charts. The use of clip art or images captured by digital camera may also be used in recording details of experimental methods.

### SPECIAL NEEDS

This unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative outcomes for units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, September 2003).