

National Unit Specification: general information

UNIT	Ecosystems (Intermediate 1)
NUMBER	D310 10
COURSE	Managing Environmental Resources (Intermediate 1)

SUMMARY

This unit seeks to promote understanding and enjoyment of the natural world. On completion of the unit the candidate will be able to investigate, describe and solve problems related to simple ecosystems and the biotic and abiotic factors that influence them.

OUTCOMES

- 1 Demonstrate knowledge and understanding related to simple ecosystems.
- 2 Solve problems related to simple ecosystems.
- 3 Collect and analyse information related to Intermediate 1 Managing Environmental Resources obtained by investigation.

RECOMMENDED ENTRY

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

- Standard Grade Biology, grade 5, 6 or 7
- Standard Grade Chemistry, grade 5, 6 or 7
- Standard Grade Geography, grade 5, 6 or 7
- Standard Grade Physics, grade 5, 6 or 7
- Standard Grade Science, grade 5, 6 or 7
- appropriate Access 3 units.

Administrative Information

Superclass:	QA
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National Unit Specification: general information (cont)

UNIT Ecosystems (Intermediate 1)

CREDIT VALUE

1 credit at Intermediate 1.

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 Ecosystems (Intermediate 1)

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.

OUTCOME 1

Demonstrate knowledge and understanding related to simple ecosystems.

Performance criteria

- (a) Simple ecosystems are observed and described correctly in terms of their physical and biological components.
- (b) Selected natural ecosystems are described correctly in terms of their physical and biological components.
- (c) Changes in biological components of a selected ecosystem are related correctly to environmental factors.

Evidence requirements

Evidence of an appropriate level of attainment must be generated from a closed book test or tests with items covering all performance criteria.

OUTCOME 2

Solve problems related to simple ecosystems.

Performance criteria

- (a) Relevant information is selected and presented in an appropriate format.
- (b) Conclusions drawn and explanations given are supported by evidence.

Evidence requirements

Evidence of an appropriate level of attainment must be generated from a closed book test or tests with items covering both performance criteria including the interpretation and communication of graphical information at the appropriate level. With reference to PC (b), the candidate's answers must show that the main features of the situation have been recognised and that a suitable approach has been selected to deal with it. Evidence for Outcomes 1 and 2 can be generated from an integrated test lasting 45 minutes.

National Unit Specification: statement of standards (cont)

UNIT Ecosystems (Intermediate 1)

OUTCOME 3

Collect and analyse information related to Intermediate 1 Managing Environmental Resources obtained by investigation.

Performance criteria

- (a) Information is collected by active participation in the investigation.
- (b) Investigative procedures are described accurately.
- (c) Relevant measurements and observations are recorded in an appropriate format.
- (d) Recorded information is analysed and presented in an appropriate format.
- (e) Conclusions drawn are valid.

Evidence requirements

Evidence of an appropriate level of attainment must be generated with items covering all performance criteria. A report of one investigation relating to a simple ecosystem is required. The teacher/lecturer must attest that the report is the individual work of the candidate derived from active participation in the investigation. This includes setting objectives for the investigation, planning of appropriate tasks, identifying and obtaining the necessary resources, carrying out the investigation and evaluating all stages. Conclusions and recommendations should be justified by reference to evidence drawn from the investigation.

Depending on the activity, the collection of information may involve group work.

National Unit Specification: support notes

UNIT Ecosystems (Intermediate 1)

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

Full details to assist staff who are delivering the unit as a free-standing unit are given in the contents section of the course specification. The outline of content and context is as follows:

Outcome 1

- 1 Inter-relationship of an ecosystem.
- 2 The physical components of an ecosystem.
- 3 Biological components of an ecosystem.

Outcome 2

Details of problem-solving opportunities are given in the contents section of the course specification.

Outcome 3

Details of opportunities for investigations are given in the contents section of the course specification.

For Outcome 3 investigations may be based wholly or in combination on:

- Practical work in the field or classroom
- Research using relevant literature
- Survey of an appropriate topic using relevant sampling techniques.

The nature of the unit will determine the style and scope of the investigation. The support notes on assessment (below) indicate a range of points, which may aid professional judgement in guiding the candidate's investigation and in assessing whether the performance criteria have been met.

National Unit Specification: support notes (cont)

UNIT Ecosystems (Intermediate 1)

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Details of suitable approaches are given in the course specification.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Outcomes 1 and 2 should be assessed by an appropriate level of attainment in an integrated end-of-unit test with questions covering all performance criteria.

Test items should be constructed to allow candidates to generate evidence relating to the performance criteria as follows:

- a) Selecting and presenting information
 - sources of information include text, straightforward tables, charts, graphs, maps, diagrams
 - formats of presentation include written responses, straightforward tables, diagrams, charts and graphs.
- b) From information and situations given, candidates should be able to draw straightforward conclusions with explanations supported by the evidence.

Outcome 3 should be assessed by participation in an investigation and an appropriate level of attainment in the associated report.

The teacher/lecturer should ensure that the investigative activity to be undertaken in relation to Outcome 3 affords opportunities to demonstrate the ability to plan and organise such activity at an appropriate level of demand. The activity will relate to the course content and candidates should be made aware of the range of skills that must be demonstrated to ensure attainment of Outcome 3. Candidates are only required to produce evidence of one Outcome 3 report in relation to Intermediate 1 Managing Environmental Resources. This report can then be used as evidence for Outcome 3 for the other units of the course.

In relation to PC (a), the teacher/lecturer should check that the candidate participates actively in the planning of the investigation, deciding how it will be managed, identifying and obtaining resources and carrying out the investigation.

National Unit Specification: support notes (cont)

UNIT Ecosystems (Intermediate 1)

Candidates should provide a report with an appropriate title. The report should relate to Outcome 3, PCs (b) to (e) as follows:

b) Investigative procedures are described accurately.	A statement of the purpose of the investigation. A few short sentences including apposite illustrations containing at an appropriate level, points such as: <ul style="list-style-type: none"> • A short description of the methods used • A labelled diagram or brief description of equipment used • How variables and controls were used • The range and balance of sources selected • How measurements were taken or observations made. There is no need for a long detailed description.
c) Relevant measurements and observations are recorded in an appropriate format.	Readings or observations must be recorded in a clear format, normally a table with correct headings, appropriate units and results/readings entered correctly.
d) Recorded information is analysed and presented in an appropriate format.	Data should be analysed and presented in tables, diagrams, graphs or other equivalent form as appropriate: <ul style="list-style-type: none"> • A straightforward tabular presentation must include suitable headings and units • A straightforward diagrammatic presentation must include features or measurements relevant to the investigation • A graphical presentation includes data presented in appropriate forms such as bar charts, pie charts, line graphs with suitable straightforward scales.
e) Conclusions drawn are valid.	Conclusions should use evidence from the investigation and relate back to the purpose of it. The following must be included: <ul style="list-style-type: none"> • Findings supported by the analysed information or results • Identification of strengths and weaknesses in all stages of the investigation including the effectiveness of the approach, the limitations of equipment, and suggestions for improvements.

The points beside each performance criterion give an indication of what should be addressed to achieve a pass. The relevance of the points will vary according to the style and scope of the investigation. The points are intended as helpful guidance. The decision of pass or fail is made by the professional judgement of staff of the presenting centre (subject to moderation) against the performance criteria.

It is appropriate to support candidates in producing a report to meet the performance criteria. Re-drafting of a report after necessary supportive criticism is to be encouraged both as part of the learning and teaching process and to produce evidence for assessment.

National Unit Specification: support notes (cont)

UNIT Ecosystems (Intermediate 1)

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, 2001).