National Unit Specification: General Information

UNIT   Forest Ecology (Higher)

NUMBER   D855 12

COURSE

SUMMARY
On completion of this unit, the candidate will be able to describe the ecological systems within woodland communities.

OUTCOMES
1   Describe the ecological systems operating within a woodland environment.
2   Explain the effect of habitat on the growth, form and function of flowering plants.
3   Identify woodland plant communities.

RECOMMENDED ENTRY
A knowledge of plants, plant morphology and plant physiology would be beneficial.

CREDIT VALUE
1.0 Credit at Higher.

CORE SKILLS
Information on the automatic certification of any core skills in this unit is published in *Automatic Certification of Core Skills in National Qualifications* (SQA, 1999).

National unit specification: statement of standards

UNIT   Forest Ecology (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.

OUTCOME 1
Describe the ecological systems operating within a woodland environment.

Performance Criteria
a)   The explanation of the process of plant succession and the development of climax vegetation is accurate with respect to the major British woodland plant communities.
b)   The description of food chains, food webs, food pyramids and nutrient cycles are accurate with respect to woodland plant communities.
c)   The description of the structure of a woodland plant community is accurate in terms of type, role and species composition of each stratum.
d)   The explanation of the role of common fungi found within a woodland plant is accurate.

Evidence Requirements
Written and/or oral evidence of the candidate's ability to produce the explanations and descriptions as detailed in Performance Criteria (a) to (d).

OUTCOME 2
Explain the effect of habitat on the growth, form and function of flowering plants.

Performance Criteria
a)   The description of the functions of the major parts of the plant is accurate.
b)   The description of the methods available to the plant to ensure pollination, seed dispersal and germination is accurate.
c)   The explanation of the way plants respond to different stimuli is accurate in terms of their response to light, gravity and touch.
d)   The identification of plant adaptations is accurate in relation to their habitats.

Evidence Requirements
Written and/or oral evidence of the candidate's ability to produce the descriptions and explanations as detailed in Performance Criteria (a) to (c). The evidence should be a combination of written and diagrammatic material.

Written and/or oral evidence of the candidate's ability to produce the identification as detailed in Performance Criterion (d), across the range of plant adaptations and habitats.

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OUTCOME 3
Identify woodland plant communities.

Performance Criteria
a)   The quantitative measurement of species distribution is accurate in relation to the sampling techniques used.
b)   The identification of different woodland plant communities is accurate in terms of structure and floristic composition.
c)   The identification of the types of non-flowering plants that occur within woodland plant communities is accurate in terms of name, location and role.

Evidence Requirements
Performance evidence of the candidate's ability to make quantitative measurements of species distribution using sampling techniques for 2 woodland plant communities.

Written and/or oral evidence of the candidate's ability to identify woodland types in 2 woodland plant communities.

Written and/or oral evidence of the candidate's ability to identify non-flowering plants in 2 woodland plant communities.

National unit specification: support notes

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This part of the unit specification is offered as guidance. None of the sections of the support notes is mandatory.

GUIDANCE ON CONTENT AND CONTEXT
Corresponding to Outcomes 1-3:

1   Climax vegetation: woodland, grassland, moorland, coastal, bogs.
         Structure: ground vegetation, shrubs, understorey trees, dominant trees.

         Common fungi:

         -         moulds, rusts, yeasts, basidiomycetes;
         -         symbiotic, saprotrophic, pathogenic roles;
         -         examples: honey fungus, root rots, mycorrhiza, boletus, brackets.

2   Physiological functions of leaf, stem, branches, root, flowers, food storage organs.
         Fertilisation - wind pollination, insect, moths, type of flowers, early and late flowering.
         Seed dispersal - wind, animal, explosive.
         Germination - large, v. small seeds, dormancy.
         Tropisms - light, gravity, contact, water, chemo-.
         Plant adaptations - trees, climbers, rosettes, evergreen, bulbs, early flowering, shade tolerance.

3.   Sampling techniques: transect, quadrants, plots.
         Woodland plant communities: conifer plantation, native pinewood, oak, beech and birch woodland.
         Non-flowering plants: bacteria, virus, algae, lichens, fungi, mosses, liverworts, ferns.

GUIDANCE ON TEACHING AND LEARNING APPROACHES
An integrated approach should be followed and a combination of classroom work, laboratory work, visits to the main habitats and site work in woodland communities will have to be utilised.

National unit specification: support notes (cont)

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GUIDANCE ON APPROACHES TO ASSESSMENT
Centres may use the instruments of assessment which are considered by tutor/trainers to be the most appropriate. Examples of instruments of assessment which could be used are as follows:

OUTCOMES 1   An assignment could be set to cover both outcomes.
AND 3

The candidate should explain the ecological systems operating within a woodland plant community and identify woodland plant communities.

A report should be produced to cover the descriptions and explanations as detailed in Performance Criteria 1 (a) to 1 (d). In addition, the report should cover Performance Criteria 3 (a) to 3 (c) for 2 woodland plant communities.

Diagrams, charts and written information should be included in the report.

Satisfactory achievement of these outcomes is based on Performance Criteria 2 (a) to 2 (d) being met and 3 (a) to 3 (c) being met for two woodland plant communities.

OUTCOME 2   The candidate could be set an assignment to explain the effect of habitats on the growth, form and function of flowering plants.

A report should be produced which is a combination of written and diagrammatic material.

For Performance Criterion (d) the plant adaptations should be identified across the range of habitats.

Satisfactory achievement of the outcome is based on all the performance criteria being met.

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 and Certification Arrangements* (SQA, 1998).