Higher National Unit specification

General information for centres

Unit title: Classification and Identification of Organisms

Unit code: F3X2 34

Unit purpose: The Unit introduces the candidate to the principles and systems used for the classification and identification of organisms. It centres on developing a level of competence in the skills required to identify a range of organisms, such as plants and animals, representing different habitats and situations by using a variety of techniques. The Unit is suitable for those new to these skills and those candidates who wish to consolidate their skills and will enable identification skills to be utilised effectively and developed further in other Units.

On completion of the Unit the candidate should be able to:

1   Explain systems used in the classification, identification and naming of organisms.
2   Apply techniques, skills and wider resources to present information about species of organisms.

Credit points and level: 1 HN credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.

Recommended prior knowledge and skills: It would be beneficial if candidates had some knowledge and experience of plant and animal identification, classification or taxonomy. This might include familiarity with a range of wild plants and animals such as knowledge of common names, recognising similarities and differences and previous use of a field guide. Previous experience gained from Units studying wildlife, plant or animal identification, soft landscaping, ecology or biodiversity would be helpful such as xxx Biology: An Introduction.

Core Skills: There are opportunities to develop the Core Skills of *Communication* at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Context for delivery: If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

Assessment: The Unit could be assessed holistically by a single, open-book instrument of assessment that requires candidates to produce a portfolio of evidence. Alternatively, Outcome 1 could be assessed separately by open-book, restricted response questions with Outcome 2 assessed by a portfolio of evidence.

Higher National Unit specification: statement of standards

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The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Explain systems used in the classification, identification and naming of organisms

Knowledge and/or Skills

♦ Binomial system
♦ Identification and naming
♦ Taxonomy
♦ Classification of key groups

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

♦ explain the origin and development of the binomial system and taxonomy

This must include: the role of Linnaeus; at least two methods used or developments made in taxonomy; an explanation of the 'rule of priority' and an example of the taxonomic classification of a named plant and a named animal from Kingdom down to Species.

♦ cite two examples and apply the basic principles and terminology of the binomial system used in identifying and naming organisms

This must include: genus; species; authority and the conventions used in handwriting and printing their binomial names.

♦ use taxonomy to classify 10 given examples of organisms into their key groups and sub-groups (eg classes/families rather than genus/species) providing evidence to explain the decisions made at each stage

At least five key groups should be covered and should include examples from a minimum of two kingdoms.

This is an open-book assessment.

Higher National Unit specification: statement of standards (cont)

Unit title: Classification and Identification of Organisms

Assessment Guidelines

This Outcome could be assessed as a single assessment containing restricted response questions covering each main Knowledge and /or Skill element.

It could also be combined with Outcome 2 to form a holistic assessment such as a portfolio of evidence covering both Outcomes.

Outcome 2

Apply techniques, skills and wider resources to present information about species of organisms

Knowledge and/or Skills

- Keys and identification guides
- Identification techniques
- Identification skills and resources

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- apply appropriate keys and identification guides to identify 20 species from a range of organisms

A minimum of **two kingdoms** must be included with a minimum of **five species** from each kingdom. The species chosen should come from at least two different habitats or situations and different key taxonomic groups must be represented.

- produce a simple, annotated, outline drawing of the key features and make notes of observations or characteristics as an aid to identification for **eight species**

The species selected should represent a range of key taxonomic groups or subgroups relevant to the subject being studied.

- apply identification skills and resources to gather and present identification evidence and information on **four** selected species

This is an open-book assessment.

Higher National Unit specification: statement of standards (cont)

Unit title: Classification and Identification of Organisms

Assessment Guidelines

This Outcome could be assessed as a single assessment instrument such as a portfolio of evidence or extended response questioning covering all Evidence Requirements. It could also be combined with Outcome 1 to form a holistic assessment such as a portfolio of evidence covering both Outcomes. The information presented could include digital images or illustrations. The identification skills used could be in a field based or laboratory setting dependant upon the subjects being studied.

Administrative Information

Unit code: F3X2 34

Unit title: Classification and Identification of Organisms

Superclass category: RH

Original date of publication: August 2008

Version: 01

History of Changes:

Version	Description of change	Date

Source: SQA

Higher National Unit specification: support notes

Unit title: Classification and Identification of Organisms

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

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

Guidance on the content and context for this Unit

The Unit may be used in a variety of settings from fieldwork in different habitats to science laboratories, it can be applied across a wide range of living organisms and can be adapted accordingly to make it relevant to different courses that require species identification. The approach can therefore be fairly general or specific to a particular situation and may provide opportunity for integration of assessment with other Units that require species to be identified.

Anybody with an interest in the countryside or living things is likely to want to know what plants, animals or other organisms they come across in the course of their activities. The intention of the Unit is to introduce candidates to a variety of techniques for identifying at least the main taxonomic groups of the organisms they are likely to encounter and the species of many of them. These techniques are likely to include use of pictures/photographs, identification keys and guide books, simple line drawings, notes, key features/structure, tracks and signs, sounds and some personal knowledge.

It is recommended that field-based methods are used for Countryside Management and it is likely that plants and animals will feature prominently. However, this does not prevent the use of the Unit in a more laboratory or science-based setting or a focus on other groups of organisms or extinct species if relevant to other purposes or courses.

It is proposed that the range of organisms that are identified are relevant to the candidates' course. Identification skills are relevant in their own right but are often used to support another activity or provide underpinning information and therefore may be integrated with another Unit or used in an applied setting; in this case the choice of organisms used should reflect this setting.

The setting could be part of a survey of an area, a guided walk, identification of pest species or simply the furtherance of a hobby such as birdwatching. On a walk on the seashore candidates would be expected to be able to name the more obvious seaweeds and invertebrates while a similar walk in woodland would require some knowledge of vascular plants, birds and insects. In these situations the skills would involve key easily observed characteristics. In a more science/laboratory based setting more time may be spent on finer details of structure to indicate relationships and aid identification. Using an applied approach can help to make the process more meaningful and thereby encourage candidates to develop their skills more fully.

The Unit develops understanding and application of identification skills starting with the binomial system and taxonomy and classification. Throughout the Unit it is recommended that candidates are encouraged to develop their skills of recognition of typical species found in local habitats that will form the basis of their studies and to become familiar with key features that assist their separation into key taxonomic groups and therefore aid efficient and successful identification.

Higher National Unit specification: support notes

Unit title: Classification and Identification of Organisms

For a range of organisms, candidates could develop their skills through the use of techniques such as annotated outline drawings and field notes as aids to successful identification to species level.

For a limited number of species candidates could develop their skills further by demonstrating the use of more detailed observation/study and wider use of resources to confirm their identification and present background information on the selected species. This will further their interest and could be used to contribute toward work in another Unit.

Guidance on the delivery and assessment of this Unit

Candidates should cover the background information in Outcome 1 and be introduced to the techniques to be used in Outcome 2 which will be more substantial and cover more detailed identification skills. This will give candidates the tools which they can then use as they progress through the Unit. Outcome 2 is likely to be carried out in an applied setting and could be integrated with other Units where identification skills are utilised and all Evidence Requirements can be met. The application could relate to another Unit within the course, be chosen by the candidate or be the demonstration of skills across a range of situations and is likely to involve candidates working on their own or in small groups.. In general, candidates will have had little experience in this area and the techniques are likely to be new to them so plenty of opportunity to practice the skills should be built into the delivery.

In Outcome 1 it is recommended that the principles of the binomial system, its origin and the development of taxonomy, the rule of priority and two examples of classification with groups from kingdom down to species are covered early on.

This can then lead into the process of utilising basic information on taxonomic group characteristics to place selected example organisms into their key groups and sub-groups. This may involve different levels of detail depending on familiarity or relevance to the subject or setting. For example grouping into phylum or order for less familiar animals or plants such as flatworms, starfish, mosses, liverworts, or going further to separate Arthropod examples into crustaceans, spiders and insects, then the insects further into beetles, flies etc. for more familiar organisms. No further steps (ie genus/species) are required at this stage but candidates must be able to demonstrate correct use of information available and explain the decisions made at each stage to assign the organisms into these key taxonomic groups.

Outcome 2 is more substantial and involves developing more detailed identification skills. This could begin by familiarising candidates with the use of keys and identification guides to identify at least 20 organisms to species level across a broad taxonomic range of organisms and more than one habitat. Candidates could then be introduced to techniques such as simple annotated line drawings, observations and notes of key characteristics/behaviour as aids to identification for at least eight species. Finally candidates could use more detailed and diverse evidence and resources to identify and present evidence and background information on at least four species relevant to their subject or setting.

Higher National Unit specification: support notes

Unit title: Classification and Identification of Organisms

The evidence used to aid identification could include details such as: tracks; signs; calls; or key characteristics or taxonomic relationships; location; date; time and observations or behaviour; habitat preference and geographical distribution; reasoned stages in the identification procedure; measurement or size comparison to a well known species.; description; classification; variation or similar species; growth/habit; diet; breeding and conservation.

These could be chosen from the eight species above.

For these four selected species, candidates is required to make use of more detailed observation or study, wider and more in-depth use of resources to confirm their identification and provide more informative background information on the selected species. This may be used to further their interest or contribute toward another Unit and might include: taxonomic information; measurement or scale comparison with a familiar species; step by step identification procedure; details of key features; tracks, signs, sounds; observations; habitat preference, geographical distribution, life history, diet, conservation issues or other relevant information. These would be typical to a 'field based' situation. In a more science/laboratory based setting more time may be spent on finer details of structure to indicate relationships and aid identification.

While it is possible to break both Outcomes down into smaller assessments covering specific Evidence Requirements it is recommended that either the Unit is assessed holistically by a portfolio of evidence that meets all the Evidence Requirements or Outcome 1 be assessed by a single instrument and Outcome 2 assessed by a portfolio of evidence.

The Unit provides an opportunity to combine assessments, particularly Outcome 2, with another Unit requiring use of identification skills and where all Evidence Requirements of this Unit can be met. This may have the benefit of reducing the assessment workload and highlighting the links between course subjects.

Opportunities for developing Core Skills

There are opportunities to develop the Core Skills of *Communication* at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Individual and group work involving the use of a range of resources and developing a range of identification techniques, information gathering and presentation will provide opportunities for candidates to develop their Written and Oral Communication skills.

Open learning

There may be potential to develop open or blended learning materials for this Unit in the future.

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (**www.sqa.org.uk**).

General information for candidates

Unit title: Classification and Identification of Organisms

Anybody with an interest in the countryside or living things is likely to want to know what plants, animals or other organisms they come across in the course of their outdoor activities. The ability to identify, study and record information about organisms using a variety of techniques and resources is crucial underpinning knowledge to further study and understanding in a wide range of subjects relating to countryside and environmental management, ecology and biology.

The aim of this Unit is to introduce you to a variety of methods that you can use to identify some of the main groups and species of organisms you are likely to encounter on your course. Some or all of the techniques may be new to you but this does not matter as your knowledge and skills will be developed over the course of the Unit. The techniques you learn might include the use of: pictures; keys; simple line drawings; notes on key features, characteristics or structure; tracks, signs and sounds and your own personal knowledge.

The Unit is divided into two main areas of study each of which has its own Outcome:

In the first Outcome you will learn about the binomial system that is used in the naming of living organisms and how the system originated and how it has developed. You will also become familiar with the taxonomic system used to classify living organisms and use resources to enable you to decide in which key taxonomic group example organisms belong.

In the second Outcome you will develop your skills to enable you to carry out more detailed identification of the species of a range of living organisms using a variety of techniques, evidence and resources. This may include the use of keys and identification guides, simple outline drawings and notes and other information from your observations or studies. For a few selected examples you will carry out more detailed research to help confirm your identification and to present further background information about these species.

Throughout the Unit you will be encouraged to develop your ability to recognise species typical of the habitats that form the basis of your studies and to become familiar with key features that assist their separation into key taxonomic groups and therefore aid identification.

The Unit may be used in a variety of different settings from fieldwork in different habitats to science laboratory and across a wide range of living or extinct organisms and can be adapted accordingly to make it relevant to your course. The approach can therefore be fairly general or specific to a particular situation and may provide opportunity for integration with other Units.

The Unit could be assessed holistically by a single instrument of assessment that requires you to produce a portfolio of evidence that meets all the Evidence Requirements.

There are opportunities to develop the Core Skills of *Communication* at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.