Higher National Unit specification

General information

Unit title: Animal Care: Diagnostic Techniques (SCQF level 8)

Unit code: HC47 35

Superclass: SN

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Source: Scottish Qualifications Authority

Version: 01

Unit purpose

This Unit is designed to develop a knowledge and understanding of endoparasites, ectoparasites and micro-organisms and the routine diagnostic techniques used to investigate them. The Unit will enable the learner to develop the ability to perform routine diagnostic techniques using a range of suitable equipment, while observing relevant health and safety procedures. The learner will also be able to analyse the results. This Unit is suitable for learners seeking employment in veterinary nursing, animal care or similar professions.

Outcomes

On successful completion of the Unit the learner will be able to:

1 Identify and describe the characteristics, life cycles and methods of control for a range of common ectoparasites and endoparasites.
2 Describe common micro-organisms and explain their effects.
3 Explain the theory and practice of a range of diagnostic techniques.
4 Perform routine analyses of a range of samples using appropriate equipment and techniques.

Credit points and level

1 Higher National Unit credit at SCQF level 8: (8 SCQF credit points at SCQF level 8)

Higher National Unit Specification: General information (cont)

Unit title: Animal Care: Diagnostic Techniques (SCQF level 8)

Recommended entry to the Unit

Entry to this Unit is at the discretion of the delivering centre, however learners would benefit from having achieved passes in relevant level 7 Units in the HND Animal Care framework, or equivalent. Achievement of the Unit *Small Animal Anatomy and Physiology* and prior experience of working in a laboratory environment would also be beneficial.

Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

There is no automatic certification of Core Skills or Core Skill components in this Unit.

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.

It is included in the framework of the HND in Animal Care.

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.

Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**.

Higher National Unit specification: Statement of standards

Unit title: Animal Care: Diagnostic Techniques (SCQF level 8)

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 SQA.

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. Learners 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

Identify and describe the characteristics, life cycles and methods of control for a range of common ectoparasites and endoparasites.

Knowledge and/or Skills

- Common ectoparasites and endoparasites
- Clinical signs exhibited by the animal
- Implications of zoonotic species
- The role of parasites in the transfer of diseases
- Treatment and control methods for a range of ectoparasites and endoparasites

Outcome 2

Describe common micro-organisms and explain their effects.

Knowledge and/or Skills

- Viruses, bacteria, protozoa, fungi (yeasts/moulds)
- Structure, relative size and appearance of representative micro-organisms
- Modes of reproduction
- Classification of bacteria according to shape and Gram stain
- Effects of toxins
- Infection and how micro-organism cause disorders within the body
- Terms associated with disease states caused by micro-organisms

Higher National Unit specification: Statement of standards (cont)

Unit title: Animal Care: Diagnostic Techniques (SCQF level 8)

Outcome 3

Explain the theory and practice of a range of diagnostic techniques.

Knowledge and/or Skills

- Haematology
- Biochemistry
- Urinalysis
- Faecal examination
- Skin and hair examination
- Histology
- Toxicology
- Bacteriology
- Rationales behind performing the techniques
- Normal parameters associated with the techniques
- Conditions associated with changes to normal results

Outcome 4

Perform routine analyses of a range of samples, using appropriate equipment and techniques.

Knowledge and/or Skills

- Observing relevant health and safety legislation
- Sampling equipment and procedures
- Importance of sample quality and the effect it has on results
- Preservation of samples prior to analysis
- Regulations relating to dispatch and transport to an external laboratory
- Haematology
- Biochemistry
- Urinalysis
- Faecal examination
- Skin and hair examination
- Bacteriology
- Recording results

Higher National Unit specification: Statement of standards (cont)

Unit title: Animal Care: Diagnostic Techniques (SCQF level 8)

Evidence Requirements for this Unit

Learners will need to provide evidence to demonstrate their Knowledge and/or Skills across all Outcomes by showing that they can:

Outcome 1:

- identify two common ectoparasites and two common endoparasites.
- recognise clinical symptoms associated with two parasites.
- describe the implications of one zoonotic species.
- explain the roles of two parasites in disease transfer.
- describe the treatment and control advice that could be given relating to one parasite.

Outcome 2:

- describe the structure, relative size and appearance of two of the following:
  — viruses, bacteria, protozoa and fungi.
- explain reproduction in one prokaryote or one eukaryote.
- explain how two species of bacteria are classified according to shape and Gram stain.
- explain the effects of one bacterial toxin.
- describe the infection and disease caused by one micro-organism.

Outcome 3:

- explain the theory and practice associated with one of the following techniques: Urinalysis, Skin/Hair sample or Packed Cell Volume (PCV).
- evaluate the significance of a range of abnormal parameters (select three) from:
  — PCV, Specific gravity, Glucose, Urea, Haematuria and Faecal colour.
- explain the theory and practice of any two other techniques.

Outcome 4:

Performance evidence for three different diagnostic techniques are required.

All performance evidence should be generated during supervised laboratory practical workshops.

Higher National Unit Support Notes

Unit title: Animal Care: Diagnostic Techniques (SCQF level 8)

Unit Support Notes are offered as guidance and 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

Although this Unit may be taken by learners in employment wishing to develop and/or enhance their skills, it is primarily intended for learners who are studying towards the HND in Animal Care and the teaching and learning should be delivered in this context.

The Unit is specifically related to the routines and procedures undertaken within a veterinary practice laboratory, however the content is relevant to all animal care professionals and pet owners as it promotes an understanding of disease conditions and has direct relevance to the Unit *Small Animal Health and Disease.*

It is strongly recommended that the delivery of Outcome 4 should take place in a practical setting utilising a variety of laboratory diagnostic equipment.

Health and safety legislation should be referred to throughout this Unit, and must be current at the time of delivery. At the time of writing this includes the following:

Health and Safety at Work Act (1974)
Control of Substances Hazardous to Health (COSHH) Regulations (2002)
Control of Pollution (Special Waste) Regulations (1988)
Collection and Disposal of Waste Regulations 1988
Environmental Protection Act (1990)
Reporting of Diseases and Dangerous Occurrences Register (RIDDOR) (1995)
First Aid at Work.

Additional information relating to each Outcome is given below.

1 Learners should learn how to identify common ectoparasites and endoparasites affecting companion animals. However, life cycle delivery should be restricted to those species that are deemed to be particularly significant, eg Ctenocephalides, Toxocara canis, Dipylidium caninum, Toxoplasma gondii. Learners should be given, or should be helped to find, information on the mode of infestation, the role of the host and the effect the parasite has on the host species. Learners must gain a good knowledge and understanding of the correct procedures for the treatment and control of these parasites in order to be able to advise animal owners. Learners should also have a clear knowledge about which species are zoonotic and the risks posed to animal owners.

Higher National Unit Support Notes

Unit title: Animal Care: Diagnostic Techniques (SCQF level 8)

2 This Outcome is an introduction to the field of microbiology and the significance of micro-organisms to animal care. Learners should be able to differentiate between organisms relatively (eg understand relative rather than specific sizes) and use the knowledge gained in this Outcome to enhance their understanding of other aspects of the course.

Particular emphasis should be placed on the study of bacteria. Learners should also be made aware of the role of fungi in animal care: instruction should relate this to fungi that commonly affect cats and dogs and cause conditions such as ringworm and malassezia.

3 Outcome 3 is designed to introduce learners to the theory and practice involved in the collection and analysis of a range of samples, in the case of skin and hair examination this must cover a range of dermatological techniques. Outcome 3 and 4 are closely linked, as learners will have to use the knowledge gained in Outcome 3 in order to correctly perform the tasks required in Outcome 4. Learners must gain a clear understanding of the role of these diagnostic techniques in the treatment and control of animal disease.

4 Learners should be instructed in the selection of the most appropriate equipment for the sample to be collected. The importance of collecting samples in an aseptic manner should be emphasised. Learners should know how to advise animal owners on the best technique for sample collection and storage.

Where possible, learners should practice the collection of naturally occurring samples, such as urine and hair brushings, and should be shown how to make a gross evaluation of samples of urine and faeces. Evaluation of blood samples is important and learners should understand the significance of haemolysed, lipaemic and icteric samples. Note blood samples should not simply be collected for the purposes of student practicals, where possible centres should arrange with a local veterinary practice to use samples that have been collected for therapeutic reasons.

Consideration should be given to preservation techniques for all samples, and the temporary storage of samples in-house prior to examination. The importance of the dispatch of samples according to current postal regulations and according to the requirements of the external laboratory to which the sample is being sent should be made clear.

Delivery of this Outcome should relate to performing routine analyses of a range of samples. Emphasis should be placed on the importance of health and safety at all times. Learners should become confident in the use of microscopes and centrifuges.

The emphasis should be on samples that relate to cats and dogs.

Higher National Unit Support Notes (cont)

Unit title: Animal Care: Diagnostic Techniques (SCQF level 8)

Learners should be guided to a good understanding about:

Why selected tests are being performed.
What are the normal parameters?
The significance of abnormal results.
Links to disease states or conditions that they have studied elsewhere in the Unit or in other Units, such as Small Animal Health and Disease.

It should be emphasised that although learners are expected to evaluate the results of analyses, they are NOT in a position to diagnose any conditions.

Guidance on approaches to delivery of this Unit

This Unit has been devised with the intention that it forms part of the core framework of an HND in Animal Care and should be delivered with that in mind.

In respect to the HND in Animal Care, this Unit should, ideally, be delivered at the same time as or after the *Small Animal Health and Disease* Unit so that learners have a clear understanding of how these techniques relate to specific conditions affecting animals.

It is envisaged that most of the delivery of this Unit will be a combination of classroom-based lectures and practical sessions. Learners may also benefit from visits to external veterinary laboratories, eg Capital Diagnostics or IDEXX.

Centres should feel free to adopt an appropriate assessment strategy provided that it meets the specifications given in the Statement of Standards for this Unit.

Guidance on approaches to assessment of this Unit

Outcome 1

The assessment of this Outcome can be combined with Outcomes 2 and 3, details of which are given under Outcome 3.

Outcome 2

The assessment of this Outcome can be combined with Outcomes 1 and 3, details of which are given under Outcome 3.

Outcome 3

The assessment of this Outcome can be combined with Outcomes 1 and 2. This could be conducted as an holistic written assessment consisting of structured questions undertaken in controlled conditions and lasting one and half hours.

Outcome 4

Performance evidence should be supported by direct observation checklists. Copies of the checklists should be retained for authentication purposes.

Higher National Unit Support Notes (cont)

Unit title: Animal Care: Diagnostic Techniques (SCQF level 8)

Evidence can be generated using different types of assessment, these are suggestions only. There may be other methods that would be more suitable to learners.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

Opportunities for e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at **www.sqa.org.uk/e-assessment**.

Opportunities for developing Core and other essential skills

There is no automatic certification of Core Skills or Core Skills components in this Unit, however there may be opportunities to develop the Core Skills of *Communication* and *Problem Solving* at SCQF level 6.

There may be opportunities to develop the Core Skill of Written Communication at SCQF level 6 through the completion of the assessment for Outcomes 1, 2 and 3.

There may also be opportunities to develop the Core Skill of *Problem Solving* at SCQF level 6, both Planning and Organising and Reviewing and Evaluating through the practical aspects of Outcome 4 which requires the learner to perform analysis of a range of samples using appropriate equipment and techniques.

History of changes to Unit

Version	Description of change	Date

General information for learners

Unit title: Animal Care: Diagnostic Techniques (SCQF level 8)

This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

This Unit will provide you with the knowledge and understanding of those ectoparasites, endoparasites and micro-organisms commonly encountered in animal care. You will also have the opportunity to become familiar with the theory underpinning a range of laboratory diagnostic techniques. This will allow you to perform these techniques to an acceptable standard and understand the results obtained.

The Unit is organised into four Outcomes, covering the following topics:

1 Ectoparasites and endoparasites.
2 Micro-organisms.
3 Diagnostic techniques.
4 Performing routine diagnostic techniques.

Assessment for the Unit could consist of one holistic test taken in controlled conditions covering the theory aspects of the Unit (Outcomes 1–3). You will also be required to satisfactorily perform three diagnostic techniques for Outcome 4.

This Unit is included in the framework for the HNC/HND in Animal Care.