



National unit specification

General information

Unit title: Animal Care: Causes and Prevention of Disease in Animals (SCQF level 4)

Unit code: HH21 44

Superclass: SP

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Unit purpose

The unit is an optional unit in the SCQF level 4 National Certificate in Animal Care: An Introduction, but is also available for learners wishing to study the unit on its own and it may be suitable for an introductory programme in biology.

This unit is designed to introduce learners to the causes and prevention of common diseases in animals.

In this unit learners will develop knowledge and understanding of the common causes and symptoms of parasites and disease in animals. Learners will acquire and apply knowledge of how to prevent and control transmission of parasites and disease in an animal care setting.

This unit is suitable for learners who wish to progress to a SCQF level 5 Animal Care Group Award or to study a variety of subjects where a basic understanding of the causes and prevention of diseases in animals is required.

Outcomes

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

- 1 Describe a range of common animal diseases and their causes.
- 2 Describe non-specific and specific barriers to infection.
- 3 Demonstrate methods of prevention and control of common diseases of small animals.

National unit specification: General information (cont)

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Credit points and level

1 National unit credit at SCQF level 4 (6 SCQF credit points at SCQF level 4)

Recommended entry to the unit

While entry is at discretion of the centre, learner would benefit from having attained the following, or equivalent:

- ◆ National 4 Biology

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.

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.

National unit specification: Statement of standards

Unit title: Animal Care: Causes and Prevention of Disease in Animals (SCQF level 4)

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.

Outcome 1

Describe a range of common animal diseases and their causes.

Performance Criteria

- (a) Identify the category of common organisms causing disease in animals.
- (b) Describe routes of transmissions and signs of common diseases in animals.

Outcome 2

Describe non-specific and specific barriers to infection.

Performance Criteria

- (a) Describe physical barriers to infection.
- (b) Describe antigen-antibody reactions.
- (c) Describe the role of vaccination and maternal immunity.
- (d) Describe the role of phagocytosis.

Outcome 3

Demonstrate methods of prevention and control of common diseases of small animals.

Performance Criteria

- (a) Select and use appropriate personal protective equipment.
- (b) Demonstrate good personal hygiene practices.
- (c) Demonstrate how to clean and disinfect the working environment.
- (d) Describe environmental measures in the prevention of infections.
- (e) Comply with all relevant health and safety procedures.

National unit specification: Statement of standards (cont)

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Evidence Requirements for this unit

Evidence is required to demonstrate that learners have achieved all Outcomes and Performance Criteria.

Outcome 1

Written and/or recorded oral evidence is required which demonstrates that the learner achieved all Performance Criteria.

The evidence should be produced under closed-book, supervised conditions and involve the categorisation for Performance Criterion (a) of five specimens from prepared slides, diagrams, photographs or photomicrographs. The specimens should include one of each of the following:

- ◆ Bacteria
- ◆ Viruses
- ◆ Fungi
- ◆ Protozoa
- ◆ Worms

Satisfactory achievement of Performance Criterion (a) will be based on the learner achieving five correct responses.

For Performance Criterion (b) the learner should be able to describe:

- ◆ at least one route of transmission of five common diseases in animals.
- ◆ at least two signs of five diseases in animals.

The evidence should be produced under closed-book, supervised conditions and include one disease caused by bacteria, viruses, fungi, protozoa and worms. The use of a cut-off score may be appropriate.

If a re-assessment is required it should examine a different sample from the range of content available for each Performance Criterion.

Outcome 2

Written and/or recorded oral evidence should be produced under closed-book, supervised conditions. Evidence is required which demonstrates the learner's ability to describe at least four out of five features of each of the following:

- ◆ Physical barriers to infection
- ◆ Antigen-antibody reactions
- ◆ Role of vaccination and maternal immunity
- ◆ Role of phagocytosis

National unit specification: Statement of standards (cont)

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Outcome 3

Satisfactory achievement of this Outcome will be based on the learner satisfying the requirements of the performance evidence.

Written and/or recorded oral evidence may be used to demonstrate the learner's ability to describe the environmental measures to prevent and control infections.

The practical assessments for Outcome 3 could make use of a simulated working environment or case studies, where appropriate.



National unit Support Notes

Unit title: Animal Care: Causes and Prevention of Disease in Animals (SCQF level 4)

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

This unit is an optional unit within the National Certificate in Animal Care: An Introduction (SCQF level 4) but is also suitable as a freestanding unit. It is primarily intended to provide learners with an overview of the causes and prevention of diseases in animals.

This unit is aligned to the following Lantra, Sector Skills Council's National Occupational Standards (NOS):

- ◆ Monitor and Maintain Health, Safety and Security (LANCS2)
- ◆ Maintain the Health and Welfare of Animals Under Supervision and Instruction (LANAnC1)
- ◆ Clean and Check Animal Accommodation Under Supervision and Instruction (LANAnC2)
- ◆ Clean the Animal Related Work Environment (LANAnC6)
- ◆ Observe and be Aware of the Behaviour of Animals (LANAnC10)

Outcome 1

Overview of the five main organisms causing disease. Learners are only required to recognise the TYPE of micro-organism.

A range of common diseases in animals may be discussed, focussing not only on mammals but also on other animals commonly kept as pets.

Examples of diseases could include:

Bacterial: salmonellosis, kennel cough, leptospirosis, tetanus, Lyme disease (*Borrelia*), psittacosis.

Viral: parvovirus, distemper, feline leukaemia (Feline Leukaemia Virus), Feline Immunodeficiency Virus (FIV), rabies, influenza, Psittacine Beak and Feather Disease.

Fungal: ringworm, yeast infections (*Candida albicans*), Aspergillosis (*Aspergillus* spp.), infections by *Saprolegnia* spp.

National unit Support Notes (cont)

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Protozoa: toxoplasmosis (*Toxoplasma gondii*), gastrointestinal illnesses (*Cryptosporidium* spp. and *Giardia* spp.).

Worms: roundworms and tapeworms.

However, this list is not prescriptive, and other diseases may be discussed depending on the learners' interests and the context the unit is taught.

Outcome 2

- (a) Body's physical barriers to include: skin, stomach acid, mucus membranes, pH, ciliated epithelium.
- (b) Immune system is key in recognition of pathogens. Self and non-self antigens. B-lymphocytes, antibody productions and memory cells. Antigen-antibody reaction to include: antitoxins and opsonins. Agglutination.
- (c) The principles of artificial active immunisation such as vaccinations should be considered using appropriate examples. Maternal immunity to include placental and breastfeeding. The advantages and disadvantages of active and passive immunity.
- (d) The production of white blood cells and their role in fighting infections. The role of macrophages and a basic description of the mechanism of phagocytosis.

Outcome 3

The learner should be aware of the risk of infections and, where appropriate, zoonotic risks from common pathogens and parasites. Examples of zoonotic diseases may include, but not be limited to, *Salmonella* spp., *Toxocara* spp., *Toxoplasma gondii*, *Chlamydophila psittaci*, *Leptospira* spp., *Cryptosporidium* spp and *Giardia* spp.

The learner should be aware of how the risks from potential infections and, where appropriate, zoonosis may be minimised. These may include personal measures such as good hygiene practices, selecting and using the correct personal protective equipment, complying with health and safety procedures and environmental measures such as cleaning and disinfecting the working environment, isolation and parasite treatments.

Guidance on approaches to delivery of this unit

The unit could be delivered in a variety of contexts relating to animal care and/or agriculture. In each case it is strongly recommended that, where possible, the chosen diseases are taught in ways relevant to the learner. A range of diseases in a variety of pet animals and livestock may be discussed, depending on learners' interests and on the context in which the unit is taught.

National unit Support Notes (cont)

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A candidate-centred resource-based approach is likely to be most suitable for this unit. Use of visual aids such as models and posters is strongly recommended along with reference to appropriate Internet sites. Videos on the various aspects of the causes and prevention of disease would be appropriate teaching aids.

Physical resources which would help delivery:

- ◆ Microscopes
- ◆ Prepared slides with micro-organisms and parasites
- ◆ Prepared slides of normal and affected tissues and organs.
- ◆ Micrographs of viruses
- ◆ Personal Protective Equipment (PPE)

Practical experiments could be used to support the understanding of the underlying theory:

- ◆ Preparing stained slides of yogurt bacteria and observing them under the microscope
- ◆ Preparing slides of yeast and observing them under the microscope
- ◆ Growing fungi on a plate and observing growth
- ◆ Making a hay infusion with pond/aquarium water and observing live protozoa with a microscope
- ◆ Use of agglutination in blood typing using artificial blood
- ◆ Examining prepared slides of micro-organisms and parasites
- ◆ Using a fluorescent gel and a UV lamp to practice how to wash hands

Access to accommodation for a range of small animals would also be beneficial.

Guidance on approaches to assessment of this unit

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

The evidence for Outcome 1 should involve the categorisation for Performance Criterion (a) of five specimens from prepared slides, diagrams, photographs or photomicrographs. The specimens should include one of each from the following list:

- ◆ Bacteria
- ◆ Viruses
- ◆ Fungi
- ◆ Protozoa
- ◆ Worms

Satisfactory achievement of the Outcome will be demonstrated by the learner achieving five correct responses for (a).

National unit Support Notes (cont)

Unit title: Animal Care: Causes and Prevention of Disease in Animals (SCQF level 4)

For Performance Criterion (b) evidence may be generated with an assessment of 10 restricted response questions to cover the routes of transmissions and signs of one disease caused by bacteria, viruses, fungi, protozoa and worms.

Satisfactory achievement of the Outcome may be demonstrated by the learner achieving 7 out of 10 correct responses for (b).

The evidence for Outcome 2 may involve 20 objective questions to assess the learner's ability to describe the body's defence mechanisms.

The questions may be allocated as follows:

PC (a) five questions
(b) five questions
(c) five questions
(d) five questions

Several types of objective questions would be suitable for the above assessment.

Satisfactory achievement of the Outcome will be demonstrated by the learner achieving four correct responses for each of the Performance Criteria.

For Outcome 3 the learner could be observed carrying out a range of tasks, selecting and using the appropriate equipment in real or simulated situations and case studies.

Time should be allowed for any necessary re-assessment.

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 that 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.

National unit Support Notes (cont)

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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 4.

There may be also opportunities for learners to develop their employability skills by being able to identify potential zoonotic risks when working with animals and being able to minimise such risks.

History of changes to unit

Version	Description of change	Date

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General information for learners

Unit title: Animal Care: Causes and Prevention of Disease in Animals (SCQF level 4)

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 is designed to help you develop a basic knowledge and understanding of the organisms that cause diseases in small animals and how to prevent and control their transmission.

This unit will introduce you to the main types of micro-organisms and parasites affecting pet animals and how these infections can be transmitted. You will then learn how an animal's body try to fight these infections. Finally, you will become familiar with how to prevent and minimise the possible risks of infection when working with animals.

To complete this unit successfully, you will have to complete two closed-book assessments and you will be observed when working with animals.

There is no automatic certification of Core Skills or Core Skills components in this unit, however you will have the opportunity to develop your Core Skills of *Communication* and *Problem Solving* at SCQF level 4.

You will also to develop your employability skills by being able to identify potential risks when working with animals and being able to minimise such risks.

This unit might be suitable for you if you are interested in pursuing a career in agriculture or in the animal care sector, but it can also help you prepare for further studies in biology.