NQF Level: 4    US No: 116281

Learner Guide

Primary Agriculture

Animal Classification and Natural History

My name: ............................................................
Company: ............................................................
Commodity: ........ .......... Date: .........................

The availability of this product is due to the financial support of the National Department of Agriculture and the AgriSETA. Terms and conditions apply.
Before we start...

Dear Learner - This Learner Guide contains all the information to acquire all the knowledge and skills leading to the unit standard:

| Title: Explain animal classification and natural history |
| US No: 116281 | NQF Level: 4 | Credits: 2 |

The full unit standard will be handed to you by your facilitator. Please read the unit standard at your own time. Whilst reading the unit standard, make a note of your questions and aspects that you do not understand, and discuss it with your facilitator.

This unit standard is one of the building blocks in the qualifications listed below. Please mark the qualification you are currently doing:

<table>
<thead>
<tr>
<th>Title</th>
<th>ID Number</th>
<th>NQF Level</th>
<th>Credits</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Certificate in Animal Production</td>
<td>48979</td>
<td>4</td>
<td>120</td>
<td>☐</td>
</tr>
<tr>
<td>National Certificate in Plant Production</td>
<td>49009</td>
<td>4</td>
<td>120</td>
<td>☐</td>
</tr>
</tbody>
</table>

Please mark the learning program you are enrolled in:

- Learnership?
- Skills Program?
- Short Course?

Your facilitator should explain the above concepts to you.

This Learner Guide contains all the information, and more, as well as the activities that you will be expected to do during the course of your study. Please keep the activities that you have completed and include it in your Portfolio of Evidence. Your PoE will be required during your final assessment.

What is assessment all about?

You will be assessed during the course of your study. This is called formative assessment. You will also be assessed on completion of this unit standard. This is called summative assessment. Before your assessment, your assessor will discuss the unit standard with you.

Assessment takes place at different intervals of the learning process and includes various activities. Some activities will be done before the commencement of the program whilst others will be done during programme delivery and other after completion of the program.

The assessment experience should be user friendly, transparent and fair. Should you feel that you have been treated unfairly, you have the right to appeal. Please ask your facilitator about the appeals process and make your own notes.
Your activities must be handed in from time to time on request of the facilitator for the following purposes:

- The activities that follow are designed to help you gain the skills, knowledge and attitudes that you need in order to become competent in this learning module.
- It is important that you complete all the activities, as directed in the learner guide and at the time indicated by the facilitator.
- It is important that you ask questions and participate as much as possible in order to play an active roll in reaching competence.
- When you have completed all the activities hand this in to the assessor who will mark it and guide you in areas where additional learning might be required.
- You should not move on to the next step in the assessment process until this step is completed, marked and you have received feedback from the assessor.
- Sources of information to complete these activities should be identified by your facilitator.
- **Please note** that all completed activities, tasks and other items on which you were assessed must be kept in good order as it becomes part of your **Portfolio of Evidence** for final assessment.

Enjoy this learning experience!
How to use this guide …

Throughout this guide, you will come across certain re-occurring “boxes”. These boxes each represent a certain aspect of the learning process, containing information, which would help you with the identification and understanding of these aspects. The following is a list of these boxes and what they represent:

**What does it mean?** Each learning field is characterized by unique terms and definitions – it is important to know and use these terms and definitions correctly. These terms and definitions are highlighted throughout the guide in this manner.

You will be requested to complete activities, which could be group activities, or individual activities. Please remember to complete the activities, as the facilitator will assess it and these will become part of your portfolio of evidence. Activities, whether group or individual activities, will be described in this box.

Examples of certain concepts or principles to help you contextualise them easier, will be shown in this box.

The following box indicates a summary of concepts that we have covered, and offers you an opportunity to ask questions to your facilitator if you are still feeling unsure of the concepts listed.

My Notes …

You can use this box to jot down questions you might have, words that you do not understand, instructions given by the facilitator or explanations given by the facilitator or any other remarks that will help you to understand the work better.

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SAQA Unit Standard
What will I be able to do?

When you have achieved this unit standard, you will be able to:

♦ Understand the historic and geographic origin and distribution of the specific animal species, its position within the standard classification structure of the animal kingdom, its historic, traditional and current use by man and its basic biology that illuminates the above.
♦ Gain specific knowledge and skills in animal natural history and classification.
♦ Operate in an animal production environment implementing sustainable and economically viable production principles.

Learning Outcomes

At the end of this learning module, you must is able to demonstrate a basic knowledge and understanding of:

♦ Basic comprehension and understanding of the specific animal species.
♦ Animal classification and nomenclature.
♦ Global geography.
♦ Natural history.
♦ Environmental awareness.
♦ Animal humanitarianism.
♦ The purpose of this unit standard.
♦ The purposes and advantages of animals to man.
♦ Presentation skills.
♦ Sensory evaluation of animals.

What do I need to know?

It is expected of the learner attempting this unit standard to demonstrate competence against the unit standard:

♦ No learning is assumed.
Session 1
The historical origin of specific animal species

After completing this session, you should be able to:
SO 1: Describe the historical origin of the specific animal species, based on evidence.

In this session we explore the following concepts:
- The historical origin of animal species.
- The geographical origin of animal species.

1.1 Introduction

Broadly speaking, animals can be studied in two ways. We may concentrate our attention on the living machine and investigate the relationship of parts of the organism to each other and the relationship of its processes to the properties of non-living systems. We may also be interested in the differences between different kinds of animals, and investigate how these differences have arisen.

Though no two animals of the same sex are exactly alike, it is a matter of common observation that some are much more alike than others, and that individuals which are very much alike interbreed and in so doing preserve their common characteristics.

Individual animals, which preserve the common characteristics of their species through breeding, which distinguish them from other animals by only breeding among their own kind, are called species. Here nature supplies the barriers. When humans segregate them into different types they are called breeds, strains, races, domestic varieties or pure lines.

1.2 The historical origin of animal species

During the previous century scientific workers accepted the doctrine of evolution in its general sense. Evolution is the belief that species change over the course of time and that the immense variety of living animals have a common ancestry.

The first attempt to make a complete survey of available information concerning animal life is included in the Systema Naturae. This was published in the middle of the eighteenth century and originated from the practice of contemporary botanist Carolus Linnaeus. He adopted the convention of arranging animals in different grades of resemblance. Species are grouped into genera, genera into families, families into orders, and orders into classes.
Each species has two descriptive names that describe the specie e.g. Cattle are called *Bos taurus* or *Bos indicus*. "Bos" indicating the genus.

The concept of evolution theorises that over millions of years mutations in the genes of living organism generates variation. Some of the mutations may change the organisms to the benefit of the organism and make it more suitable to live in a certain environment. Other mutations may be the cause that the organism becomes extinct.

During the course of millions of years some organisms developed into what we classify today as animals. Animals can be very small microscopic organisms with certain characteristics of more complex animals. A good example is the amoeba: a single cell organism. Some of the microscopic animals also contain chlorophyll which makes it difficult to decide whether they should be classed as animals or plants. The simplest animal of all consists of a single cell. They are called protozoa: from two Greek words meaning “first animals”. A little more complex form of animals are the sponges which are multi-celled animals.

Progressing to the more advanced body system (or more complex life forms) are the parasitic animals like the tapeworms and flukes. They are called flatworms and consist of three layers. They have no body cavity, respiratory system or blood and only a rudimentary nervous system.
Their importance to a farmer is that they have a detrimental effect on their farm animals.

As one progresses further in complexity into the Animal Kingdom, the animals gain a gut to digest their food. Later they develop segmented bodies. Segmentation is a comparatively advanced feature and is shared by arthropods (crustaceans, spiders and insects). Each segment bears its own set of muscles, while major internal organs are suspended in a body cavity.

![Crab Diagram](https://www.zeonschool.com)

Figure 2: The Crab

### 1.3 The geographical origin of animal species

As species spread over a large area natural conditions in different regions will favour the survival of some mutant combinations rather than others.

**Mutant combination** A chance that occur in the gene combination of the animals that might be detrimental or to the animal’s advantage.

Over the course of time what was once a single specie will have broken up into several species. These species will also, over more time, do the same again. Some that are not adapted to the environment may die out.
The differences among the progeny of ancestors, which were once recognised as a single species, will become more sharply defined, and the groups will lose their common family resemblance.

Environmental conditions such as climate and the abundance or lack of food over prolonged periods of time, continually impose on living organisms a process which forces the selection of new strains.

As the animals develop more they begin to develop specialized differentiated body parts to enable them to live in different environments.

The water dwelling animals develop body shapes, breathing apparatus and structures such as fins to be mobile and live in water.

The land living animals develop structures to adapt to land conditions. The land living creatures migrate to different climates where they encounter different enemies and changing environments to which they need to adapt.

Over millions of years the animals differentiated into different species that are adapted to live in certain environments.
Please complete Activity 1:
**Individual written assignment**
The class will divide into three or four groups.

Each group chooses a class of animals out of the following classes: Mammalia, Insecta, Reptilia, Aves (birds) and Chondrichthyes (Bony fish).

Each member of the group chooses a specific animal that belongs to the class of his or her group.

Go and do research in the library or search on the internet:

- Find out as much as possible on the historical origin of the development of the specific animal of your choice (Tip: Look for the word “paleontology”).
- Write down your findings on the history of the animal.
- Discuss each animal in the group and take two to three of the most interesting animals and discuss the anatomical development of the animal into the animal of today.

At the end of the activity the class can discuss all the animals in the different classes chosen. After the discussion, hand in your description as part of your portfolio of evidence.

<table>
<thead>
<tr>
<th>Concept (SO 1)</th>
<th>I understand this concept</th>
<th>Questions that I still would like to ask</th>
</tr>
</thead>
<tbody>
<tr>
<td>The historic origin of the animal species is described.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The geographic origin of the animal species is described.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conclusive evidence to support the hypothesis of the animal’s historical and geographical origin is related and / or provided.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Session 2

The geographical distribution of animal species

After completing this session, you should be able to:
SO 2: Describe the geographical distribution of the specific animal species, based on its preferences.

In this session we explore the following concepts:

♦ The basic environmental preferences of animal species.
♦ The current geographical distribution of specific animal species.
♦ The movement of domesticated animal species under human control.

2.1 Introduction

Animals are usually found in those respective environments where they are adapted. Even in the sea, different animals are adapted to and found in different areas of the sea. On land the climate and topographic environment plays a big role in the geographic spread of animals. However, farm animals have been domesticated. Farmers have taken them out of their natural environment and use them in environments to which they are not necessarily adapted. The farmer can then make alterations to the environment and farm with animals in these artificial environments.

2.2 The basic environmental preferences of animal species

Different animals survive (and very often thrive) in those environments to which they are specifically adapted. The adaptation of animals to different environments is very often a matter of general knowledge. Let’s see if you can figure out which environment’s different animals prefer by doing the following quiz.
Please complete Activity 2.

**Individual quiz**

Complete the following quiz, by writing the letter of the correct answer into the column following the numbered question:

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Correct answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Camels can go for many days without water and thus can live in</td>
<td>a. The amphibians, frogs</td>
</tr>
<tr>
<td>2</td>
<td>Bats use ultrasound to find their way, they can thus hunt at</td>
<td>b. mountains</td>
</tr>
<tr>
<td>3</td>
<td>Marshes, possess both land and water and thus are ideal for</td>
<td>c. Very deep parts of the ocean</td>
</tr>
<tr>
<td>4</td>
<td>The Polar Bear with its thick fur, and extra body fat is ideally suited to live at</td>
<td>d. deserts</td>
</tr>
<tr>
<td>5</td>
<td>A goat is fleet footed and agile and is quite comfortable living in the</td>
<td>e. Their big, bulgy cheeks</td>
</tr>
<tr>
<td>6</td>
<td>Some fish have no eyes, but small protrusions above their mouths that shine in the dark which attracts prey. These fish are highly adapted to the dark environment of the</td>
<td>f. night</td>
</tr>
<tr>
<td>7</td>
<td>Some birds are well-suited to long distance flight. They move from the northern to the southern hemisphere as soon as it gets too cold for them. This movement of birds with the seasons is known as</td>
<td>g. tails</td>
</tr>
<tr>
<td>8</td>
<td>Squirrels like to gather food for the winter. Since they do not have hands or baskets in which to carry their food to the nests, they carry the food in</td>
<td>h. The North Pole</td>
</tr>
<tr>
<td>9</td>
<td>Spider monkeys are very agile in the tree tops. When their hands and feet are bust picking tree top food to eat, they hang from the branches with their</td>
<td>i. migration</td>
</tr>
</tbody>
</table>
2.3 The current geographical distribution of specific animal species

Although species have, over millions of years, evolved by adapting to various different environments, the advent of man has changed this geographical distribution. In non-domesticated species this has meant that areas in which wild animals have thrived have come under pressure through agriculture or forestry or urbanisation. This has resulted in many species becoming extinct or limited in numbers or limited to small geographical locations in which they are now found.

In domesticated species, one can now find farm animals in areas in which they were not originally found. In other words they live where man needs to use them. Often these are environments that they are not well adapted to and man must intervene to ensure that they can survive and thrive in these environments. For example

The diagram below illustrates the main places of origin of most of the domesticated animal species.

Figure 4: The geographical origin of domesticated species
The figures below shows the current geographic spread of several of the main domesticated cattle and goat breeds.

Figure 5: The current geographic spread of the Holstein and Charolais cattle breeds
Figure 6: The current geographic spread of the Saanen and Boer goat breeds
2.4 The movement of domesticated animal species under human control

As the diagrams above illustrate, although certain domesticated species originated in very specific geographical locations, they have spread right across the world due to their association with humans.

Domesticated animals like cattle have migrated with humans over vast distances. Even through the tropics with all its diseases and pests. During even this short time with humans these cattle have developed moveable and tick-resistant skins such as those now found in cattle breeds such as the Nguni and Africander cattle of South Africa. Those animals that did not adapt during these migrations succumbed in these harsh areas and only the strongest animals continued on their migrations with man to the more southern parts of Africa. Figure 7 below shows the possible migratory routes of cattle with man over the centuries.
Figure 7: Origin and migration routes of domestic cattle in Africa

The more modern picture of animal migration is shown in Figures 8 and 9 below.
Figure 8: Spread of the Merino Sheep after the fall of the Spanish monopoly

Figure 9: Transfers of improved and unimproved Boran Cattle
Please complete Activity 3. **Individual activity**

Each learner in the class:
Choose one farm animal of your choice and do research on the internet or in the library on the origin of the animal you have chosen.

Write down:
- The original habitat, characteristics of the land of origin.
- The climatic condition the animals are kept in practical farming conditions.
- The differences and resemblances of their original habitat and the environments they are farmed in.
- Their adaptation to their new environment.

Discuss your findings in a class session.

<table>
<thead>
<tr>
<th>Concept (SO 2)</th>
<th>I understand this concept</th>
<th>Questions that I still would like to ask</th>
</tr>
</thead>
<tbody>
<tr>
<td>The basic environmental preferences of the animal species, based on its biology described.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The current geographical distribution of the specific animal species. Explain and is described.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The movement of the specific animal species, identifying natural migrations and movement under human control or due to human causes is explained.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Session 3

Specific animal species position within the classification system of the animal kingdom

After completing this session, you should be able to:
SO 3: Describe the specific animal species’ position within the classification system of the animal kingdom.

In this session we explore the following concepts:

- Overview of organization of information.
- Basic principles of taxonomy.
- Cattle; Sheep; goat; The Pig; The Chicken.
- Ostrich; Dog; The Cat; The Dove; The Equidae.

3.1 Introduction

Scientists (known as taxonomists) divide all the animals and plants and all other living organisms (including micro-organisms), into groups. This is done to allow comparisons to be made amongst like and unlike organisms. Knowing whether an organism is related to another makes it easier to study them. The different groups of animals or plants are grouped together depending on certain physical or chemical characteristics that they have in common. Taxonomists historically, grouped organisms into five kingdoms. More recently, taxonomists made a new division and in modern Biology there are 6 kingdoms. We will be concentrating on the animal kingdom – properly known as Kingdom Anamalia – the multicellular animals.

3.2 Basic principles of taxonomy

In some ways the methods used in grouping organisms resemble the logical basis of any system of cataloguing of objects, whether of merchandise in a store or books in a library. Here the articles are carefully named and then arranged in a group, or sections, so that any particular article will have more features in common with other members of their group, than with those in other groups. Small groups can in turn be arranged into large groups and this placing together of like objects facilitates their identification by the user of the catalogue.
Usually the needs of the user of the catalogue will determine the features, which are selected to form the basis of classification. This is true to some extent of the classification of organisms but in this instance there is some difference of opinion as to the aims and objects involved. In order that the procedure in classification shall remain standardized throughout the world, an international committee on Zoological Nomenclature has been established which has published a set of rules for the guidance of taxonomists.

The accepted scheme of classification is a development of that initiated by the Swedish Naturalist Carolus Linnaeus in his book Systema Naturae published in 1758. It was he who first devised the binominal system of nomenclature in which every species of animal (or plant) is given two names. One of these is the specific or trivial name and it differentiates the species from all others, whilst the other, the generic name (which is placed before the specific name), is shared by other related species, which are considered to be sufficiently similar to be grouped in the same genus. Both specific and generic names are always constructed in Latinised form (in the Latin language) and are always printed in italics (or underlined). The generic name having a capital and the specific name a small initial letter.

One of the most familiar animals to learners is the common frog. Scientifically, this animal is named Rana temporaria, Rana being the generic name and temporaria the specific name. Formerly, morphological features were the chief, if not the sole, criteria used in defining species, but now genetics, cytology, physiology, and other branches of zoology contribute their quarter of evidence to define each specie or even sub specie.

Once determined and listed, species can be arranged in larger groups and it is in these that the chief differences in scheme of classification become apparent. Thus, as mentioned above, species having many attributes in common are placed in the same genus. So, the common frog, Rana temporaria, belongs to the same genus as the larger, continental frog, Rana esculenta and, with other species of the same genus, is placed in the family Ranidae. Families with common characteristics constitute an order, and orders in turn are grouped into classes. The larger groups of the animal kingdom are the phyla, which contain, in some instances, very many classes.

The animals in each phylum, although displaying a wide range of form, have their bodies contracted on the same ground plan, but differences between phyla are very great when compared with these between the other categories.
To summarize the full systematic position of the common frog can therefore be given as:

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Organisms with cells having a cell membrane but lacking a cell wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-kingdom</td>
<td>Metozoa</td>
<td>Multi cellular animals capable of locomotion</td>
</tr>
<tr>
<td>Phylum</td>
<td>Chordata</td>
<td>Animals with a noto chord*</td>
</tr>
<tr>
<td>Sub Phylum</td>
<td>Craniata</td>
<td>Animals with skull and backbone</td>
</tr>
<tr>
<td>Class</td>
<td>Amphibia</td>
<td>Can live on land and in water</td>
</tr>
<tr>
<td>Order</td>
<td>Anura</td>
<td>Order of frogs</td>
</tr>
<tr>
<td>Family</td>
<td>Ranidae</td>
<td>True frog family</td>
</tr>
<tr>
<td>Genus</td>
<td>Rana</td>
<td>Genus name of frog</td>
</tr>
<tr>
<td>Species</td>
<td>temporania</td>
<td>Temporania</td>
</tr>
</tbody>
</table>

A Notochord is an axial stiffening rod extending along the length of the animal immediately above the alimentary canal and below the central nervous system.

### 3.3 Overview of organization of information

The highest level of the classification system is the Kingdom. There are five Kingdoms into which all living organisms are classified. They include:

- **Monera** (the prokaryotic bacteria and blue-green algae – which do not have nuclear membranes or subcellular organelles).
- **Protista** (unicellular algae and protozoans – single celled organisms).
- **Plantae** (multicellular plants).
- **Fungi** (nonphotosynthetic plant like organism – e.g. Mushrooms).
- **Animalia** (multicellular animals).

**The kingdom of interest to us in this course is Animalia – the multicellular animals.**

The next level of importance in the classification system is the Phylla. The major Phylla of the Animalia kingdom are:

- **Porifera** (for example sponges).
- **Cnidaria** (for example aquatic jellyfishes).
- **Ctenophora** (for example aquatic sea walnuts).
- **Platyhelminthes** (for example tapeworms and liver flukes).
- **Aschelminthes** (for example roundworms).
Annelida (for example earthworms).
Mollusca (for example snails).
Arthropoda (for example insects, ticks and spiders).
Echinodermata (for example starfishes).
Chordata (animals with a backbone e.g. goats, sheep, elephants, dogs).

The phylum chordata (animals with a backbone) can be divided into eight classes:

Four of these CLASSES are aquatic and are popularly known as fishes (Classes Agnatha – primitive jawless fish, Placodermi – extinct primitive jawed fish, Chondrichthyes – cartilaginous fishes and Osteichthyes – bony fishes).

The Class Amphibia – Frogs, Toads, Salamanders.

The Class Reptilia – Turtles, Lizards, Snakes, Crocodiles and Alligators.

Class Aves – the birds

Class Mammalia – the Mammals (Animals with back-bones that produce milk for their young – from their mammary glands)

The class Mammalia is divided into subclasses.
Some subclasses include:

- **Subclass Prototheria**, order - Monotremes (egg-laying mammals – duck-billed platypus),
- **Subclass Theria**, infraclass – Metatheria, order - Marsupials - for example Possums and Koalas,
- **Subclass Theria**, Infraclass – Eutheria - Placentals Order: Chiroptera – for example Bats,

- **Subclass Theria**, Order – Primates – for example Apes,

- **Subclass Theria**, Order – Carnivora – for example lions,

- **Subclass Theria**, Order – Pinnipedia – an aquatic order
- **Subclass Theria**, Order Perissodactyla and Artiodactyla – the hooved animals
- **Subclass Theria**, Order Proboscidea (for example elephants)

- **Subclass Theria**, Order Cetacea – for example whales
The Orders of importance for domesticated animals are Perissodactyla (hooved animals with an odd number of toes) and Artiodactyla (hooved animals with an even number of toes)

Horses (family Equidae) and rhinoceroses have an odd number of hooved toes, thus they are Order Perissodactyla.

Pigs (family Suidae), hippopotamus (family Hippotamidae), camels and llamas (family Camelidae), giraffe (family Giraffidae), and cattle (family Bovidae), sheep (family Ovidae), goats (family Capridae) are all hollow-horned ruminants, which belong to the Order Artiodactyla because they have an even number of hooved toes.

The next levels of the taxonomic classification system are Genus and Species. Animals of the same species can interbreed.


3.4 Cattle

Cattle were originally identified by Carolus Linnaeus as three separate species. There were Bos Taurus, the European cattle including similar types from Africa and Asia; Bos indicus the zebu; and the extinct Bos primigenius, the aurocks. The aurocks are ancestral to both Zebu and European cattle. More recently these three have increasingly been grouped as one species, sometimes using the name Bos primigenius taurus and Bos primigenius indicus. Friesian / Holstein cow

The following illustration shows the full classification of the Holstein Cow.
Scientific classification

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
<td>Animal with a spinal cord</td>
</tr>
<tr>
<td>Class</td>
<td>Mammalia</td>
<td>Warm blooded animals that feed their young by means of milk-secreting glands (the mammary glands)</td>
</tr>
<tr>
<td>Order</td>
<td>Artiodactyla</td>
<td>Even-toed hooved animals</td>
</tr>
<tr>
<td>Family</td>
<td>Bovidae</td>
<td></td>
</tr>
<tr>
<td>Subfamily</td>
<td>Bovinae</td>
<td>Sub family of 24 ungulates that include the water buffalo and cattle</td>
</tr>
<tr>
<td>Genus</td>
<td>Bos</td>
<td>Genus name for cattle</td>
</tr>
<tr>
<td>Species</td>
<td>B. taurus</td>
<td>Linnaeus, 1758</td>
</tr>
<tr>
<td>Binomial name</td>
<td>Bos taurus</td>
<td>Linnaeus, 1758</td>
</tr>
</tbody>
</table>

3.5 Sheep

Sheep refers to the sheep genus. Some are domesticated and some are wild. A sheep is an individual of any of the eight woolly mammal species that comprise the genus ovis. Sheep are members of the order Artiodactyla (even-toed hooved animals). All sheep are ovids (members of the family Ovidae). The domestic sheep is thought to descend from the wild Moufflon of central and south west Asia. In South Africa domesticated sheep breeds are very well adapted to the barren parts of the Sub Continent.

The following illustration gives the full scientific classification of the sheep genus: Dohne sheep

* Scientific classification

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
<td>Animal with a spinal cord</td>
</tr>
<tr>
<td>Class</td>
<td>Mammalia</td>
<td>Warm blooded animals that feed their young by means of milk secreting glands (the mammary glands)</td>
</tr>
<tr>
<td>Order</td>
<td>Artiodactyla</td>
<td>Even-toed hooved animals</td>
</tr>
<tr>
<td>Family</td>
<td>Ovidae</td>
<td></td>
</tr>
<tr>
<td>Genus</td>
<td>Ovis</td>
<td>Sheep genus</td>
</tr>
<tr>
<td>Binomial name</td>
<td>Ovis aries</td>
<td>Linnaeus, 1758</td>
</tr>
</tbody>
</table>

Here are some examples of the eight sheep species found.
3.6 Goat

A goat is a mammal in the genus Capra which consists of nine species. The domestic goat (Capra aegagrus hircus) is a domesticated subspecies of the wild goat. Goats are members of the family Capridae and members of the Order Artiodactyla (even-toed hooved animals) just like cattle and sheep.

**The domestic goat**

---

### Scientific classification

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
<td>Animal with a spinal cord</td>
</tr>
<tr>
<td>Class</td>
<td>Mammalia</td>
<td>Warm blooded animals that feed their young milk by means of milk secreting glands (the mammary glands)</td>
</tr>
<tr>
<td>Order</td>
<td>Artiodactyla</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>Caprae</td>
<td></td>
</tr>
<tr>
<td>Genus</td>
<td>Capra</td>
<td></td>
</tr>
<tr>
<td>Binomial name</td>
<td><em>Capra hircus</em></td>
<td>Linnaeus, 1758</td>
</tr>
</tbody>
</table>
There are other animals (species) of the genus Capra that are domesticated and used in farming. A few examples are:

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capra aegagrus creticus</td>
<td>Kri-kri (Cretan goat, Agrimi, Cretan ibex)</td>
</tr>
<tr>
<td>Capra caucasia</td>
<td>West Caucasian tur</td>
</tr>
<tr>
<td>Capra cylindricornis</td>
<td>East Caucasian tur</td>
</tr>
</tbody>
</table>

### 3.7 The pig

Pigs are native to Eurasia and are collectively grouped under the genus Sus within the Suidae family. They have been domesticated and raised as livestock by some people for meat as well as leather. Their bristle (hairs) are also traditionally used for brushes. Pigs are omnivores (they consume both plants and animals).

#### The domestic pig

- **Scientific classification**

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
<td>Animal with a spinal cord</td>
</tr>
<tr>
<td>Class</td>
<td>Mammalia</td>
<td>Warm blooded animals that feed their young milk by means of milk secreting glands (the mammary glands)</td>
</tr>
<tr>
<td>Order</td>
<td>Artiodactyla</td>
<td>Even-toed hooved animals</td>
</tr>
<tr>
<td>Family</td>
<td>Suidae</td>
<td></td>
</tr>
<tr>
<td>Genus</td>
<td>Sus</td>
<td>Genus name for pig</td>
</tr>
<tr>
<td>Binomial name</td>
<td>Sus scrofa</td>
<td>Linnaeus, 1758</td>
</tr>
</tbody>
</table>

Some further species of pigs are shown below:

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sus barbatus</td>
<td>Bearded pig</td>
</tr>
<tr>
<td>Sus bucculentus</td>
<td>Worty pig (Vietnamese)</td>
</tr>
<tr>
<td>Sus cebifrons</td>
<td>Visay as Worthy pig</td>
</tr>
<tr>
<td>Sus celebensis</td>
<td>Celebes worty pig</td>
</tr>
<tr>
<td>Sus domesticus</td>
<td>Domesticated pig</td>
</tr>
<tr>
<td>Sus heurenti</td>
<td>Flores worty pig</td>
</tr>
<tr>
<td>Sus philippensis</td>
<td>Philippine Worthy pig</td>
</tr>
<tr>
<td>Sus salvanius</td>
<td>Pigmy Hog</td>
</tr>
<tr>
<td>Sus scrofa</td>
<td>Domestic pig</td>
</tr>
<tr>
<td>Sus timoriensis</td>
<td>Timor Worthy pig</td>
</tr>
<tr>
<td>Sus verrucosus</td>
<td>Javan pig</td>
</tr>
</tbody>
</table>
3.8 The chicken

A chicken (Gallus gallus) is a domesticated bird. It is believed to be descended from the wild Asian Red Jungle fowl. Chickens are the most common bird in the world. The population in 2003 was 24 billion. Below is the scientific classification of the chicken:

Scientific classification

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Animal with a spinal cord</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
<td>Aves</td>
</tr>
<tr>
<td>Class</td>
<td>Aves</td>
<td></td>
</tr>
<tr>
<td>Order</td>
<td>Galliformes</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>Phasianidae</td>
<td></td>
</tr>
<tr>
<td>Genus</td>
<td>Gallus</td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>gallus</td>
<td></td>
</tr>
<tr>
<td>Binomial name</td>
<td>Gallus gallus</td>
<td></td>
</tr>
</tbody>
</table>

3.9 Ostrich

The ostrich (Struthio camelus) is a flightless bird native to Africa. It is the only living species of its family, Struthionidae, and its genus, Struthio. They are distinct in their appearance, with a long neck and legs and the ability to run at speeds of about 65 km / hour. Ostriches are considered the largest living species of bird and are found all over the world. The scientific name for the ostrich is from Greek for "sparrow camel".

The scientific classification of the ostrich is given below:
Scientific classification

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
<td>Animal with a spinal cord</td>
</tr>
<tr>
<td>Class</td>
<td>Aves</td>
<td></td>
</tr>
<tr>
<td>Order</td>
<td>Struthioniformes</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>Struthionidae (Vigors, 1825)</td>
<td></td>
</tr>
<tr>
<td>Genus</td>
<td>Struthio</td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>S camelus</td>
<td></td>
</tr>
<tr>
<td>Binomial name</td>
<td>Struthio camelus</td>
<td>Linnaeus, 1758</td>
</tr>
</tbody>
</table>

**3.10 Dog**

The dog is a canine mammal of the order Carnivore. Dogs were first domesticated from wolves at least 15 000 years ago. Below is the scientific classification of the breed the Labrador within the sub specie familiaris.

Scientific classification

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
<td>Animal with a spinal cord</td>
</tr>
<tr>
<td>Class</td>
<td>Mammalia</td>
<td>Warm blooded animals that feed their young milk by means of milk secreting glands (the mammary glands)</td>
</tr>
<tr>
<td>Order</td>
<td>Carnivora</td>
<td>Flesh eating mammals</td>
</tr>
<tr>
<td>Family</td>
<td>Carnidae</td>
<td>Members of the dog family that walk on their toes</td>
</tr>
<tr>
<td>Genus</td>
<td>Canis</td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>C. lupus</td>
<td></td>
</tr>
<tr>
<td>Subspecies</td>
<td>C. l. familiaris</td>
<td></td>
</tr>
<tr>
<td>Trinomial name</td>
<td>Canis lupus familiaris</td>
<td></td>
</tr>
</tbody>
</table>
3.11 The cat

The cat, also called the domestic cat or house cat is a small feline carnivorous mammal of the subspecies *Felis silvestris*.

Below is the scientific classification of the domesticated cat.

♦ Scientific classification

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
<td>Animal with a spinal cord</td>
</tr>
<tr>
<td>Class</td>
<td>Mammalia</td>
<td>Warm blooded animals that feed their young milk by means of milk secreting glands (the mammary glands)</td>
</tr>
<tr>
<td>Order</td>
<td>Carnivora</td>
<td>Flesh eating mammals</td>
</tr>
<tr>
<td>Family</td>
<td>Felidae</td>
<td></td>
</tr>
<tr>
<td>Genus</td>
<td>Felis</td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td><em>F. silvestris</em></td>
<td></td>
</tr>
<tr>
<td>Subspecies</td>
<td><em>F. s. catus</em></td>
<td></td>
</tr>
<tr>
<td>Trinomial name</td>
<td><em>Felis silvestris catus</em></td>
<td>Linnaeus, 1758</td>
</tr>
</tbody>
</table>

3.12 The dove

There are about 308 species of doves in the order Columbiformes. The terms “dove” and “pigeon” are used interchangeably although smaller species are more likely to be called doves.

Below is the Scientific classification of the Peaceful Dove (*Geopelia placida*). There are many species under the genus Columba.
The family is usually divided into five subfamilies. Each subfamily has several genus and specie names.

Science classification

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
<td>Animal with a spinal cord</td>
</tr>
<tr>
<td>Class</td>
<td>Aves</td>
<td></td>
</tr>
<tr>
<td>Order</td>
<td>Columbiformes</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>Columbiadae</td>
<td></td>
</tr>
</tbody>
</table>
| Subfamily | Columbinae, Otidiphabinae, Gourinae, Didunculinae, Treroninae |%

3.13 The equidae

This is the Family of horse-like animals. It is sometimes known as the horse family. Apart from the horses, other equids include the donkey, the three Zebras and the Onager. All of these fall in the genus Equus.

Below is the scientific classification of Equids.
Scientific classification

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
<td>Animal with a spinal cord</td>
</tr>
<tr>
<td>Class</td>
<td>Mammalia</td>
<td>Warm blooded animals that feed their young milk by means of milk secreting glands (the mammary glands)</td>
</tr>
<tr>
<td>Order</td>
<td>Perissodactyla</td>
<td>Odd-toed hooved animals</td>
</tr>
<tr>
<td>Family</td>
<td>Equidae</td>
<td></td>
</tr>
<tr>
<td>Genus</td>
<td>Equus</td>
<td></td>
</tr>
<tr>
<td>Specie</td>
<td>caballus</td>
<td></td>
</tr>
<tr>
<td>Binomial name</td>
<td>Equus caballus</td>
<td>Linnaeus, 1758</td>
</tr>
</tbody>
</table>

Below is a list of some of the Equid species:

- **E. asinus**  Donkey
- **E. africanus**  African Wild Ass
- **E. caballus**  Domestic Horse
- **E. ferus**  Wild Horse
- **E. grevyi**  Grevy's Zebra
- **E. hemionus**  Onager
- **E. kiang**  Kiang
- **E. quagga**  Plains Zebra
- **E. zebra**  Cape Mountain Zebra
- **E. hartmannae**  Hartmann's Mountain zebra

### 3.14 Conclusion

The scientific classification system generally uses the external anatomy and morphology of the animal to differentiate between types of animals. It is therefore very important that the learner understand the basic method of scientific classification. They should be able to identify the basic differences in the external anatomy of farm animals. Of particular importance for domesticated animals (apart from the birds) is the distinction between the even-toed and odd-toed hooved animals.

Some of the anatomical features which assist in the classification of animals include:

- Whether they have a backbone
- Whether they give birth to live young
- Whether they suckle their young
- What they eat (i.e. what type of stomach do they have)
What type of covering they have on their bodies (hair or feathers)

What their claws, nails or hooves look like

What their teeth look like

The posture of their feet when walking

Please complete Activity 4:

Individual written report

The class will divide into three or four groups. Each learner within the group will select a specific specie or genus to study which is found in a different Class of the Animalia Phylla i.e. no two learners will study an animal within the same class of animals.

Each learner must then find good pictures of these animals by photocopying them from books or magazines or printing them from the internet. Each learner must find the genus and species names of each animal.

As a group the following procedure should then be followed:

Write down all the similarities of the animals of each of the learners. For example: study all the similar characteristics of the animals such as:

- Whether they have a backbone
- Whether they give birth to live young
- Whether they suckle their young
- What they eat (i.e. what type of stomach do they have)
- What type of covering they have on their bodies (hair or feathers)
- What their claws, nails or hooves look like
- What their teeth look like
- The posture of their feet when walking

Group the animals with similar characteristics together. At the end of the exercise each learner will have their own animal classified and will also show the group’s exercise of showing similarities between all the animals of the entire group.

The follow web addresses are useful:

- www.pembermuseum.com
- www.factmaster.com
- www.kidport.com
- www.wikipedia.com

My Notes ...
<table>
<thead>
<tr>
<th>Concept (SO 3)</th>
<th>I understand this concept</th>
<th>Questions that I still would like to ask</th>
</tr>
</thead>
<tbody>
<tr>
<td>The standard classification nomenclature of the animal kingdom is explained and described.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The specific animal species’ position within the animal kingdom, using standard classification nomenclature is explained and described.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The morphology and / or attributes of the specific animal that places it within the specific niche within the standard animal category nomenclature is described.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Session 4

The use of animals to the benefit of mankind

After completing this session, you should be able to:

SO 4: Describe the historic, traditional and current use of the specific animal species by man.

In this session we explore the following concepts:

- Use of animals by man.
- Ways how mankind make use of animal’s abilities.

4.1 Introduction

From very early years when single celled animals appeared on earth about 2 500 million years ago, the animal kingdom has evolved into more than a million different species. Animals now inhabit every part of the globe. Many of these animals contribute to the well-being of mankind.

Each species has a very distinct form, colour and life cycle, designed to ensure that it survives in its environment and bears offspring. The survival of animals is linked to the animal's ability to evade predators and enemies and to find food. It is also very important for the animal to find a mate and rear its young and above all to adapt to change.

4.2 Use of animals by man

Mankind has made use of animals from the very early days of civilisation. Long before anything was known of genetics mankind was known to manipulate the breeding of animals. In the bible man’s use of domesticated animals is mentioned many times.

As the years have passed, through natural as well as artificial selection by man, the different ways that animals can be used for the benefit of man has increased. Farmers developed ways to use animals that were adapted to certain areas. The animals adapted to the cold or extremely hot conditions for instance by developing thick hair or wool to protect their bodies. In turn, farmers learned to shear or comb these animals to make clothes for themselves.

Although micro-organisms and other small single celled animals also play a big role in modern farming, let us concentrate on the usefulness of insects, fish, birds and the mammals to man.
Insects like honeybees; birds like the ostrich and the chicken and fish such as the carp have been used for ages. People all over the world use these animals in one or other way.

Please complete Activity 5: Individual written assignment

Using a “mind-map” format list all the animals that mankind makes use of in one way or another. After you have completed this exercise, choose two animals and do research to find out more on the following:

- The historic origin of the animal and how it was traditionally used.
- How the animal was adapted for its modern use and how it has changed to be used today.
- What basic biological and behavioural concepts did man use the animal for.
- The different environments in which the animal is used.
- Do research on where geographically the animal is mainly used in the modern world.

Once the research is complete the learners should share their knowledge with the rest of the class.

4.3 Ways how mankind make use of animal's abilities

Both behavioural and biological characteristics of animals can be harnessed to be of use to man. For example: dogs, originating out of the wild wolf are used for several different purposes. The keen sense of smell of dogs has led to its use to track fugitives, to find drugs and biological materials at airports. Dogs can also be trained to find explosives or to find people who have been trapped under the snow during avalanches. Dog breeds such as the Husky are strong and adapted to the cold. Because of these characteristics they are used to draw sleds in very cold areas. The obedience and loyalty of dogs has been used to assist the blind. Because of their excellent hearing and natural aggression they are also used as guard dogs.

All the domesticated animals like cattle, sheep, and goats were once wild animals. These animals were tamed for domestic use as pets, for food or fibre, or as beasts of burden.

At first they were used in their natural habitat. However, when weather conditions changed, humans migrated to other parts of the earth and took their animals with them. As humans moved around, their animals had to adapt to the new environments. Some animals obviously could not tolerate the new conditions and died. However, those animals that survived had some or other genetic characteristic which allowed them to adapt to the new environment. It was these animals with those special characteristics that were then used further by man.
Aside from adaptation to the environment, man has also applied “selection” pressure to animals to enable them to produce more of a certain product. For example: Milk cows were selected out of the animals used for meat. Every time a cow produced more milk, man would use that cow to produce offspring with the idea that her offspring would also produce more milk. In this way breeds were developed for different purposes. For example milk breeds versus meat breeds.

**Concept (SO 4)**

<table>
<thead>
<tr>
<th>I understand this concept</th>
<th>Questions that I still would like to ask</th>
</tr>
</thead>
<tbody>
<tr>
<td>The historic, traditional and current use of the animal by man is described and explained.</td>
<td></td>
</tr>
<tr>
<td>The use of the specific animal species by man in historic, traditional and current terms is explained.</td>
<td></td>
</tr>
<tr>
<td>The various products produced by the specific animals used by man and how they could have changed over time is described.</td>
<td></td>
</tr>
</tbody>
</table>

**My Notes ...**
Explain animal classification and natural history

Session 5
Biological and behavioural concepts

After completing this session, you should be able to:
SO 5: Describe the basic biological and behavioural concepts that will illuminate the geographical, traditional and historical distribution and use of the animal.

In this session we explore the following concepts:
♦ Biological attributes of use to man.
♦ Behavioural patterns of use to man.
♦ Changes in animal behaviour over time.

5.1 Introduction

If it were not for specific biological and behavioural characteristics, then domesticated animals would have remained in the wild and not been domesticated. In fact, only a select number of animals have ever been domesticated. Many animals still only occur in the wild. What makes one animal more suitable to domestication than another?

5.2 Biological attributes of use to man

Firstly, the animal must have some use to mankind. For example the class “Mammals” are particularly useful to man because they produce “milk”. Thus, an animal that is a mammal has a biological attribute which makes it useful to man. However, not all domesticated animals are mammals. For example a chicken is not a mammal, does not produce milk, but is still of use to humans. A different biological characteristic makes the chicken of use to man. This is its ability to lay eggs and the fact that it has a tasty and nutritious meat.

Sheep and goats that originated in mountainous areas in the northern hemisphere that receives snow in the winter (and sometimes all year round) developed thick coats of fibre to keep themselves warm. Man used this biological characteristic when he decided to cut the hair (shear it) and spin it to make yarn to use in clothes.
5.3 Behavioural patterns of use to man

Bees are a "non-mammal" that is useful to man. It doesn't even have a backbone like a chicken or a fish! Its useful characteristic is found not so much in its anatomy, but in its behaviour. Bees collect pollen from different plants (and in this way pollinate fruit orchards – which is useful to man), and returns to a hive where it feeds this pollen to the young in the hive. This pollen is changed into honey which is used by man.

Other behavioural patterns that are useful to man is the docility of most of the farm animal species. When man first decided to use animals, it was those animals that he could approach and catch that he was able to domesticate. Even today it is impossible to get really close to a wild animal. Even if you do catch them, they will fight and kick and bite and constantly try and get out of an enclosure. These animals are not suitable for domestication since it is impossible to handle them without getting injured.

5.4 Changes in animal behaviour over time

An example of an animal that has exhibited a change in its behaviour due to its domestication by human, is the dog. The dog originated from the wild wolf. The wolf is an aggressive animal that hunts for its food. The domesticated dog of today is obedient, trustworthy, friendly and loyal (unless it is specifically bred to be aggressive).

Please complete Activity 6:
Individual activity
Using a table format list as many wild animals as you can think of that have a usefulness to man, but because of some or other biological or behavioural characteristic cannot be domesticated.

Then list those animals which provide a use to man even though they cannot be “tamed”.

Then list those animals which are useful to man which are domesticated and the biological or behavioural reasons for their domestication.

My Notes ...

..............................
..............................
..............................
..............................
..............................
..........................................
• We have looked at the natural history of farm animals and the historical origin of some animal species.
• We have also looked at the geographical distribution of animals and the reasons why they are more adapted to certain areas than others.
• We have looked at the classification system of specific animals in the Animal Kingdom.
• We have looked at Animal Classification in practice.
• We have also looked at the use of animals to the benefit of mankind and how this usefulness is influenced by biological and behavioural characteristics.

<table>
<thead>
<tr>
<th>Concept (SO 5)</th>
<th>I understand this concept</th>
<th>Questions that I still would like to ask</th>
</tr>
</thead>
<tbody>
<tr>
<td>A detailed description of the animal species’ biological attributes that illuminate its use for man is given.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A detailed description of the animal species’ behavioural patterns that illuminate its use for man is given.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A detailed description of the possible changes in the animal’s behaviour over time, which enables it to be utilised by man or as a result of its use by man given.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

My Notes …
Am I ready for my test?

- Check your plan carefully to make sure that you **prepare in good time**.
- You have to be found **competent** by a qualified **assessor** to be declared competent.
- Inform the assessor if you have any **special needs** or requirements before the agreed date for the test to be completed. You might, for example, require an interpreter to translate the questions to your mother tongue, or you might need to take this test orally.
- Use this worksheet to help you prepare for the test. These are **examples of possible questions** that might appear in the test. All the information you need was taught in the classroom and can be found in the learner guide that you received.

1. **I am sure** of this and understand it well
2. **I am unsure** of this and need to ask the Facilitator or Assessor to explain what it means

<table>
<thead>
<tr>
<th>Questions</th>
<th>1. I am sure</th>
<th>2. I am unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. During the ages what aspect contributed to variation the most?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. What is meant by natural selection?</td>
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</tr>
<tr>
<td>3. What happens to animals that are not adapted to their environment?</td>
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<tr>
<td>4. Give examples of domesticated animals that are widely adapted to different climatic environments.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Give an example of a domesticated specie that has changed a lot over the course of human history because they have migrated through different climatic zones and have changed to adapt to their new environment.</td>
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</tr>
<tr>
<td>6. Who developed the system of scientific classification of plants and animals?</td>
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<td></td>
</tr>
<tr>
<td>7. How many levels of groupings are there in the classification system?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Animals fall under what Kingdom?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. Name the phylum that most farm animals like sheep, cattle, horses, cats, dogs and chickens are classified into.

10. Name five animals that are used by man to their benefit.

11. How are cattle adapted to resist ticks?

My Notes ...

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Checklist for practical assessment …

Use the checklist below to help you prepare for the part of the practical assessment when you are observed on the attitudes and attributes that you need to have to be found competent for this learning module.

<table>
<thead>
<tr>
<th>Observations</th>
<th>Answer Yes or No</th>
<th>Motivate your Answer (Give examples, reasons, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you identify problems and deficiencies correctly?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you able to work well in a team?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you work in an organised and systematic way while performing all tasks and tests?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you able to collect the correct and appropriate information and / or samples as per the instructions and procedures that you were taught?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you able to communicate your knowledge orally and in writing, in such a way that you show what knowledge you have gained?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can you base your tasks and answers on scientific knowledge that you have learnt?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you able to show and perform the tasks required correctly?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you able to link the knowledge, skills and attitudes that you have learnt in this module of learning to specific duties in your job or in the community where you live?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

♦ The assessor will complete a checklist that gives details of the points that are checked and assessed by the assessor.
♦ The assessor will write commentary and feedback on that checklist. They will discuss all commentary and feedback with you.
♦ You will be asked to give your own feedback and to sign this document.
♦ **It will be placed together with this completed guide in a file as part of you portfolio of evidence.**
♦ The assessor will give you feedback on the test and guide you if there are areas in which you still need further development.
## Paperwork to be done ...

Please assist the assessor by filling in this form and then sign as instructed.

### Learner Information Form

<table>
<thead>
<tr>
<th>Unit Standard</th>
<th>116281</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Date(s)</td>
<td></td>
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<td>Assessment Date(s)</td>
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<tr>
<td>Surname</td>
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</tr>
<tr>
<td>First Name</td>
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<tr>
<td>Job / Role Title</td>
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<tr>
<td>Home Language</td>
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<td>Race:</td>
<td>African:</td>
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<tr>
<td>Employment:</td>
<td>Permanent:</td>
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<td>Date of Birth</td>
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<td>Email Address</td>
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<tr>
<td>Postal Address</td>
<td>Signature:</td>
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Bibliography

Books:


World Wide Web:

♦ wikipedia.org
♦ wikipedia
♦ flmnh.ufl.edu
♦ pembermuseum.com
♦ factmaster.com
♦ kidport.com
♦ wikipedia.com

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Acknowledgements

- **Project Management:**
  M H Chalken Consulting
  IMPETUS Consulting and Skills Development

- **Developer:**
  Mr J H P van der Merwe

- **Authenticator:**
  Mr M M Ratsaka

- **Technical Editing:**
  Dr M Roets

- **OBE Formatting:**
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- **Design:**
  Didacsa Design SA (Pty) Ltd

- **Layout:**
  Ms A du Plessis
  Ms N Matloa
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SOUTH AFRICAN QUALIFICATIONS AUTHORITY
REGISTERED UNIT STANDARD:

Explain animal classification and natural history

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<tr>
<th>SAQA US ID</th>
<th>UNIT STANDARD TITLE</th>
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<td>116281</td>
<td>Explain animal classification and natural history</td>
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<td>NSB 01-Agriculture and Nature Conservation</td>
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<th>REGISTRATION END DATE</th>
<th>SAQA DECISION NUMBER</th>
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<td>Registered</td>
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<td>2007-10-13</td>
<td>SAQA 0156/04</td>
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PURPOSE OF THE UNIT STANDARD

The learner achieving this unit standard will be able to understand the historic and geographic origin and distribution of the specific animal species, its position within the standard classification structure of the animal kingdom, its historic, traditional and current use by man and its basic biology that illuminates the above. In addition they will be well positioned to extend their learning and practice into other areas of agriculture, animal husbandry and veterinary science.

Learners will gain specific knowledge and skills in animal natural history and classification and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

No learning is assumed.

UNIT STANDARD RANGE

Whilst range statements have been defined generically to include as wide a set of alternatives as possible, all range statements should be interpreted within the specific context of application.

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

UNIT STANDARD OUTCOME HEADER

N/A
Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1
Describe the historical origin of the specific animal species, based on evidence.

OUTCOME RANGE
Animals include but are not limited to mammals, reptiles, birds, amphibians, crustaceans, molluscs, fish and insects.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1
The historic origin of the animal species is described.

ASSESSMENT CRITERION 2
The geographic origin of the animal species is described.

ASSESSMENT CRITERION 3
Conclusive evidence to support the hypothesis of the animal’s historical and geographical origin is related and/or provided.

SPECIFIC OUTCOME 2
Describe the geographical distribution of the specific animal species, based on its preferences.

OUTCOME RANGE
Animals include but are not limited to mammals, reptiles, birds, amphibians, crustaceans, molluscs, fish and insects.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1
The basic environmental preferences of the animal species, based on its biology described.

ASSESSMENT CRITERION 2
The current geographical distribution of the specific animal species. Explain and is described.

ASSESSMENT CRITERION 3
The movement of the specific animal species, identifying natural migrations and movement under human control or due to human causes is explained.

SPECIFIC OUTCOME 3
Describe the specific animal species’ position within the classification system of the animal kingdom.

OUTCOME RANGE
Animals include but are not limited to mammals, reptiles, birds, crustaceans, molluscs, fish and insects.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1
The standard classification nomenclature of the animal kingdom is explained and described.

ASSESSMENT CRITERION 2
The specific animal species’ position within the animal kingdom, using standard classification nomenclature
is explained and described.

**ASSESSMENT CRITERION 3**
The morphology and / or attributes of the specific animal that places it within the specific niche within the standard animal category nomenclature is described.

**SPECIFIC OUTCOME 4**
Describe the historic, traditional and current use of the specific animal species by man.

**OUTCOME RANGE**
Animals include but are not limited to mammals, reptiles, birds, crustaceans, molluscs, fish and insects.

**ASSESSMENT CRITERIA**

**ASSESSMENT CRITERION 1**
The historic, traditional and current use of the animal by man is described and explained.

**ASSESSMENT CRITERION RANGE**
Use of animals by man include but are not limited to the use of their products for food and feed, medication or religious reasons, their labour in the sense that their senses (smell, hearing, taste and sight) and their physical strength (for draught) have been used to benefit man, for performance, or use in warfare and for humanitarian use, for use as guides and supports for disabled, for the use of their lives in the place of man in various applications because of their attributes, for their ability to consume or convert various unwanted substances, for their ability to warn and defend their charges of dangers.

**ASSESSMENT CRITERION 2**
The use of the specific animal species by man in historic, traditional and current terms is explained.

**ASSESSMENT CRITERION 3**
The various products produced by the specific animals used by man and how they could have changed over time is described.

**SPECIFIC OUTCOME 5**
Describe the basic biological and behavioural concepts that will illuminate the geographical, traditional and historical distribution and use of the animal.

**OUTCOME RANGE**
Biology of the animal includes but is not limited to facets of the animal that lend the animal to the specific task(s) or products that it is used for by man.

Animals include but are not limited to mammals, reptiles, birds, crustaceans, molluscs, fish and insects.

**ASSESSMENT CRITERIA**

**ASSESSMENT CRITERION 1**
A detailed description of the animal species’ biological attributes that illuminate its use for man is given.

**ASSESSMENT CRITERION 2**
A detailed description of the animal species’ behavioural patterns that illuminate its use for man is given.

**ASSESSMENT CRITERION 3**
A detailed description of the possible changes in the animal’s behaviour over time, which enables it to be utilised by man or as a result of its use by man given.
UNIT STANDARD ACCREDITATION AND MODERATION OPTIONS

The assessment of qualifying learners against this standard should meet the requirements of established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The specific outcomes must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed in relation to each other. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified critical cross-field outcomes should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners, not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of these values.

- Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

UNIT STANDARD ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- Basic comprehension and understanding of the specific animal species.
- Animal classification and nomenclature.
- Global geography.
- Natural history.
- Environmental awareness.
- Animal humanitarianism.
- The purpose of this unit standard.
- The purposes and advantages of animals to man.
- Presentation skills.
- Sensory evaluation of animals.

UNIT STANDARD DEVELOPMENTAL OUTCOME

N/A

UNIT STANDARD LINKAGES

N/A
Critical Cross-field Outcomes (CCFO):

UNIT STANDARD CCFO IDENTIFYING
Problem Solving: relates to outcomes:
• Describe the geographic distribution of the specific animal based on its preferences.
• Describe the specific animal species’ position within the classification system of the animal kingdom.
• Describe the historic, traditional and current use of the animal by man.
• Describe the basic biological concepts that will illuminate the geographical, traditional and historical distribution and use of the animal.

UNIT STANDARD CCFO ORGANIZING
Self-Organisation and Management: relates to outcome:
• Describe the historic, traditional and current use of the animal by man.

UNIT STANDARD CCFO COLLECTING
Interpretation of information: relates to all outcomes.

UNIT STANDARD CCFO COMMUNICATING
Communication: relates to all outcomes.

UNIT STANDARD CCFO SCIENCE
Science and technology: relates to all outcomes.

UNIT STANDARD CCFO DEMONSTRATING
The world as a set: relates to all outcomes.

UNIT STANDARD CCFO CONTRIBUTING
Personal Development: relates to all outcomes.

UNIT STANDARD ASSESSOR CRITERIA
N/A

UNIT STANDARD NOTES
N/A