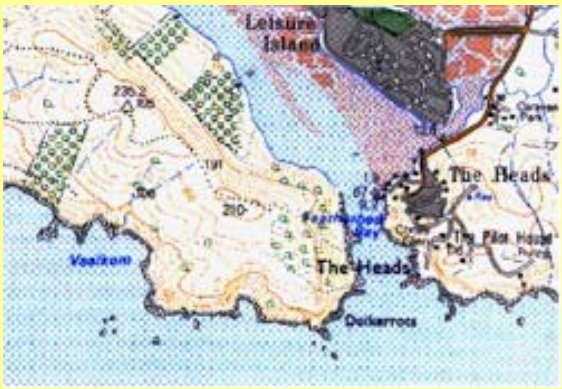
NQF Level: 1 **US No: 7461**

Learner Guide

Primary Agriculture

Use maps to access and communicate information concerning routes, location and direction



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Department:
Agriculture
REPUBLIC OF SOUTH AFRICA

AgriSETA

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:	Use maps to access and communicate information concerning routes, location and direction			
US No:	**7461**	**NQF Level:** 1	**Credits:** 1	

The full unit standard is attached at the end of this module. 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:

Title	ID Number	NQF Level	Credits	Mark
National Certificate in Animal Production	48970	1	120	❒
National Certificate in Mixed Farming Systems	48971	1	120	❒
National Certificate in Plant Production	48972	1	120	❒

Please mark the learning program you are enrolled in:

Your facilitator should explain the above concepts to you.

Are you enrolled in a:	Y	N
Learnership?	❒	❒
Skills Program?	❒	❒
Short Course?	❒	❒

You will also be handed a Learner Workbook. This Learner Workbook should be used in conjunction with this Learner Guide. The Learner Workbook contains the activities that you will be expected to do during the course of your study. Please keep the activities that you have completed as part of your Portfolio of Evidence, which will be required during your final assessment.

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.

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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Unit Standard

What will I be able to do?

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

- Read, interpret and use maps, to depict and make sense of real locations, distances and relative positions; and
- Draw maps according to scale.

What do I need to know?

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

- It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:
- Describe routes and locations and draw simple maps

My Notes ...

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Maps – An Introduction

What are Maps?

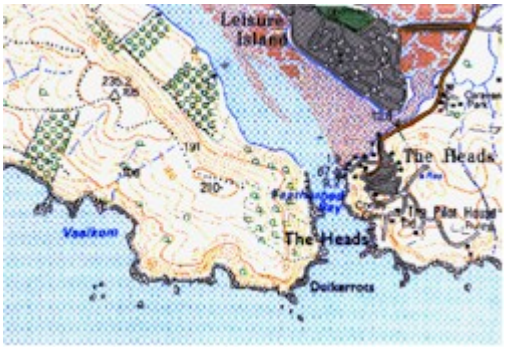
A map is a graphical representation drawn to scale of natural and artificial features (objects) on the Earth's surface. Some of these features such as, roads, buildings or rivers, you would be able to see from a hill-top or aeroplane. A map is a portrayal of the real world.

Other features such as, names of places, boundaries or heights are added to the map because of the importance that they have for the map user. A map can tell us about things that are happening around us, close by and far away. It gives us this information without having to necessarily be at that place.

The map maker has the task of bringing the real world to the map user. This is no easy task as the space available on the map is limited and the real world must be represented by symbols (points, lines and area fills). The process of making the map involves collecting data and making measurements (usually from aerial photographs) of objects in the real world. This information is then translated into understandable symbols and names and other relevant information are added which the map user can interpret to get knowledge about the real world

Top: **Aerial photo**
Bottom: **The corresponding map**

The Earth is round while the map is flat and so the map maker has to project the round surface on the Earth onto the flat surface on the map. This process is known as a map projection. There are different map projections, each with different properties of preserving true shape, area or distance.



For a map to be useful it must be a good representation of the real world. This means that as things change, such as new roads or dams or houses, the map must be changed to show these changes. It is important, therefore, that maps show the date at which the information is valid. It is also these changes that make it necessary

for maps to be updated at intervals. The updated map is shown as a new edition of the map with a new date.

Various uses of maps

♦ Position (location)

A map gives the location or position of places or features. The positions are usually given by the co-ordinates of the place, either as the cartesian co-ordinates (x,y) in metres or as geographical co-ordinates (latitude and longitude) in degrees, minutes and seconds. The co-ordinates can be measured using the co-ordinate grid shown at set intervals along the borders of the map. The map user can, for example, find out that the position of Cape Town is 33º56' South latitude, 18º25' East longitude.

♦ Spatial relationships

A map gives us the spatial relationship between features. For example: What province is the neighbour of another province? Which side of the road is the river on? Is there a dam on the farm? Where is the nearest railway station?

♦ Distance, Direction, Area

We can determine a lot of information from a map such as distances, directions and areas. We can measure the distance from Johannesburg to Durban, determine that Pretoria is to the north of Johannesburg, or calculate the size of the Gauteng province. In determining distances and areas the scale of the map has to be taken into consideration.
Directions are based on true north, but if you are using a magnetic compass then it must be remembered that the compass needle points to magnetic north, which is different from true north. The difference between magnetic north and true north is called the magnetic declination.

Different Types of Maps

Being a representation of the real world on a limited size of paper means that a map is restricted as to what can be shown. The map maker (cartographer) has to select what to show and what to leave off. The map maker is guided by what the main purpose of the map is, such as a road map, a topographical map or a thematic map. A road map emphasises the roads and towns but little else, while a topographic map, also called a general map, shows as much of the landscape, elevations, roads, towns etc as possible. A thematic map is designed to depict a specific theme such as the population of various magisterial districts, the occurence of crime in different districts, or annual rainfall.

AERIAL PHOTOGRAPHY

The Chief Directorate of Surveys and Mapping is the government agency responsible for aerial photography and has an archive of aerial photographs dating back to the 1930's. The photography is at a variety of scales and has provided complete coverage of the country since the 1950's. These are all vertical aerial photographs taken from aircraft. Photography is continuously reflown to provide new photography for ongoing map revision and for sale to users.

Unlike a generalised line map, almost all detail is visible on an aerial photograph. The user, although unable to make accurate measurements on the photograph, is able to perform his or her own interpretation of what exists on the ground. Aerial photographs are also an historic record of what existed at the time the photograph was taken.

Modern aerial photographs are standard contact sizes of 23 x 23cm. Enlargements of up to three times a photograph area are available. Overlapping stereopairs may be purchased for stereo viewing, providing the user with a 3-dimensional image. Colour photography is also available in selected areas.

ORTHOPHOTO MAPS (Scale 1:10 000)

The 1:10 000 orthophoto maps combine all the advantages of conventional line maps and aerial photography. The photographic background has been rectified to remove image displacements and enlarged to a scale of 1:10 000. Unlike a conventional aerial photograph, accurate measurements can be made on the orthophoto map. Cartographic elements that cannot be derived from the photographic background have been added, namely: a co-ordinate grid, contours and spot heights, place names and route numbers. These maps are well suited for detail planning and analysis of what exists on the ground.

The orthophoto maps cover all metropolitan and peri-urban areas and growth areas. At present, about 25% of the country is covered by these sheets. These sheets are available as ammonia-developed prints on either paper or opaque film or as bromide prints on photographic paper.

TOPOGRAPHICAL MAPS (Scale 1:50 000)

The 1:50 000 topographical maps are the largest scale maps providing full coverage of South Africa. The series consists of a total of 1916 sheets. They accurately depict the location of natural and man-made features by means of symbols and colour, and elevation by means of spot heights and contours (20 m interval). Additional information added are place names, boundaries, magnetic data, etc. These maps contain essential information for planning and decision making but also have many other uses.

The 1:50 000 topographical maps are generally compiled from aerial photographs. A standard 1:50 000 map sheet covers a rectangle of 15 minutes of latitude by 15 minutes of longitude or approximately 640 square kilometres

TOPO-CADASTRAL MAPS (scale 1:250 000)

The 1:250 000 topo-cadastral maps show topographical detail with the addition of names, numbers and boundaries of original farms, the boundaries of magisterial districts, and provincial and international boundaries. Elevation, depicted by means of contours at 50m intervals, is further enhanced by hypsometric tints, i.e. shades of brown becoming progressively darker as elevation increases. This series is a firm favourite for regional planning and administrative purposes.

These sheets are generally derived from the larger scale 1:50 000 topographical maps with some detail of necessity being generalised, i.e. thinned out to show only the more important features. 70 maps of this series cover South Africa with each sheet generally covering an area of one degree of latitude and two degrees of longitude.

PROVINCIAL MAPS

The series of provincial maps provides a map of each province, on its own in a single sheet. The maps are designed mainly for administrative purposes and depict the cities, towns, smaller urban centres, district/regional councils, rural councils (rural local government) and magisterial districts, as well as the main road and rail networks, main rivers and dams, nature reserves and airports. Topography is depicted by hill shading.

With the whole province shown on one sheet, the scale of the map of each province varies depending on the size of the province.

South Africa (scale 1:2 000 000)

A new style wall map depicting South Africa at the scale of 1:2 000 000, has been released to coinside with the Chief Directorate's 80th Anniversary Celebration. Amongst a host of cartographic improvements the following deserve special mention:

Generalisation has been carefully optimised to improve legibility
A range of five layer tints indicates elevation but no contours are shown.
International and Provincial boundaries and names are boldly displayed.
The hitherto invisible dormitory settlements attached to towns are displayed.

Concept	I understand this concept	Questions that I still would like to ask
Objects are identified on a map.		
The positions of objects on a map are given using reference points on a grid.		
A variety of routes between two points on a map are identified and described.		
Appropriate routes are identified and selected to meet the requirements of a variety of circumstances.		
Real distances between points on a map are determined correctly in accordance with the scale.		
Landmarks are used to give direction in real life, and these landmarks are identified and located on a map.		
Directions are given correctly using maps and in real life.		

Please complete Activity **1** in your learner workbook

My Notes ...

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Session 1 Read, interpret and use maps.

After completing this session, you should be able to:
SO 1: Read, interpret and use maps, to depict and make sense of real locations, distances and position.

In this session we explore the following concepts:

- Objects are identified on a map
- The positions of objects on a map are given using reference points on a grid
- A variety of routes between two points on a map are identified and described.
- Appropriate routes are identified and selected to meet the requirements of a variety of circumstances
- Real distances between points on a map are determined correctly in accordance with the scale.
- Landmarks are used to give direction in real life, and these landmarks are identified and located on a map.
- Directions are given correctly using maps and in real life.
- Bearing and the four compass points

1.1 What is a Topographic Map?

A map is a representation of the Earth, or part of it. The distinctive characteristic of a topographic map is that the shape of the Earth's surface is shown by contour lines. Contours are imaginary lines that join points of equal elevation on the surface of the land above or below a reference surface, such as mean sea level. Contours make it possible to measure the height of mountains, depths of the ocean bottom, and steepness of slopes.

A topographic map shows more than contours. The map includes symbols that represent such features as streets, buildings, streams, and vegetation. These symbols are constantly refined to better relate to the features they represent, improve the appearance or readability of the map, or reduce production cost.

Consequently, within the same series, maps may have slightly different symbols for the same feature. Examples of symbols that have changed include built-up areas,

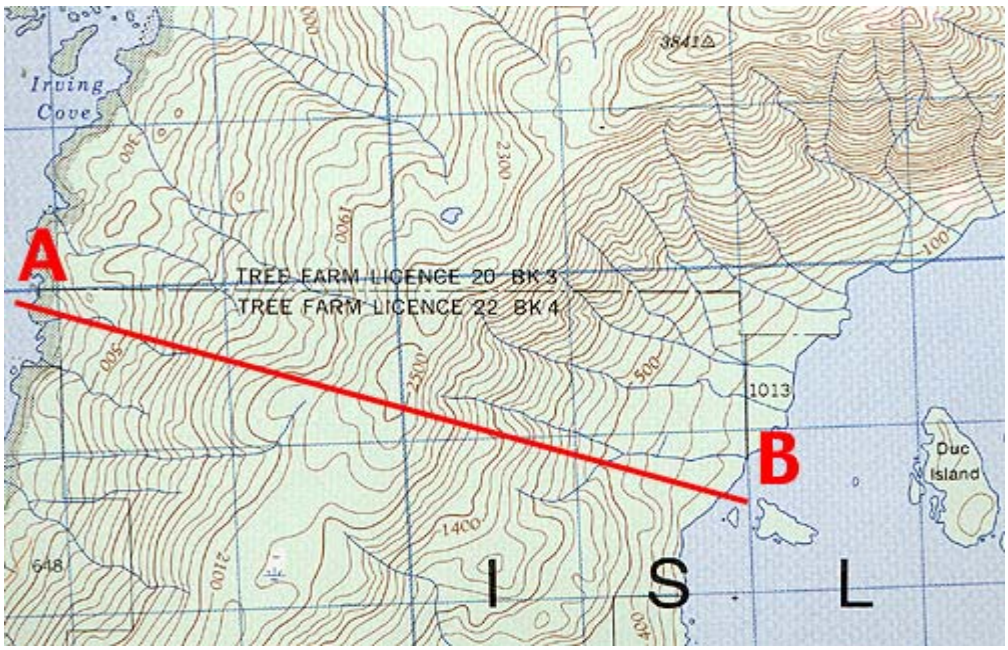
roads, intermittent drainage, and some lettering styles. On one type of large-scale topographic map, called provisional, some symbols and lettering are hand drawn.

1.2 Let's look at the objects that we can identify on a map.

For a map to contain a large amount of easily read information, a system of symbols must be employed. Many commonly used symbols have become generally accepted or are readily understood. Thus cities and towns are indicated by dots or patches of shading; streams and bodies of water are often printed in blue; and political boundaries are shown by coloured ribbons or dotted lines. A cartographer, as mapmakers are called, may, however, devise a great variety of symbols to suit various needs. For example, a dot may be used to symbolize the presence of 10,000 head of cattle, or crossed pickaxes may be used to denote the location of a mine. The symbols used on a map are defined in the map's key, or legend.

■ Contour Lines

Topographic maps can describe vertical information through the use of contour lines (contours). A contour line is an isoline that connects points on a map that have the same elevation. Contours are often drawn on a map at a uniform vertical distance. This distance is called the contour interval. The map in the **Figure 2d-1** shows contour lines with an interval of 100 feet. Note that every fifth brown contour lines is drawn bold and has the appropriate elevation labelled on it. These contours are called index contours. On **Figure 2d-1** they represent elevations of 500, 1000, 1500, 2000 feet and so on. The interval at which contours are drawn on a map depends on the amount of the relief depicted and the scale of the map.



Contour lines provide us with a simple effective system for describing landscape configuration on a two-dimensional map. The arrangement, spacing, and shape of the contours provide the user of the map with some idea of what the actual topographic configuration of the land surface looks like. Contour intervals the are spaced closely together describe a steep slope. Gentle slopes are indicated by widely spaced contours. Contour lines that V upwards indicate the presence of a river valley. Ridges are shown by contours that V downwards.

Topographic Profiles

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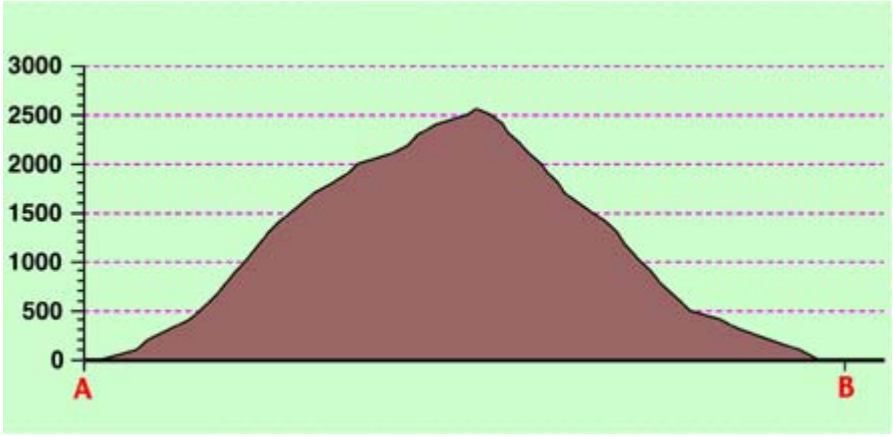
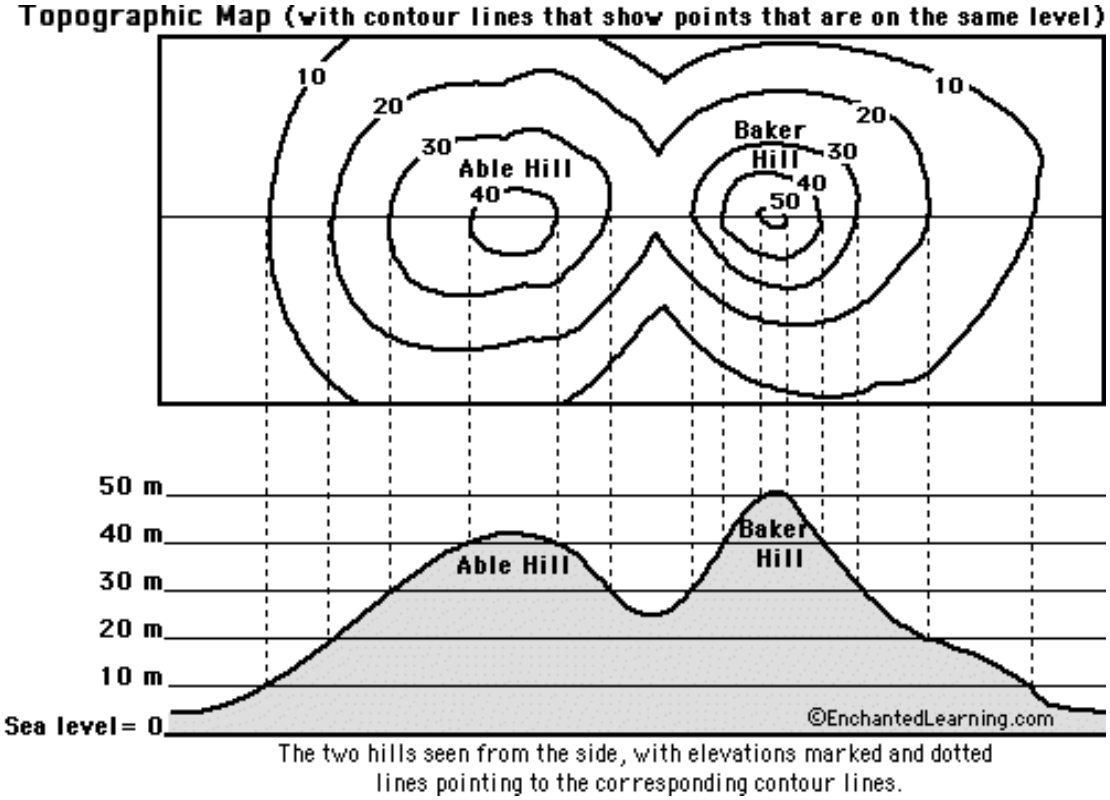


topographic profile is a two-dimensional diagram that describes the landscape in vertical cross-section. Topographic profiles are often created from the contour information found on topographic maps. The simplest way to construct a topographic profile is to place a sheet of blank paper along a horizontal transect of interest. From the map, the elevation of the various contours is transferred on to the edge of the paper from one end of the transect to the other. Now on a sheet of graph paper use the x-axis to represent the horizontal distance covered by the transect. The y-axis is used to represent the vertical dimension and measures the change in elevation along the transect. Most people exaggerate the measure of elevation on the y-axis to make changes in relief stand out. Place the beginning of the transect as copied on the piece of paper at the intersect of the x and y-axis on the graph paper. The contour information on the paper's edge is now copied onto the piece of graph paper



The two hills seen from the side, with elevations marked and dotted lines pointing to the corresponding contour lines.

Please complete Activity **2** in your learner workbook

My Notes ...

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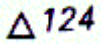
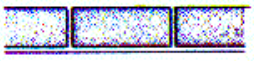
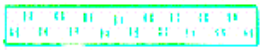
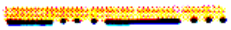
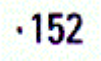
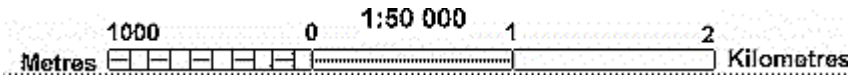
■ Topographic Symbols

A topographic map shows natural and constructed features on the Earth's surface and added to this are names and boundaries of importance. The features or objects are represented on the map as symbols in different colours - as point symbols, lines and areas. The map maker uses different colours and symbols for each type of object in a way that will make it easy for the map user to identify. Below are examples of what can be found on a 1:50 000 topographical map with the standard symbols:

Road : National freeway		Trigonometrical beacon (with beacon number)	
Road : National route		Urban built-up area	

Road : Arterial route		Building (of significance or isolated)	
Road : Main road		Bridge	
Road : Secondary road		Cultivated land	
Railway (showing a station)		Row of trees (where of significance)	
River : Perennial (has water all year)		Wind pump	
River : Non-perennial		Communication tower	
Dam		Eroded area	
Pan : Perennial		Boundary : International	
Pan : Non-perennial		Boundary : Provincial	
Pan : Dry		Boundary : Cadastral farm (original farm)	
Canal		Boundary : Game reserve	
Powerline (major lines only)		Boundary : State forest	
Spot height (elevation at a point)		Contour	

Scale bar 

Please complete Activity **3 & 4** in your learner workbook

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Session 2 Draw maps according to scale

In this session we are going to examine the following points:

- Maps are drawn such that the relative positions of places and objects match the real situation.
- A suitable scale is chosen, indicated and applied correctly.
- Symbols used conform to conventional uses or are defined through a key or legend.
- The map is clear and neat and contains all critical information as required by the situation.
- Maps are converted from one scale to another.

2.1 Let's draw maps so that the relative positions of places and objects match the real situation

■ Why should one have a map of your farm?

♦ A detailed Farm Map is a very important management and planning tool. It can be used for many purposes, such as:

- measuring the area of crops, waterlogged sites, native vegetation and other management areas;
- accurately recording the location of sites for record keeping and monitoring programs;
- assisting contractors, advisors, banks and other business partners to understand your farm operations;
- reporting on your operations for various purposes;
- planning new developments;
- documentation requirements for:
  - Land and Water Management Plans for water access;
  - Property Vegetation Management Plans for vegetation clearing;
  - Soil Conservation Plans for water control structures;

- land management plans for claiming tax deductible improvements;
- landcare-related loans and grants;
- nature conservation plans;
- pest management plans;
- local government land use changes;

How does one draw a map?

Farm maps and associated site information can be hand drawn, computer drawn, or made through a combination of both.

The traditional method of farm mapping is to manually draw them by hand. You can also write site information on the map by hand. This does not require any special tools or skills and is useful to quickly produce a simple map for a particular purpose. Hand-drawing maps can, however, be time consuming for detailed maps, they are not likely to be very accurate, and need to be redrawn every time.

Site information may be labelled in the original print or written on by hand.

Many farmers now have their own digital mapping tools as more of their business becomes computer-based and these tools become easier to use. There are many different mapping programs available. These allow you to draw features on the computer (such as crop areas, infrastructure, erosion sites, etc) and label them with basic site information. The maps can be easily updated without the need to redraw them each time and you can quickly print off professional maps of the area and layers that you choose.

Some of the more integrated digital farm management systems come with the base map layers already included (such as an air photo or satellite image, soils, contours, property boundaries, etc). Others integrate the map tool to farm record keeping databases and externally-monitored data such as weather conditions to enable easier monitoring and reporting.

How long will it take to draw a map?

How long it takes you to produce maps and farm records depends largely on how easy it is to obtain the basic maps and information you need, and how much detail you wish to record.

Scale and relief

A map represents a portion of the earth's surface. Since an accurate map represents the land, each map has a "scale" which indicates the relationship between a certain distance on the map and the distance on the ground. The scale is usually located in the legend box of a map, which explains the symbols and provides other important information about the map. A scale can be printed in a variety of ways.

A **ratio or representative fraction (RF)** indicates how many units on the earth's surface is equal to one unit on the map. It can be expressed as 1/100,000 or 1:100,000. In this example, one centimetre on the map equals 100,000 centimetres (1 kilometre) on the earth. It also means that one inch on the map is equal to 100,000 inches on the land (8,333 feet, 4 inches or about 1.6 miles).

The varying heights of hills and mountains, and the depths of valleys and gorges as they appear on a topographic map, are known as relief; unless the relief is adequately represented, the map does not give a clear picture of the area it represents. In the earliest maps, relief was often indicated pictorially by small drawings of mountains and valleys, but this method is extremely inaccurate and has been generally supplanted by a system of contour lines.

The contour lines represent points in the mapped area that are at equal elevations. The contour interval selected may be any unit, depending on the amount of relief and the scale of the map, such as 50 m, and in drawing the map the cartographer joins together all points that are at a height of 50 m above sea level, all points at a height of 100 m, all points at a height of 150 m, and so on. The shapes of the contour lines provide an accurate representation of the shapes of hills and depressions, and the lines themselves show the actual elevations. Closely spaced contour lines indicate steep slopes.

A **word statement** gives a written description of scale, such as "One centimetre equals one kilometre" or "One centimetre equals ten kilometres." Obviously, the first map would show much more detail than the second because one centimetre on the first map covers a much smaller area then on the second map.

The first two methods of indicating scale would be ineffective if the map is reproduced by a method such as photocopying and the size of the map is modified. If this occurs, and one attempts to measure an inch on the modified map, it's not the same as an inch on the original map.

A **graphic scale** does solve this problem because it is simply a line marked with distance on the ground which the map user can use along with a ruler to determine scale on the map. In the U.S., a graphic scale often includes both metric and U.S. common units. As long as the size of the graphic scale is changed along with the map, it will be accurate.

Maps are often known as **large scale or small scale**. A large scale map refers to one which shows greater detail because the representative fraction (i.e. 1/25,000) is a larger fraction than a small scale map which would have an RF of 1/250,000 to 1/7,500,000. Large scale maps will have a RF of 1:50,000 or greater (i.e. 1:10,000). Those between 1:50,000 to 1:250,000 are maps with an intermediate scale. Maps of the world which fit on two 8 1/2 by 11 inch pages are very small scale, about 1 to 100 million.

How to measure distance on the map:

Maps aren't just useful for directions, they can also help you determine the distance between two (or more) places.
Here's How:

1. Find the scale for the map you're going to use - it might be a ruler-looking bar scale or a written scale, in words or numbers.
2. Use a ruler to measure the distance between the two places. If the line is quite curved, use a string to determine the distance and then measure the string.
3. If the scale is a representative fraction (and looks like 1/100,000 or 1:100,000), multiply the distance of the ruler by the denominator, giving distance in the ruler units.
4. If the scale is a word statement (i.e. "One centimetre equals one kilometre") then determine the distance
5. For a graphic scale, you'll need to measure the graphic and divide the scale into the measured units on the ruler.
6. Convert your units of measurement into the most convenient units for you (i.e. convert 63,360 inches to one mile)
7. Watch out for maps that have been reproduced and have had their scale changed. A graphic scale will change with the reduction or enlargement but the other scales become wrong.

What You Need:

- Ruler
- String
- Map
- Calculator

Maps and agricultural production from the Department of Agriculture – Agis

What is AGIS?

The Agricultural Geo-referenced Information System (AGIS) strives to offer a one-stop information service for the agricultural sector in South Africa. Using interactive WEB-based applications, AGIS provides access to spatial information (maps), industry specific information and decision support tools.

Who developed AGIS?

The major role-players responsible for the development of AGIS are the National Department of Agriculture (DoA), the nine Provincial Departments dealing with Agriculture (PDA's) and the Agricultural Research Council (ARC).
The AGIS Serving Centre, responsible for hardware, software and data maintenance, is situated within DoA while the Institute for Soil, Climate and Water (ISCW) of the ARC serves as the focal point for the development and maintenance of AGIS content.

AGIS currently provides access to the following sets of maps:

- Orientation information including the 1:250 000 and 1:50 000 topo-cadastral maps, location of towns, roads, rivers, and administrative areas, as well as farm boundaries.
- The natural resources atlas includes soils, natural vegetation and climate information, as well as land capability on a national scale.
- Demographic information includes the national censuses as well as lifestyle segmentation data in a spatial context.
- Foot and mouth outbreak areas indicate the areas affected by recent foot and mouth outbreaks

☐AGIS – Maps available on the Internet

Orientation atlas	This atlas provides information on the location of towns, rivers, roads, administrative areas and the scanned 1: 50 000 topo-cadastral maps. Orientation information including the 1:250 000 and 1:50 000 topo-cadastral maps, location of towns, roads,rivers, and administrative areas, as well as farm boundaries.
Natural resources atlas	This atlas provides information on soil, terrain, geology, climate, vegetation and near-real time data of veld fires in South Africa.
Demography atlas	Demographic information includes the national censuses as well as lifestyle segmentation data in a spatial context.

DISPLAYING & USING THE MAPS PROVIDED BY AGIS

Log onto the internet at: www.agis.agric.co.za

Please complete Activity **5& 6** in your learner workbook

My Notes ...

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Concept	I understand this concept well	Questions that I still would like to ask
Maps are drawn such that the relative positions of places and objects match the real situation.		
A suitable scale is chosen, indicated and applied correctly.		
Symbols used conform to conventional uses or are defined through a key or legend.		
The map is clear and neat and contains all critical information as required by the situation.		
Maps are converted from one scale to another.		

Bibliography

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1. Encyclopaedia Brittanica – South African Version

World Wide Web:

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Terms & Conditions

Acknowledgements

■ **Project Management:**

M H Chalken Consulting

IMPETUS Consulting and Skills Development

■ **Developer:**

Cabeton Consulting

■ **Authenticator:**

Rural Integrated Engineering

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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

REGISTERED UNIT STANDARD:

Use maps to access and communicate information concerning routes, location and direction

SAQA US ID	UNIT STANDARD TITLE		
7461	Use maps to access and communicate information concerning routes, location and direction		
SGB NAME		**REGISTERING PROVIDER**	
SGB Math. Literacy Mathematics and Math Sciences			
FIELD		**SUBFIELD**	
Field 10 - Physical, Mathematical, Computer and Life Sciences		Mathematical Sciences	
ABET BAND	**UNIT STANDARD TYPE**	**NQF LEVEL**	**CREDITS**
ABET Level 4	Regular-Fundamental	Level 1	1
REGISTRATION STATUS	**REGISTRATION START DATE**	**REGISTRATION END DATE**	**SAQA DECISION NUMBER**
Reregistered	2003-12-03	2006-12-03	SAQA 1351/03

PURPOSE OF THE UNIT STANDARD

People credited with this unit standard are able to:

Read, interpret and use maps, to depict and make sense of real locations, distances and relative positions; and
Draw maps according to scale.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

The following learning is assumed to be in place at ABET Numeracy level 3:

Describe routes and locations and draw simple maps.

UNIT STANDARD OUTCOME HEADER

Read, interpret and use maps, to depict and make s

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1

Read, interpret and use maps, to depict and make sense of real locations, distances and position

OUTCOME RANGE

Street maps: local and national maps.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Objects are identified on a map.

ASSESSMENT CRITERION 2

2. The positions of objects on a map are given using reference points on a grid.

ASSESSMENT CRITERION 3

3. A variety of routes between two points on a map are identified and described.

ASSESSMENT CRITERION 4

4. Appropriate routes are identified and selected to meet the requirements of a variety of circumstances.

ASSESSMENT CRITERION 5

5. Real distances between points on a map are determined correctly in accordance with the scale.

ASSESSMENT CRITERION 6

6. Landmarks are used to give direction in real life, and these landmarks are identified and located on a map.

ASSESSMENT CRITERION 7

7. Directions are given correctly using maps and in real life.

ASSESSMENT CRITERION RANGE

Bearing and the four compass points.

SPECIFIC OUTCOME 2

Draw maps according to scale.

OUTCOME RANGE

Non-contoured maps.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

1. Maps are drawn such that the relative positions of places and objects match the real situation.

ASSESSMENT CRITERION 2

2. A suitable scale is chosen, indicated and applied correctly.

ASSESSMENT CRITERION 3

3. Symbols used conform to conventional uses or are defined through a key or legend.

ASSESSMENT CRITERION 4

4. The map is clear and neat and contains all critical information as required by the situation.

ASSESSMENT CRITERION 5

5. Maps are converted from one scale to another.

UNIT STANDARD ACCREDITATION AND MODERATION OPTIONS

Critical Cross-field Outcomes (CCFO):

UNIT STANDARD CCFO IDENTIFYING

Identify and solve mathematical problems in which responses display that responsible decisions using critical and creative thinking have been made.

UNIT STANDARD CCFO ORGANIZING

Organise and manage oneself and one`s activities responsibly and effectively

UNIT STANDARD CCFO COLLECTING

Collect, analyse, organise and critically evaluate information to access and communicate information concerning routes, location and direction.

UNIT STANDARD CCFO COMMUNICATING

Communicate effectively using mathematical symbols

UNIT STANDARD CCFO DEMONSTRATING

Understand the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.
