



NQF Level: **1** US No: **7451**

Learner Workbook

Primary Agriculture

**Collect, analyse,
use and
communicate
numerical data**

Category	Value
1	50
2	40
3	60
4	30

My name:

My Workplace:

Commodity: Date:

Before we start...

Dear Learner - on completion of the Learner Guide, you should have acquired all the knowledge and skills to be assessed against the following unit standard:

Title: Collect, analyse, use and communicate numerical data

US No: 7451

NQF Level: 1

Credits: 2

Please read the unit standard at your own time (see Learning Guide).

What is assessment all about?

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.

How to use this workbook ...

Your activity workbook will 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 and worksheets, 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 and worksheets, hand this workbook 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.



1
SO 1

Individual exercise

My Name:
.....
My Workplace:
.....
My ID Number:
.....

Collect five graphs, tables or charts from newspapers or magazines and paste them onto the space provided below.

[Large dashed rectangular box for pasting graphs, tables, or charts]

Facilitator comments:

Assessment:



2

SO 1

Individual exercise

My Name:
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My Workplace:
.....

My ID Number:
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Name two examples in your line of study where information can be collected.

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Facilitator comments:

Assessment:



3
SO 1

Answer the questions:

My Name:

My Workplace:

My ID Number:

Look at each of the following phrases and write a suitable question for each of them.

1. Rainfall last year

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2. Bread price

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3. Elizabeth's weight

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Facilitator comments:

Assessment:



4
SO 1

Answer the questions :

My Name:

My Workplace:

My ID Number:

What equipment do you need to collect data about the following:

- 1. Temperature at noon in Limpopo

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- 2. Birth weight of calves

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- 3. Petrol price per litre from 2000 to 2006

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- 4. Annual yield of potatoes in the next 6 years on a vegetable farm

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- 5. Milk production per cow on a dairy farm

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Facilitator comments:

Assessment:



5

SO 1

Draw

My Name:

My Workplace:

My ID Number:

Draw up **plans** of tables to record each of the following measurements. **DO NOT FILL IN ACTUAL MEASUREMENTS.** Do not forget the heading.

- a. Joseph's body mass every year from 2000 to 2007

- b. Mr Smith's body temperature every four hours for two days while he is in Hospital.

- c. The temperature in Pietermaritzburg, Durban, Johannesburg and Cape Town on 25 June 2005

Facilitator comments:

Assessment:



6
SO 1

Practical exercise

My Name:

My Workplace:

My ID Number:

Plan an investigation relevant to your training. Follow the steps below:

- a. Write down exactly what you want to measure.

.....

.....

.....

- b. Phrase your proposal as a suitable question.

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- c. Write down what equipment you will need to collect the data.

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- d. Draw up a plan of a table on which to record your data.

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Facilitator comments:

Assessment:

4. What is the height of the shortest tree?

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5. What is the range?

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6. What is the median height?

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7. What is the average (mean) height? Show your calculation.

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Facilitator comments:

Assessment:



8

SO 1

Answer the questions.

My Name:

My Workplace:

My ID Number:

A farmer kept count of the number of litres of milk his cows produced per day.
35, 47, 34, 46, 62, 41, 35, 47, 51, 56, 73, 38, 41, 44, 51, 45, 74, 47, 52

- 1.** Construct a stem-and-leaf diagram to show the data. Use the class intervals 30-39, 40-49 etc

- 2.** Determine the modal class of your distribution.

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- 3.** On how many days were less than 40l of milk produced?

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4. Rewrite the numbers in ascending (from smallest to biggest) and determine the median value.

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5. Give a reasonable explanation why the amount of milk produced varied so much from day to day.

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Facilitator comments:

Assessment:



9

SO 2

Individual work.

My Name:

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My Workplace:

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My ID Number:

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Look back at the graphs, tables or charts that you collected in Activity 1.

For each one state whether it is a pictogram, pie chart, histogram, bar graph, or broken line graph.

Collection	Answer
Graphs / tables / charts 1	
Graphs / tables / charts 2	
Graphs / tables / charts 3	
Graphs / tables / charts 4	
Graphs / tables / charts 5	

Facilitator comments:

Assessment:

ACTIVITY

10
SO 2

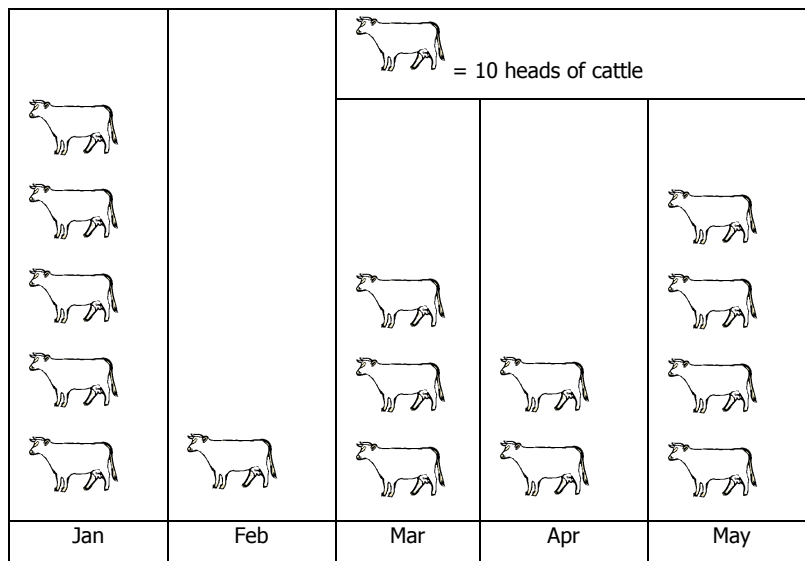
Answer the questions.

My Name:

My Workplace:

My ID Number:

A farmer sells a certain number of cattle every month as depicted by the chart below. Study the chart and answer the questions.



1. In which month were the most cows sold?

.....

2. In which month were the least cows sold?

.....

3. How many cows were sold in total in the months shown?

.....

4. What percentage of the total number of cows was sold in March?

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Facilitator comments:

Assessment:



11 SO 2

Individual exercise.

My Name:

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My Workplace:

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My ID Number:

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1. A farmer counted the number of vehicles that drove on the dirt road past his farm. He recorded his results in a table.

The table indicates the number of vehicles passing his farm on a given day.

Vehicle	Bus	Car	Bakkie	Tractor	Motor cycle
Number	3	6	8	2	1

- a. Should this information be shown as a bar graph or histogram? Give reasons for your answer.

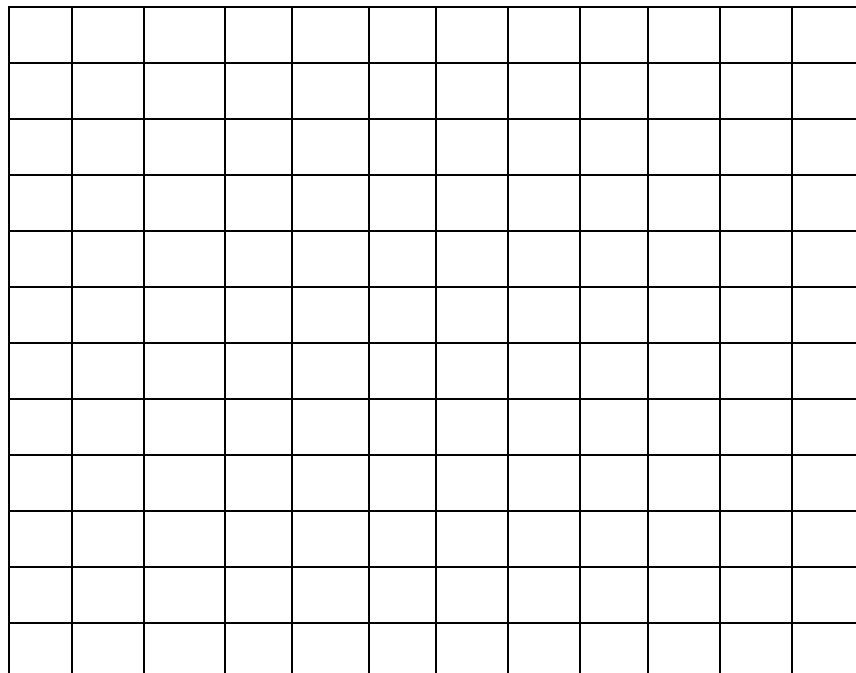
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- b. Draw the appropriate graph on the grid given below.



2. The same farmer counted the number of cars passing his farm for one week. The table indicates the number of cars passing the farm during one week.

Days	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
No of cars	10	9	3	6	4	11	1

- a. Should this information be shown as a bar graph or histogram? Give a reason for your answer.

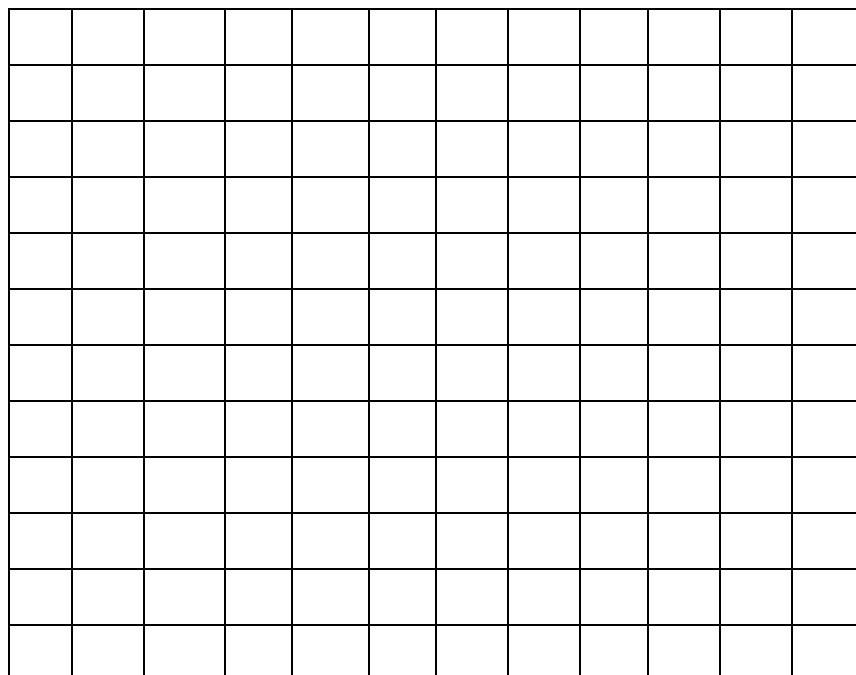
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- b. Draw the appropriate graph on the grid given below.



Facilitator comments:

Assessment:



12
SO 2

Individual exercise.

My Name:

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My Workplace:

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My ID Number:

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1. Research was done to determine how students of a certain class get to college every day. The results are recorded in the table below.

Transport	Bus	Taxi	Car	Walk
No of students	12	7	9	8

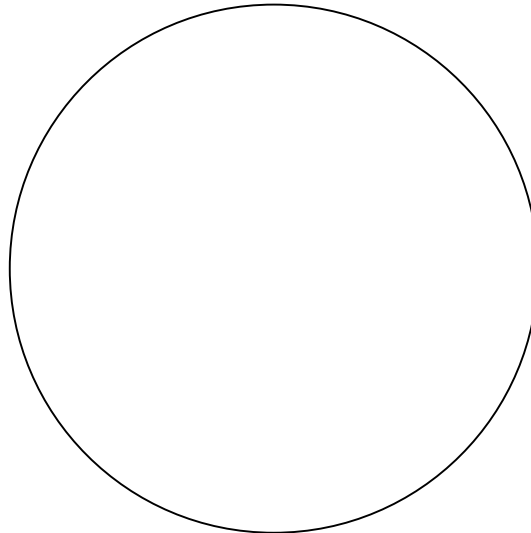
- a. How many students are in the class?

.....
.....

- b. Complete the table below

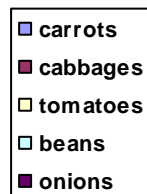
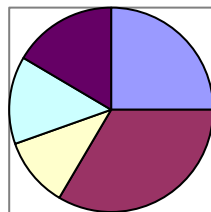
Transport	Bus	Taxi	Car	Walk
No of students	12	7	9	8
%				
Degrees				

c. Complete the pie chart below.

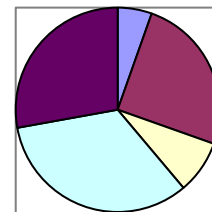


2. The pie charts below show the size of land planted with different types of vegetables on two neighboring farms.

Size of land for different veg on farm A
(720 ha)



Size of land for different veg on farm B
(1080 ha)



a. Which farm is bigger, Farm A or B?

.....

b. Which is the most important vegetable for Farmer A?

.....

c. Which is the least important vegetable to farmer B?

.....

.....

.....

d. Measure the angles carefully and complete the table below.

FARM A						
vegetable	Carrots	Cabbages	Tomatoes	Beans	onions	total
Degrees						
Size of land (ha)						

FARM B						
vegetable	Carrots	Cabbages	Tomatoes	Beans	onions	total
Degrees						
Size of land (ha)						

Facilitator comments:

Assessment:



13

SO 2

Answer the questions

My Name:

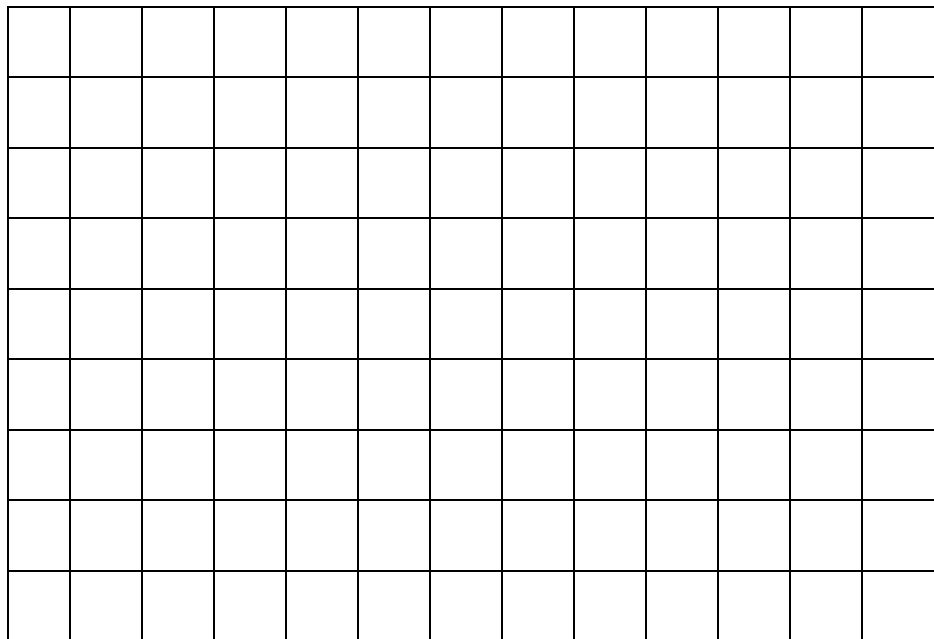
My Workplace:

My ID Number:

1. The table below shows the rainfall in a small town in Mpumalanga during 2005.

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
rainfall in mm	70	75	50	25	10	4	5	5	9	35	57	67

a. Draw a broken line graph on the grid provided below.



b. Describe in words how the rainfall varied during that year.

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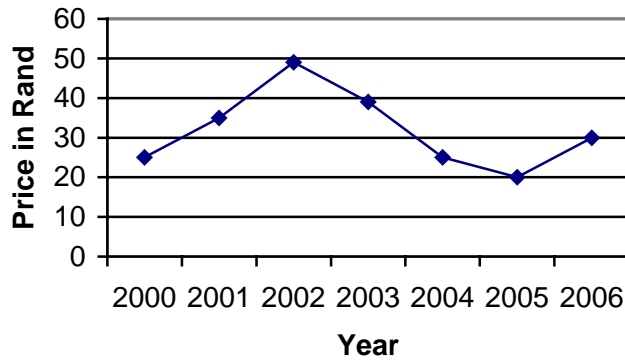
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2. Study the graph below and answer the questions that follow:

Price of a bag of fertiliser between 2000 and 2006



a. How much did a bag of fertilizer cost in 2000?

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b. When was the fertilizer the most expensive?

.....

c. In which year was the fertilizer the cheapest?

.....

d. Describe how the price of fertilizer changed over time.

.....
.....

e. What do you think the price will be in 2007?

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Facilitator comments:

Assessment:



14

SO 3

Answer the questions.

My Name:

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My Workplace:

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My ID Number:

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Look at the graphs below and answer the questions.

1. Farmer Green records how much pesticide he uses on his land per hectare.



2000



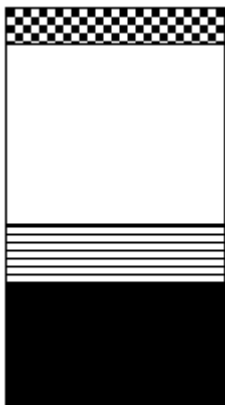
2001



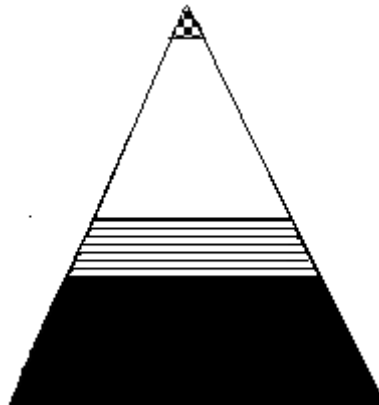
2002



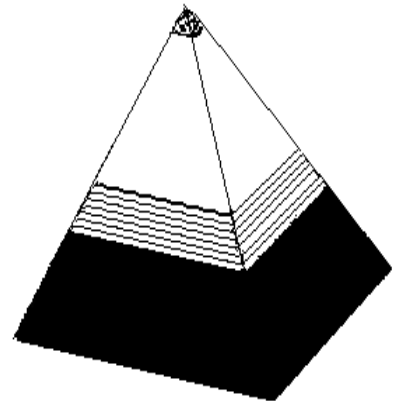
2003



(i)



(ii)



(iii)

a. He would like to impress an environmental group by telling them that he is using less pesticide each year. Which graph would he choose? Explain carefully why the graph you have chosen is the most effective.

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- b.** He wants a better price for pesticide and tries to convince the pesticide company that he is an excellent client. Which type of diagram would he choose and how would he change it?

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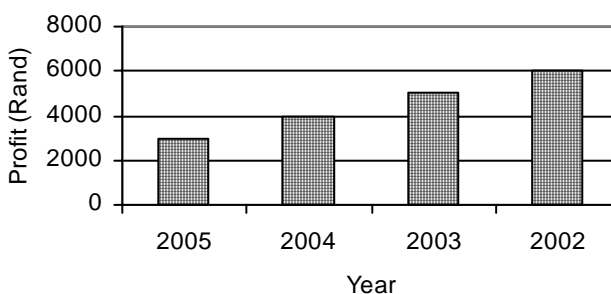
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- 2.** Farmer Green wants to apply for a loan at the bank to finance a new bore hole. He needs to show the bank that he has made a bigger profit each year.

Profit made by Farmer Green



- a.** The bank manager is impressed with Farmer Green’s record and grants him the loan. Would you agree with the banker? Explain your answer carefully.

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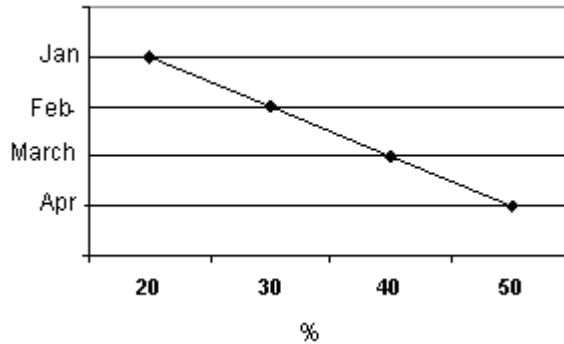
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- 3.** Farmer Green stands as a candidate in the local election. He does a survey to test the popularity of his opponent, Farmer White. He publishes the following results in the local newspaper:

Graph showing popularity of Farmer White



a. At first glance is Farmer White becoming more or less popular?

.....

.....

b. Draw up a table that reflects the results.

c. Explain what Farmer Green did to make the graph misleading.

.....

.....

d. Do you think that Farmer Green drew the graph this way on purpose?

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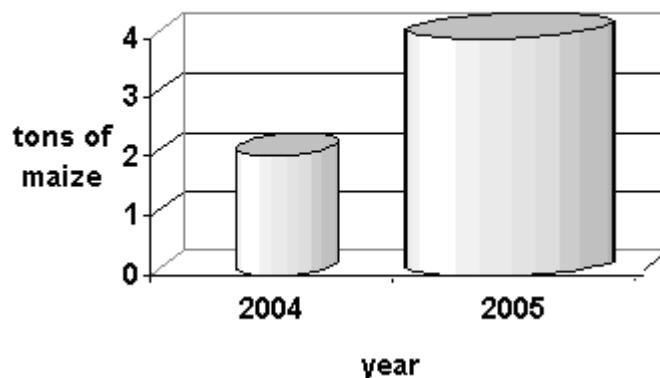
.....

e. Draw the graph correctly in the space below:



4. Farmer Green shows his neighbour a graph that illustrates how many tons of Maize he has harvested over the last two years.

Tons of maize harvested



a. What was the yield in 2004?

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.....

b. What was the yield in 2005?

.....
.....

c. What impression does the graph give about the amount of maize harvested?

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.....
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d. How was this impression created?

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.....

e. Draw a graph that represents the data more fairly.



Facilitator comments:

Assessment:

Assessment Feedback Form

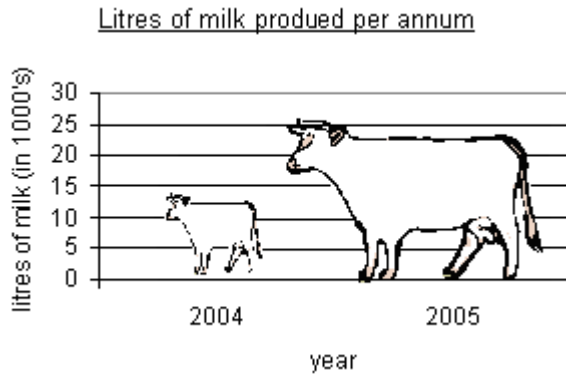
Comments / Remarks	
Feedback to learner on assessment:	
Feedback from learner to assessor:	
Learner's Signature:	Date:
Assessor's Signature:	Date:

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

Questions	1. I am sure	2. I am unsure
<p>1. A survey was done to see how many children each family has. The results are presented as a list below:</p> <p>4 2 1 2 2 2 2 2 0 1 4 6 0 0 1 2 5 4 3 0 0 1 2 1 0 1 1 0 2 4 1 1 1 2 0 3 0 2 2 3 4 1 0 3 2 1 2 1 2 2 0 1</p> <p>a. Construct a frequency table to show these data.(5) b. What was the highest number of children in the family?(1) c. What was the lowest number of children in the family?(1) d. Comment on the number of children per family.(2) e. Draw a suitable graph to reflect the data in your frequency table.(6) f. What is the mode?(1) g. The mean (average) number of children per family?(2)</p>		
<p>2. A farmer's income per year was as follows: 20% was from dairy products, 30% from vegetables, 10% from maize and 40% from fruit.</p> <p>a. Write the results into a suitable table.(4) b. Complete the table by working out the number of degrees that each sector represents. (4) c. Show this information on a pie chart (7)</p>		

3.
A. The following graph shows how many litres of milk a prize cow delivered in two years.



- How many litres of milk were produced in 2004?(1)
 - How many litres of milk were produced in 2005?(1)
 - What message is the farmer who drew the graph trying to convey?(2)
 - What did the farmer do to distort the data?(2)
 - Describe in words how the graph should be drawn to be a fair representation.(2)
- B. The following table shows a student's Mathematics Test results.
- Show this data on a bar graph.
 - What is the mean?
 - Which tests were above average?

	Geometry	Statistics	Graphs	Exponents	Factorization	Percentages	Integers
Test no.	1	2	3	4	5	6	7
% obtained	52	67	74	60	74	85	94

4. A dice has colours instead of numbers on its faces. The colours are blue, red, green, yellow, black and orange.
- When you throw this dice, what is the probability to throw a blue side? (2)
 - When you throw two such dice, what is the probability of throwing one orange side? (2)

Activity and evaluation

Activity 1

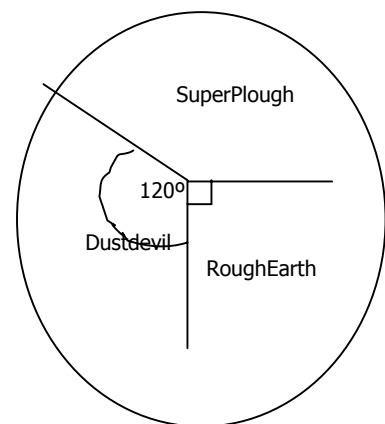
Jabulani spends R250 on transport, R600 on food, R100 on electricity and R50 on his phone every month.

- Draw up a table to summarise the results.
- How much does he earn every month?
- Draw a pie chart to show how he spends his money.

Activity 2

A survey was done to see which is the most popular type of tractor: SuperPlough, DustDevil or RoughEarth. 180 farmers were asked for their opinion.

- How many degrees are allocated for SuperPlough?
- How many people voted for SuperPlough?
- What percentage of the votes went to RoughEarth?



Activity 3

Farmer Green wants to buy shares in the company SuperSeedA. He monitors the share prices for 5 months:

January	R55
February	R58
March	R62
April	R70
May	R65

- Draw a suitable graph to represent this data.
- What is the range of this data?
- What is the median price?
- What is the mean price?

Activity 4

There are 52 playing cards in a pack of cards. What is the probability that the first card to be drawn is

- a queen
- an Ace
- a heart
- the king of clubs

Activity 5

The pictograph below shows the number of bunches of flowers sold by a flower farm in 2006 from January to June.

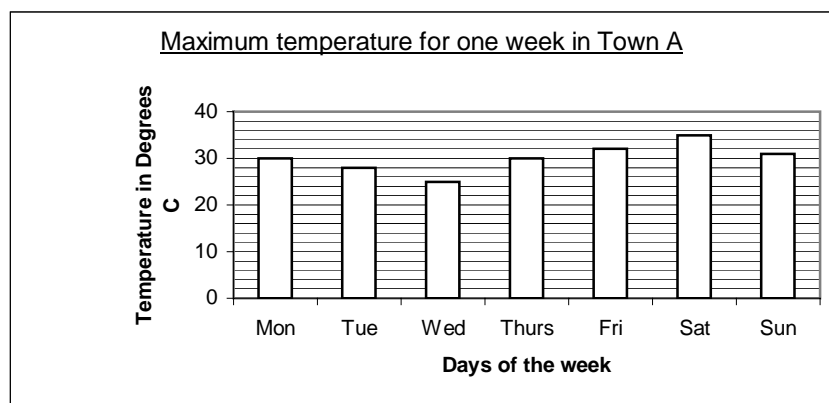
Jan	□	□	□	□	□	□	□	□	□
Feb	□	□	□	□	□	□	□	□	
March	□	□	□	□	□	□	□		
April	□	□	□	□	□				
May	□	□	□						
June	□	□	□	□					

□ = 100 bunches

- In which month were the most bunches of flowers sold?
- In which month were the least bunches of flowers sold?
- In which month were 700 bunches of flowers sold?
- How many bunches were sold in June?
- How many bunches were sold in total?

Activity 6

In this bar graph the highest daily temperature for one week in a town is shown.

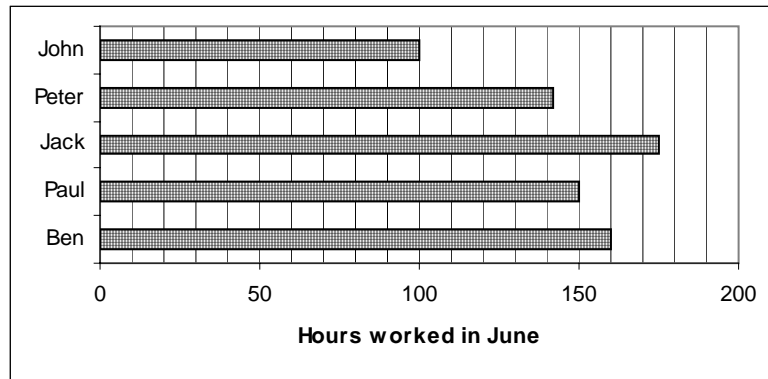


- Which was the hottest day of the week?
- Which was the coolest day of the week?
- What was the temperature on Friday?
- On which day was the temperature 28°C?

- 6.5 On which day was the temperature 32°C? *i*
- 6.6 What was the average temperature for the week shown?
- 6.7 Is this the correct type of graph? Justify your answer.

Activity 7

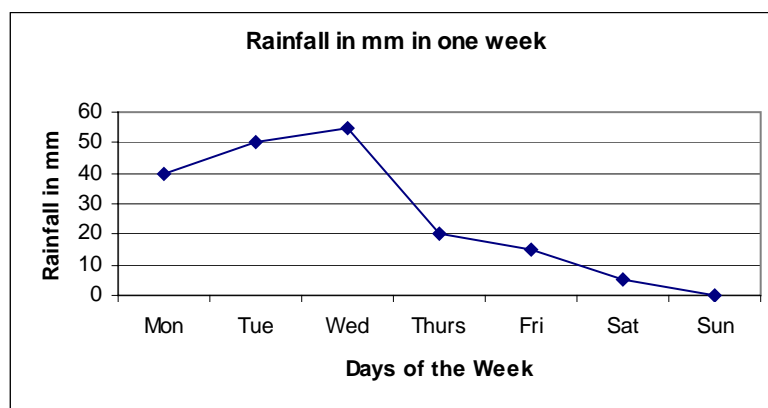
This graph shows the number of worked in June by various workers



- 7.1 Who worked the most hours?
- 7.2 Who worked the least hours?
- 7.3 How many hours did Paul work?
- 7.4 How many hours did Peter work?
- 7.5 Who worked more than 160 hours per month?

Activity 8

The graph underneath shows the amount of rainfall in a certain area from Monday to Saturday.



- 8.1 Which day had the most rainfall?
- 8.2 Which day had the least rainfall?
- 8.3 How much rainfall fell on Thursday?
- 8.4 Which day had 50 mm of rainfall?
- 8.5 What was the average rainfall for the 6 days?
Average = ?

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.

Observations	Answer Yes or No	Motivate your Answer (Give examples, reasons, etc.)
Can you identify problems and deficiencies correctly?		
Are you able to work well in a team?		
Do you work in an organised and systematic way while performing all tasks and tests?		
Are you able to collect the correct and appropriate information and / or samples as per the instructions and procedures that you were taught?		
Are you able to communicate your knowledge orally and in writing, in such a way that you show what knowledge you have gained?		
Can you base your tasks and answers on scientific knowledge that you have learnt?		
Are you able to show and perform the tasks required correctly?		
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?		

- ◆ 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				
Unit Standard	7451			
Program Date(s)				
Assessment Date(s)				
Surname				
First Name				
Learner ID / SETA Registration Number				
Job / Role Title				
Home Language				
Gender:	Male:		Female:	
Race:	African:	Coloured:	Indian/Asian:	White:
Employment:	Permanent:		Non-permanent:	
Disabled	Yes:		No:	
Date of Birth				
ID Number				
Contact Telephone Numbers				
Email Address				
Postal Address				Signature: