



NQF Level: 2

US No: 7480

# Facilitator Guide

## Primary Agriculture

# Rational and irrational numbers and number systems



Facilitator: .....

Company: .....

Commodity: ..... Date: .....

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agriculture

Department:  
Agriculture  
REPUBLIC OF SOUTH AFRICA



## Before you get started...

Dear Facilitator,

This Facilitator Guide (together with the relevant Learner Guide) is aimed at facilitators who will be assisting learners wishing to complete the following unit standard:

<b>Title:</b>	Demonstrate understanding of rational and irrational numbers and number systems		
<b>US No:</b>	<b>7480</b>	<b>NQF Level:</b>	<b>2</b>
		<b>Credits:</b>	<b>3</b>

This guide contains all necessary facilitation instructions to ensure that learners will attain the expected competencies required by the above-mentioned unit standard. This guide is designed to be used during the presentation of a learning session based on this unit standard. The full unit standard is attached at the end of the relevant Learner Guide. Learners are advised to read the unit standard at their time. Please discuss the unit standard with the learners to ensure that they understand what is expected from them to achieve the outcomes of the unit standard.

This unit standard is one of the building blocks in the qualifications listed below. Please mark the qualification you are currently facilitating, because that will be determined by the context of application:

Title	ID Number	NQF Level	Credits	Mark
National Certificate in Animal Production	48976	2	120	<input type="checkbox"/>
National Certificate in Mixed Farming Systems	48977	2	120	<input type="checkbox"/>
National Certificate in Plant Production	48975	2	120	<input type="checkbox"/>

Please mark the learning program the learners are enrolled in:

Are you enrolled in a:	Y	N
Learnership?	<input type="checkbox"/>	<input type="checkbox"/>
Skills Program?	<input type="checkbox"/>	<input type="checkbox"/>
Short Course?	<input type="checkbox"/>	<input type="checkbox"/>

**Note to Facilitator:**

If you are presenting this module as part of a full qualification or learnership, please ensure that you have familiarised yourself with the content of the qualification.

Please explain the above concepts to the learner.

There are three guides, namely the Learner Guide (with activities), Assessor Guide and the Facilitator Guide.

These guides have been developed to address specific aspects of the learning experience. You therefore need to use these guides complementally to one another.

**Make this an enjoyable learning experience!**

## Context of Application ...

Primary Agriculture is a diverse sector and a wide range of commodities is being produced for both national and international market. Each commodity has its own production requirements and practices. You will be facilitating the learning process within a specific context where a specific agricultural commodity is being produced. The learning material has been written in a **generic** manner, as it is aimed to be available on national level and should be relevant to be applied within a variety of commodities. It is therefore inclusive of all agricultural commodities and crop in this field. Therefore, the examples that are being used in the materials may not always be applicable to your specific community, commodity, environment or region.

This presents you, the facilitator, with the challenge to **contextualise** the learning material. It is imperative that you, the Facilitator and Assessor interpret and present activities, case studies and projects related to the material in such a way that learners can easily identify and apply their knowledge within their own context. This will require from you to add examples of crop, which are applicable to the community or farm. Learners must be guided with examples from their own communities, commodities, environment or regions. This should be done by complementing the learning material with:

- Examples relevant to the commodity,
- Including commodity specific requirements,
- Including operating procedures of the farm,
- Including agricultural practice specific requirements,
- Agricultural markets,
- Guiding learners to write these specifics down in the learning guide, etc.

**The contextualisation of the learning material is a very important step in preparing for and facilitating the learning experience and enough time and effort should be put into this exercise.**

According to the qualifications mentioned on page 2, this module could be contextualised to fit the following groups of commodities:

Plant Production	Animal Production	
<ul style="list-style-type: none"> <li>• Organic production,</li> <li>• Hydroponic production,</li> <li>• Perma-culture production,</li> <li>• Agronomy,</li> <li>• Horticulture,</li> <li>• Natural resources harvesting.</li> </ul>	<ul style="list-style-type: none"> <li>• Small stock production,</li> <li>• Large stock production,</li> <li>• Dairy production,</li> <li>• Pig production,</li> <li>• Poultry production,</li> <li>• Game,</li> <li>• Aqua / mari culture,</li> <li>• Commercial insects</li> <li>• Animal fibres harvesting,</li> <li>• Bee keeping,</li> </ul>	<ul style="list-style-type: none"> <li>• Natural resources harvesting,</li> <li>• Organic production,</li> <li>• Perma-culture production,</li> <li>• Eco/Agri Tourism,</li> <li>• Agro Chemicals,</li> <li>• Horse Breeding,</li> <li>• Etc.</li> </ul>



# What & How will you be Facilitating?

<b>The Learning Experience .....</b>	<b>6</b>
<b>Learning Program Time Frames .....</b>	<b>7</b>
<b>Tips for level of learning .....</b>	<b>7</b>
<b>Tips for the Facilitator.....</b>	<b>8</b>
<b>Facilitator’s Checklist &amp; Training Aids .....</b>	<b>8</b>
<b>Contextualisation of Content! .....</b>	<b>10</b>
<b>Session 1:           Rational and Irrational numbers.....</b>	<b>11</b>
Learner Guide page 8	
<b>Session 2:           Representation of Rational and Irrational numbers.....</b>	<b>13</b>
Learner Guide page 22	
<b>Session 3:           Scientific Notation.....</b>	<b>14</b>
Learner Guide page 39	
<b>                          What will I do differently next time?.....</b>	<b>15</b>



## Learning Program Time Frames

	Total time allocated (hours)	Theoretical learning time allocated (hours)	Practical learning time allocated (hours)	Activities to be completed
Complete Program (including summative assessment)	20 hours	7 hours	13 hours	5
Learner Orientation and "Ice Breaker"	1 hour	30 minutes	30 minutes	-
Purpose, Introduction and Learner Directions	1 hour	30 minutes	30 minutes	-
Session 1	4 hours	1 hour	3 hours	1
Session 2	6 hours	2 hours	4 hours	2 - 3
Session 3	6 hours	2 hours	4 hours	4 - 5
Preparation for Assessment & revision	2 hours	1 hour	1 hour	-

## Tips for level of learning



Remember the following before you get started:

**Typically, a learning programme leading to the award of a qualification or unit standards at level 2 should develop learners who demonstrate an ability to:-**

- Work and learn in a disciplined manner in a well-structured and supervised environment.
- Manage their time effectively.
- Develop sound working relationships and an ability to work effectively as part of a group.
- Express an opinion on given information clearly in spoken and written form.
- Collect, organise and report information clearly and accurately.
- Use their knowledge to select and apply known solutions to well-defined routine problems.
- Use a variety of common tools and instruments; apply literacy and numeracy skills to a range of different but familiar contexts.
- Understand the environment within which he/she operates in a wider context.
- Gain knowledge of one or more areas or fields of study, in addition to the fundamental areas of study.

# Tips for the Facilitator



- Establish your learner profile at the start of the programme:
- What is their experience?
- What are their fields of expertise?
- What are their expectations?
- What areas are they working in?
- What Local Development programmes are working in their areas?
- Any other relevant information to help you to create a positive starting point
- Communicate effectively - Communicate effectively
- It is particularly important to improve these critical outcomes as competence relies heavily on the personal skills and qualities of the learner.
- Gather information about the learner's progress in a written document
- Learner will receive guidance/instructions throughout the Learning Programme to which activities and records need to be included
- Content will develop over a period of time by the learner
- This portfolio present the product of learning in a contained, manageable and practical manner
- Please make time to give feedback to the learner as prescribed and expected:
- The feedback needs to be positive, constructive and clear.
- Develop some icebreakers which you can use, especially when the concentration levels are ebbing.
- It might also be helpful to start each day with a short overview on what can be expected.
- Summaries the work at the end of the day.
- Assist the learners with techniques to write assignments, to complete tasks and on how to compile their portfolios of evidence.
- The techniques will help the learners to link and integrate the new concepts learnt.

# Facilitator's Checklist & Training Aids

## Learner support strategies:

Learners are supplied with all resources and aids as required by the programme – including:

- Objects & devices such as equipment, protective clothing, safety gear, etc.
- Learner Guides and Learner Workbook
- Visual aids, etc.

Use this checklist below during your preparation to ensure that you have all the equipment, documents and training aids for a successful session.

Preparation:	Yes	No
<b>Qualification Knowledge</b> – I have familiarised myself with the content of the applicable qualification		
<b>Unit Standard Knowledge</b> – I have familiarised myself with the content of all aspects of the applicable unit standard		



<b>Content Knowledge</b> – I have sufficient knowledge of the content to enable me to facilitate with ease		
<b>Application knowledge</b> – I understand the programme matrix & have prepared for programme delivery accordingly		
<b>Contextualisation</b> – I have included information which is specific to the commodity and practices related to the commodity		
<b>Ability to respond to learners background &amp; experience</b> – I have studied the learner demographics, age group, experience & circumstances & prepared for programme delivery accordingly		
<b>Enthusiasm &amp; Commitment</b> – I am passionate about my subject & have prepared my programme delivery to create a motivating environment with real commitment to success		
<b>Enterprise knowledge</b> – I know & understand the values, ethics, vision & mission of the workplace & have prepared my programme delivery, reporting & administrative tasks accordingly.		
<b>Equipment check:</b>		
Learner guides x 1 per learner		
Assessment guides x 1 per learner		
Writing materials & stationary (facilitator & learner)		
White board & pens		
Flip chart paper		
Proxima projector & screen		
Laptop & programme disk		
Sample Hand-outs and examples of laws and other relevant documents		
Safety gear as prescribed by unit standard and applicable legislation		
<b>Documentation checklist:</b>		
Attendance Register		
Course Evaluation		
Learner Course Evaluation		
Portfolios of evidence		

# Contextualisation of Content!

Go through this module and indicate what specific **information** / **activities** / **examples** should be included in this module?

Contextualisation	
<ul style="list-style-type: none"> <li>Commodity specific?</li> </ul>	
<ul style="list-style-type: none"> <li>Operating procedures of the farm?</li> </ul>	
<ul style="list-style-type: none"> <li>Agricultural practices?</li> </ul>	
<ul style="list-style-type: none"> <li>Agricultural markets?</li> </ul>	

Session

# 1 Rational and Irrational numbers

Learner Guide:  
Page 8

After completing this session, the learner should be able to:

**SO 1: Use and analyse computational tools and strategies, and make estimates and approximations.**

Concept (SO 1)	Time frame	Activities related to the concept
Computational tools are used efficiently and correctly and solutions obtained are verified in terms of the context or problem.	<b>4 hours</b>	<b>Activity 1</b>
Algorithms are executed appropriately in calculations.		
Solutions involving irrational numbers are reported or recorded to degrees of accuracy appropriate to the problem.		
Measurements are reported or recorded in accordance with the degree of accuracy of the instrument used.		
Estimates and approximations are used appropriately in terms of the situation and distinctions are made between the appropriate use of estimates versus approximations.		
The roles and limitations of particular algorithms are identified in terms of efficiency and the complexity of the algebraic formulation.		
The viability of selected algorithms is verified and justified in terms of appropriateness to context and efficiency.		



Session

# 2 Representation of Rational and Irrational numbers

Learner Guide:  
Page 22

After completing this session, the learner should be able to:  
**SO 2: Demonstrate understanding of numbers and relationships among numbers and number systems.**

Concept (SO 2)	Time frame	Activities related to the concept
Notation for expressing numbers is consistent with mathematical conventions.	<b>6 hours</b>	<b>Activity 2 - 4</b>
Methods of calculation and approximation are appropriate to the problem types.		
Numbers and quantities are represented using rational and irrational numbers as appropriate to the context.		



**Please allow learners to complete Activity 2 & 3 in their Learner Guides**

Type of activity	Resources
2. Calculate and convert	Workbook, pen
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide	
Type of activity	Resources
3. Calculate and simplify	Workbook, pen
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide	

### My Notes ...

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# 3 Scientific Notation

Session

Learner Guide:  
Page 39

After completing this session, the learner should be able to:  
**SO 2: Demonstrate understanding of numbers and relationships among numbers and number systems.**

Concept (SO 2)	Time frame	Activities related to the concept
<p>Scientific notation is used appropriately and consistently with conventions. Situations for the use of scientific notation are provided and described in terms of advantages.</p>	<b>6 hours</b>	<b>Activity 4 - 5</b>
<p>Conversions between numbers expressed in different ways are accurate.</p>		



Please allow learners to complete Activity 4 & 5 in their Learner Guides

Type of activity	Resources
4. Rewrite and simplify	Workbook, Stationery
Instructions to give to the learners	
As per instructions in Learner Guide	
Type of activity	Resources
5. Calculations	Workbook, Stationery
Instructions to give to the learners	
As per instructions in Learner Guide	

My Notes ...

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## What will I do differently next time?

Take some time to **reflect** on your own activities as facilitator of this Unit Standard 7480. Then write down five of the most important lessons you have learnt and include a motivation:

What will I do differently next time?	Motivate how or why (Give examples, reasons, etc.)
1.	
2.	
3.	
4.	
5.	

As facilitator, you have hands on experience in the application of the unit standard 7480 and you might experience difficulties with the unit standard that the developers did not anticipate. Also, the unit standard will be revised at the end of the registration period. Your comments below can be an important contribution in the revision process and should be brought to the attention of either the AgriSETA ETQA manager or the SGB chairperson.

Please take some time to reflect on your experience and list a few of the difficulties you had to address.

Difficulties I had with the Unit Standard	Recommended Changes to Address the Difficulty
6.	
7.	
8.	
9.	
10.	