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GROWING GAUTENG TOGETHER

Tshivenda/English

Mbekanyamushumo ya u Khwinifhadza Mbalo dza Gireidi ya T Grade R Mathematics Improvement Programme



**Wekishopo ya 3 • Workshop 3
Nyendedzi ya Mutshimbidzi • Facilitator's Guide**

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The Grade R Mathematics and Language Improvement Project is managed by **JET Education Services** with **UCT's Schools Development Unit** and **Wordworks** as technical partners.

The **Schools Development Unit (SDU)** at the **University of Cape Town (UCT)** is the mathematics technical partner to the Grade R Mathematics and Language Improvement Project. The SDU is a unit within UCT's School of Education that focuses on teachers' professional development in Mathematics, Science, Literacy/Language and Life Skills from Grade R to Grade 12. The SDU offers teacher qualifications and approved UCT short courses, school-based work, materials development and research to support teaching and learning in all South African contexts.

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Mbalo dza Gireidi ya T na Thandela ya u Khwinisa Dzinyambo ndi vhurangeli ha **Gauteng Department of Education** na vhafarakani navho vha ndeme vha, **Gauteng Education Development Trust**.

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Overview

Purpose

This is the third of twelve Grade R Mathematics Improvement Programme workshops, which form part of the Gauteng Department of Education (GDE) Grade R Mathematics and Language Improvement Project.

The purpose of this workshop is to assist teachers to implement the Maths Programme in their classrooms. Participants will strengthen their understanding of the CAPS Content Areas covered in Weeks 6–9 of Term 1 and practise skills in mediating maths learning.

References to the Grade R Mathematics Content Areas are taken from the *Curriculum and Assessment Policy Statement (CAPS): Grade R Mathematics (Final Draft)*, 2011, Department of Basic Education, South Africa.

Learning outcomes

- ◆ To reflect on the implementation of Term 1 Weeks 3–5
- ◆ To apply the Maths Programme principles in weekly planning
- ◆ To explore strategies to support teaching maths in Grade R
- ◆ To engage with the Maths Programme content of Term 1 Weeks 6–9 (Patterns, Functions and Algebra; Space and Shape (Geometry); Measurement; Numbers, Operations and Relationships)
- ◆ To start to understand how learners' different interests and ability levels inform learning and teaching

Workshop content

- ◆ Opening and reflection (1 hour)
 - ◆ Session 1: Patterns, Functions and Algebra (1 hour)
- TEA
- ◆ Session 2: Space and Shape (Geometry) (1 hour)
 - ◆ Session 3: Measurement (1 hour)
- LUNCH
- ◆ Session 4: Numbers, Operations and Relationships (1 hour)
 - ◆ Session 5: Planning for teaching (1 hour)

Manweledzo

Ndivho

Iyi ndi wekishopo ya vhuraru kha dza fumimbili dza Mbekanyamushumo ya u Khwinifhadza Mbalo dza Gireidi ya Ṭ ine ya vhumba tshipiḁa tsha Muhasho wa Pfunzo wa Gauteng (GDE) Mbalo dza Gireidi ya Ṭ na Thandela ya u Khwinisa Dzinyambo.

Ndivho ya wekishopo iyi ndi u thusa vhagudisi u thoma Mbekanyamushumo ya Mbalo ngomu kiḁasirumuni dzavho. Vhashelamulenzhe vha ḁo khwaḁhisa u pfesesa havho Sia ḁa Magudiswa ḁa TSHIPHOKHALI ḁo kwamiwaho kha Vhege ya 6–9 dza Kotara ya 1 na u ita ndḁowedzo ya zwikili kha vhukonanyi ha u guda mbalo.

U referentsiwa kha Sia ḁa Magudiswa ḁa Mbalo dza Gireidi ya Ṭ zwo dzhiwa kha *Tshitatamennde tsha Phoḁlisi tsha Kharikhulamu na u Linga (TSHIPHOKHALI): Mbalo dza Gireidi ya Ṭ (Mvetamveto ya u Fhedzisela)*, 2011, Muhasho wa Pfunzo ya Mutheo, Afurika Tshipembe.

Mvelelo dza u guda

- ◆ U humbula nga u thomiwa ha Kotara ya 1 Vhege ya 3–5
- ◆ U shumisa milayo ya Mbekanyamushumo ya Mbalo kha vhupulani ha vhege nga vhege
- ◆ U tandula maano u itela u tikedza u funza mbalo kha Gireidi ya Ṭ
- ◆ U shuma na magudiswa a Mbekanyamushumo ya Mbalo a Kotara ya 1 Vhege ya 6–9 (Phetheni, Fankisheni na Aḁidzhebura; Tshikhala na Tshivhumbeo (Dzhomeṭiri); Muelo; Nomboro, Tswayo na Vhushaka)
- ◆ U thoma u pfesesa uri madzangalelo a vhagudi o fhambanaho na ḁeveḁe dza vhukoni zwi thusa hani u guda na u funza

Magudiswa a wekishopo

- ◆ Mvulatswinga na mihumbulo (Awara 1)
 - ◆ Dzulo ḁa 1: Phetheni, Fankisheni na Aḁidzhebura (Awara 1)
- TIE
- ◆ Dzulo ḁa 2: Tshikhala na Tshivhumbeo (Dzhomeṭiri) (Awara 1)
 - ◆ Dzulo ḁa 3: Muelo (Awara 1)
- TSHISWIṬULO
- ◆ Dzulo ḁa 4: Nomboro, Tswayo na Vhushaka (Awara 1)
 - ◆ Dzulo ḁa 5: U pulanela u funza (Awara 1)

Preparation

- ◆ PPT welcome and outcomes
- ◆ Read:
Concept Guide, pages 114–137
Activity Guide: Term 1, pages 18–21
Appendix A: Term 1 Weekly Content Summary
- ◆ Set out a Maths Programme *Resource Kit* on each group's table.

Materials

- ◆ Flipchart paper, kokis
- ◆ A *Resource Kit* for each group
- ◆ A *Poster Book* for each group
- ◆ *Resource Kit*: attribute blocks

Ndugiselo

- ◆ PPT u tangedza na mvelelo
- ◆ Kha vha vhale:

Nyendedzi ya Divhaipfi, masiatari a 114–137

Nyendedzi ya Nyito: Kotara ya 1, masiatari a 18–21

Ṭhumetshedzo ya A: Manweledzo a Magudiswa a Vhege nga Vhege a Kotara ya 1

- ◆ Kha vha dzudzanye Khithi ya Zwishumiswa ya Mbekanyamushumo ya Mbalo kha tafula ya tshigwada tshiñwe na tshiñwe.

Matheriala

- ◆ Bammbiri la filipitshati, dzikhokhi
- ◆ Khithi ya Zwishumiswa ya tshigwada tshiñwe na tshiñwe
- ◆ Bugu ya Dziphositara ya tshigwada tshiñwe na tshiñwe
- ◆ *Khithi ya Zwishumiswa*: zwibuloko zwa zwidodombedzwa

Opening and reflection

1 hour

Facilitator's notes

- ◆ PPT: Open the session and read through the agenda and learning outcomes for the workshop.
- ◆ Remind participants of the *Take back to school* task from the end of Workshop 2. Ask participants to reflect on this task and the implementation of Weeks 3–5 and to complete **Activity 1**.
- ◆ Groups share key points with the large group. Reflect on how assessment is continuous and that observations need to be ongoing.

Reflect on the implementation of the Maths Programme in your daily programme and complete the following activity in your group.



Activity 1

1. Discuss your progress in implementing Weeks 3–5 and the *Take back to school* task from Workshop 2.
2. Share your photograph of the Space and Shape (Geometry) focus in the maths area.
3. How did you record your observations of each learner during the teacher-guided activity?
4. Which teaching principles are you more aware of in your classroom?



Video 1

Activity Guide: Term 1, Week 3, Day 2 #1, 2 and 3 (page 56)

Watch the video of how the teacher uses a rhyme to practise counting and solving word problems.

Discuss how you managed this and other lessons that incorporated rhymes into counting activities.

Notsi dza mutshimbidzi

- ◆ PPT: Kha vha vule dzulo vha vhale adzhenda na mvelelo dza u guda dza wekishopo.
- ◆ Kha vha humbudze vhashelamulenzhe nga mushumo wa u tuwa nawo *tshikoloni* u bva mafheleloni a Wekishopo ya 2. Kha vha humbele vhashelamulenzhe u amba nga mushumo uyo na u thomiwa ha Vhege ya 3–5 na u fhedzisa **Nyito ya 1**.
- ◆ Zwigwada zwi kovhana mbuno dza ndeme na tshigwada tshihulwane. Kha vha ambe nga uri u linga hu yaho phanda hu hani na uri u lavhelesa vhana hu fanela u ya phanda.

Kha vha ambe nga mathomele a Mbekanyamushumo ya Mbalo kha mbekanyamushumo ya duvha liñwe na liñwe yavho vha fhedzise nyito i tevhelaho tshigwadani tshavho.



Nyito ya 1

1. Kha vha haseledze mvelaphanda yavho kha u thoma Vhege ya 3–5 na mushumo wa u tuwa nawo *tshikoloni* u bva kha Wekishopo ya 2.
2. Kha vha sumbedze tshinepe tsha fhethu ho sedzwaho ha Tshikhala na Tshivhumbeo (Dzhomeṭiri) fhethu ha mbalo.
3. Vho rekhodisa hani zwe vha vhona kha mugudi muñwe na muñwe nga tshifhinga tsha nyito yo rangwaho phanda nga mugudisi?
4. Ndi milayo ya u funza ifhio ine vha i divhesa ngomu kilasini yavho?



Vidiyo ya 1

Nyendedzi ya Nyito: Kotara ya 1, Vhege ya 3, Duvha la 2 #1, 2 na 3 (siatari la 57)

Kha vha talele vidiyo i sumbedzaho uri mugudisi u shumisa hani tshidade u ita ndowedzo ya u vhalela na u tandulula thaidzo dza maipfi.

Kha vha haseledze uri vho langisa hani izwi na dziñwe ngudo dze dza katela zwidade kha nyito dza u vhalela.

Session 1: Patterns, Functions and Algebra

1 hour

Facilitator's notes

- ◆ Explain that this workshop addresses the content of the Maths Programme Term 1 Weeks 6–9, and that the focus of Week 6 is on Patterns, Functions and Algebra.
- ◆ Refer participants to page 124 of the *Concept Guide*. Explain that the aim of **Activity 2** is to highlight the content of the Patterns, Functions and Algebra Content Area for Term 1.
- ◆ Ask participants to work in groups to complete **Activity 2**. Ask one person from each group to share their ideas.

This workshop focuses on teaching the following Maths Programme content: Term 1 Weeks 6–9. This session focuses on Term 1 Week 6: Patterns, Functions and Algebra.

Term 1 Content overview: Patterns, Functions and Algebra

Refer to the Patterns, Functions and Algebra Content Area on page 124 of the *Concept Guide*.



Activity 2

In your group, discuss:

1. What concepts are covered in Term 1?

2. What are the differences between the content and the content from CAPS?

Recognise the repeat in patterns.

Introduce language, e.g. What comes next? What comes before?

Create own pattern using physical objects, drawings, geometric patterns.

Explain own pattern (repeating rule).

Dzulo la 1: Phetheni, Fankisheni na Alidzhebura

Awara 1

Notsi dza mutshimbidzi

- ◆ Kha vha talutshedze uri wekishopo iyi i amba nga magudiswa a Mbekanyamushumo ya Mbalo ya Kotara ya 1 Vhege ya 6–9, na uri zwo sedzwaho kha Vhege ya 6 ndi Phetheni, Fankisheni na Alidzhebura.
- ◆ Kha vha rumele vhashelamulenzhe kha siaṭari la 125 la *Nyendedzi ya Divhaipfi*. Kha vha talutshedze uri ndivho ya **Nyito ya 2** ndi u bvisela khagala magudiswa a Sia la Magudiswa la Phetheni, Fankisheni na Alidzhebura a Kotara ya 1.
- ◆ Kha vha humbele vhashelamulenzhe u shuma nga zwigwada u fhedzisa **Nyito ya 2**. Kha vha humbele muthu muthihi u bva tshigwadani tshinwe na tshinwe uri a kovhane mihumbulo yavho.

Wekishopo iyi yo sedzesa kha u funza magudiswa a Mbekanyamushumo ya Mbalo a tevhelaho: Kotara ya 1 Vhege ya 6–9. Dzulo ili li sedzesa kha Kotara ya 1 Vhege ya 6: Phetheni, Fankisheni na Alidzhebura.

Manweledzo a magudiswa a Kotara ya 1: Phetheni, Fankisheni na Alidzhebura

Kha vha sedze kha Sia la Magudiswa la Phetheni, Fankisheni na Alidzhebura kha siaṭari la 125 la *Nyendedzi ya Divhaipfi*.



Nyito ya 2

Tshigwadani tshavho, kha vha haseledze:

1. Ndi divhaipfi ifhio yo katelwaho kha Kotara ya 1?

2. Ndi phambano dzifhio dzi re ha magudiswa na magudiswa a bvaho kha TSHIPHOKHALI?

U vhona ndovhololo kha phetheni.

U divhadza luambo, sa tsumbo, Ndi mini tshi no do tevhela? Ndi mini tshi daho phanda?

U sika phetheni dzavho vha tshi shumisa zwithu zwi fareaho, zwo olwaho, phetheni dza dzhometiri.

U talutshedza phetheni dzavho (mulayo wa u dovhola).

Understanding patterns

Facilitator's notes

- ◆ PPT: Refer groups to Poster 7 in the *Poster Book* and have them complete **Activity 3**.
- ◆ PPT: Give a definition of a pattern and a sequence, using the information below. Demonstrate these explanations.
*A **pattern** describes the regular sequence of objects, pictures, movements, actions or events that are repeated in a predictable way.*
*A **sequence** is the particular order in which objects, pictures, movements, actions or events follow each other.*

Developing an understanding of patterns is an important part of maths. Patterns are all around us and children encounter lots of patterns in their daily lives at home and at school.

Think about your own understanding of the Content Area: Patterns, Functions and Algebra and complete Activity 3 with your group.



Activity 3

In your group, discuss:

1. What kinds of patterns might Grade R learners observe in their daily lives?

Patterns in clothes, on buildings, in nature (e.g. flower, beehive).

Facilitator's notes

- ◆ PPT: Pictures of patterns around us in our natural and built environment.
- ◆ Discuss how a sequence of items can be extended but that this won't necessarily create a pattern.
- ◆ Look at examples of where a sequence is repeated to create a pattern.

2. Look at Poster 7 in the *Poster Book*.

- ◆ What patterns do you see?

- ◆ What is the pattern?

Identify the 'repeat' part of the pattern.

Elements are repeated (unless it is an irregular pattern, e.g. bark on a tree, random patterns on paper or fabric).

U pfesesa phetheni

Notsi dza mutshimbidzi

- ◆ PPT: Kha vha rumele zwigwada kha Phositara ya 7 ngomu ha *Bugu ya Dzipositara* vha fhedzise **Nyito ya 3**.
- ◆ PPT: Kha vha xee xhalutshedzo ya phetheni na thevhekano, vha tshi shumisa mafhungo a re afho fhasi. Kha vha sumbedzele idzi xhalutshedzo.
Phetheni i xalusa thevhekano yo dxowealeho ya zwithu, zwifanyiso, misudzuluwo, nyito kana zwiwo zwine zwa dovhola nga ndila i humbuleleaho.
Thevhakano ndi u tevhekano tiwa hune zwithu, zwifanyiso, misudzuluwo, nyito na zwiwo zwa tevhelana ngaho.

U bvedza u pfesesa ha phetheni ndi tshipida tsha ndeme tsha mbalo. Phetheni dzi wanala u mona na riwe nahone vhana vha xangana na phetheni nnzhi vhutshiloni havho ha dxuvha liwe na liwe hayani na tshikoloni.

Kha vha humbule nga kupfesesele kwavho kwa Sia la Magudiswa: Phetheni, Fankisheni na Alidzhebura vha fhedzise Nyito ya 3 na tshigwada tshavho.



Nyito ya 3

Tshigwadani tshavho, kha vha haseledze:

1. Ndi tshakha dzifhio dza phetheni dzine vhagudi vha Gireidi ya T vha nga dzi vhona vhutshiloni havho ha dxuvha liwe na liwe?

Phetheni kha zwiambaro, kha zwifhato, muponi (sa tsumbo, maluvha, xhango).

Notsi dza mutshimbidzi

- ◆ PPT: Zwifanyiso zwa phetheni u mona na riwe muponi washu na kha vhupo ha vhufhati.
- ◆ Kha vha haseledze uri thevhekano ya zwithu i nga engedzwa fhedzi izwi a zwi nga do siki phetheni.
- ◆ Kha vha lavhelese kha tsumbo dza hune thevhekano ya khou dovhola uri vha sike phetheni.

2. Kha vha lavhelese kha Phositara ya 7 ngomu *Buguni ya Dzipositara*.

- ◆ Vha khou vhona phetheni dzifhio?

- ◆ Ndi phetheni?

Kha vha topole tshipida tsha 'ndovhololo' ya phetheni.

Zwipida zwi a dovhola (nga nda ha musi i phetheni ya maphinde, sa tsumbo, gwati la muri, phetheni dzi songo dxowealeho kha bambiri kana labi).

- ◆ Can you repeat the pattern? Explain.
-
-

A **pattern** describes the regular sequence of objects, pictures, movements, actions or events that are repeated in a predictable way.

A **sequence** is the particular order in which objects, pictures, movements, actions or events follow each other.

Identifying patterns

Facilitator's notes

- ◆ Explain that in a regular pattern we can see how the elements in a pattern are repeated, and we can predict the order or sequence that the pattern will follow.
- ◆ PPT: Circles and squares repeated to form a pattern.
- ◆ Refer participants to the circle and square patterns in the *Participant's Workbook*. Use the questions that follow to demonstrate how we can see that the circle and square are repeated and use this to predict what the next shape will be.
- ◆ In the pattern below we can see that the circle and square are repeated, and we can predict that the next shape in the sequence will be a circle, followed by a square and so on.

In a regular pattern, we can see how the elements in the sequence are repeated. We can also predict the order or sequence of the elements and how they will be repeated to create a pattern. In the pattern below we can see that the circle and square are repeated and we can predict what the next shape in the sequence will be.



Activity 4



1. Which shape is first?

2. Which shape is next?

3. What shape do you think will come after the last square?

4. How would you extend the pattern?

Repeating patterns are made up of a repeated sequence of elements, e.g. shapes, colours, sounds, objects, movements.

- ◆ Vha nga dovhoolola phetheni? Kha vha talutshedze.

Phetheni i talusa thevhekano yo dowealeho ya zwithu, zwifanyiso, misudzuluwo, nyito kana zwiwo zwine zwa dovhoolola nga ndila i humbuleleaho.

Thevhakano ndi u tevhkana tiwa hune zwithu, zwifanyiso, misudzuluwo, nyito na zwiwo zwa tevhelana ngaho.

U topola phetheni

Notsi dza mutshimbidzi

- ◆ Kha vha talutshedze uri kha phetheni yo dowealeho ri kona u vhona uri mirado ya sete kha phetheni yo dovhoolwa hani, nahone ri nga humbulela mutevhe kana thevhekano ine phetheni ya do i tevhela.
- ◆ PPT: Zwitendeledzi na zwiwea zwo dovhoolwa uri zwi vhumbe phetheni.
- ◆ Kha vha rumele vhashelamulenzhe kha tshitendeledzi na tshikwea ngomu ha *Bugu ya Mushumo ya Vhashelamulenzhe*. Kha vha shumise mbudziso dzine dza tevhela u sumbedza uri ri nga vhona hani uri tshitendeledzi na tshikwea zwo dovhoolwa nahone vha shumise izwi u humbulela uri tshivhumbeo tshi tevhelaho tshi do vha tshifhio.
- ◆ Kha phetheni i re afho fhasi ri kona u zwi vhona uri tshitendeledzi na tshikwea zwo dovhoolwa, nahone ri nga humbulela uri tshivhumbeo tshi tevhelaho kha thevhekano hu do vha tshitendeledzi, tsha tevhelwa nga tshikwea ngaauralongauralo.

Kha phetheni yo dowealeho, ri nga kona u zwi vhona uri mirado ya sete kha thevhekano yo dovhoolwa hani. Ri nga kona u humbulela mutevhe kana thevhekano ya mirado ya sete na uri zwi do dovhoolwa hani uri zwi sike phetheni. Kha phetheni i re afho fhasi, ri a kona u zwi vhona uri tshitendeledzi na tshikwea zwo dovhoolwa nahone ri nga humbulela uri ndi tshivhumbeo tshifhio kha thevhekano tshi no do tevhela.



Nyito ya 4



1. Ndi tshivhumbeo tshifhio tshi thomaho?

2. Ndi tshivhumbeo tshifhio tshi tevhelaho?

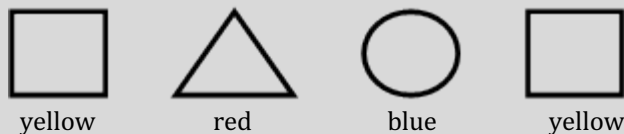
3. Ndi tshivhumbeo tshifhio tshine na humbula uri tshi do tevhela nga murahu ha tshikwea tsha u fhedzisela?

4. Ni nga ita mini u engedza phetheni iyi?

Phetheni dzi dovhoolaho dzo itwa nga thevhekano i dovhoolaho ya zwithu, sa tsumbo, zwiwhumbeo, mivhala, mibvumo, zwithu, misudzuluwo.

Facilitator's notes

- ◆ PPT: Display the following sequence of attribute blocks:



- ◆ Ask participants to look at the pattern and to use the attribute blocks on their tables to copy the sequence. Groups then complete **Activity 5**.

In the next activity, the facilitator will show you a sequence of shapes. You will use the attribute blocks on your table to copy this sequence and discuss how to extend this to create a pattern.



Activity 5

1. What is the pattern?

2. What is the repeating part of the sequence?

Facilitator's notes

- ◆ The point of this activity is to identify the repeating part of the sequence, i.e. the pattern. Does the pattern begin with the yellow square and end with the blue circle? Or does the pattern begin with the yellow square and end with the yellow square?
- ◆ Explain that learners need to be able to identify the pattern before they can extend or create their own pattern.
- ◆ Emphasise that teachers should always repeat the pattern at least twice before asking learners to extend it, for example:



- ◆ After these activities highlight the importance of introducing learners to patterns that have only one attribute that differs, e.g. shape, and providing them with a long enough repeat sequence (e.g. three repeats) so that they can work out the pattern.
- ◆ Ask participants for examples of the kinds of patterns that families might find in their own homes and communities (**context principle**).
- ◆ Reflect on how a learner's experience of everyday patterns is the starting point for understanding the concept of pattern (**level principle**).

Notsi dza mutshimbidzi

- ◆ PPT: Kha vha țane thevhekano i tevhelaho ya zwibułoko zwa zwidodombedzwa:



muțađa



mutswuku



lutombo



muțađa

- ◆ Kha vha humbele vhashelamulenzhe u lavhelesa phetheni na u shumisa zwibułoko zwa zwidodombedzwa zwi re mațafulani avho uri vha kope thevhekano. Zwigwada zwi fhedzise **Nyito ya 5**.

Kha nyito i tevhelaho, mutshimbidzi u ɔo vha sumbedza thevhekano ya zwivhumbeo. Vha ɔo shumisa zwibułoko zwa zwidodombedzwa zwi re țafulani yavho u kopa thevhekano iyi na u haseledza uri vha nga i engedza hani u itela u sika phetheni.



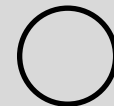
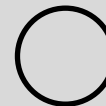
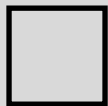
Nyito ya 5

1. Ndi phetheniɔe?

2. Ndi tshipiđa tshifhio tshi dovhoolaho tsha thevhekano?

Notsi dza mutshimbidzi

- ◆ Tsha ndeme kha nyito iyi ndi u topola tshipiđa tshi dovhoolaho tsha thevhekano, sa tsumbo, phetheni. Phetheni iyi i thoma nga tshikwea tsha muțađa ya fhela nga tshitendeledzi tsha lutombo? Kana phetheni iyi i thoma nga tshikwea tsha muțađa ya fhela nga tshikwea tsha muțađa?
- ◆ Kha vha țalutshedze uri vhagudi vha fanela u kona u topola phetheni phanđa ha musi vha tshi nga i engedza kana vha sika yavho vhone vhaņe.
- ◆ Kha vha ombedzele uri vhagudisi vha fanele u dzulela u dovhoolaho phetheni luvhili phanđa ha musi vha tshi humbela vhagudi uri vha i engedze, sa tsumbo:



- ◆ Nga murahu ha idzi nyito kha vha bvisele khagala ndeme ya u ɔivhadza vhagudi nga phetheni dzine dza vha na vhezani huthihi fhedzi hune ha fhambana, sa tsumbo, tshivhumbeo, na u vha ɔetshedeza thevhekano ndapfu i dovhoolaho (sa tsumbo, u dovhoolaho luraru) u itela uri vha kone u shuma phetheni.
- ◆ Kha vha humbele vhashelamulenzhe tsumbo dza tshakha dza phetheni dzine mița i nga dzi wana mahayani ayo na tshitshavhani (**mulayo wa magudiswa**).
- ◆ Kha vha ambe nga uri tshenzhemo ya mugudi ya phetheni dza ɔuvha liņwe na liņwe ndi mathomo a u pfesesa ɔivhaipfi ya phetheni (**mulayo wa maimo**).

Introduce learners to patterns that start with only one attribute that differs, e.g. shape, and provide enough items in the sequence so that learners can work out what the pattern is (the repeating part in the sequence).

It is important for teachers to provide a range of opportunities for learners to identify, copy and create different kinds of patterns using sounds, actions, objects and pictures.



Video 2

Activity Guide: Term 1, Week 6, Days 2, 3 and 4 (pages 104–111)

Watch the video of the teacher setting up activities that provide opportunities for learners to create and discuss patterns.

Notice how the teacher guides the learners through questions and prompts to create a pattern. Write down the vocabulary that she and the learners using during these activities.

Refer to pages 160–173 of the *Concept Guide* to read more about teaching Patterns, Functions and Algebra in Grade R. You will also find a list of appropriate questions and vocabulary for this Content Area.

The **level principle** says that learners are at different starting points in Grade R. Each learner's prior knowledge is the starting point for what they will learn. They can use what they know already to learn new maths concepts and skills.

Kha vha ðivhadze vhagudi phetheni dzine dza thoma nga vhunzani huthihi fhedzi hune ha fhambana, sa tsumbo, tshivhumbeo, na u ñetshedza zwithu zwo vhalaho kha thevhekano u itela uri vhagudi vha kone u wana uri ndi phetheni ifhio (tshipiða tshi dovhoolaho kha thevhekano).

Ndi zwa ndeme kha vhagudisi u ñetshedza zwickhala zwo fhabanaho uri vhagudi vha kone u topola, u kopa na u sika tshakha dza phetheni dzo fhambanaho vha tshi shumisa mibvumo, nyito, zwithu na zwifanyiso.



Vidiyo ya 2

Nyendedzi ya Nyito: Kotara ya 1, Vhege ya 6, Maðuvha 2, 3 na 4 (masiaṭari a 104–111)

Kha vha ṭalele vidiyo ya mugudisi a tshi khou dzudzanya nyito dzine dza ñetshedza vhagudi zwickhala zwa u sika na u haseledza phetheni.

Kha vha dzhieze nzhele uri mugudisi u khou gaida hani vhagudi nga mbudziso na u ṭuṭuwedza u sika phetheni. Kha vha ñwale ðivhaipfi ine mugudisi na vhagudi vha khou shumisa nga tshifhinga tsha idzo nyito.

Kha vha sedze masiaṭari a 160–173 a *Nyendedzi ya ðivhaipfi* u itela u vhala zwinzhi nga u funza Phetheni, Fankisheni na Aḷidzhebura kha Gireidi ya Ṭ. Vha ḍo wana hafhu na mutevhe wa mbudziso dzo teaho na ðivhaipfi ya ḷi Sia ḷa Magudiswa.

Mulayo wa maimo uri vhagudi vha fhethu ho fhambanaho ha u thoma kha Gireidi ya Ṭ. Ṇdivhothangeli ya mugudi muñwe na muñwe ndi fhethu ha u thoma ha zwine a ḍo guda. Vha nga shumisa zwine vha vho zwi ðivha u guda ðivhaipfi ntswa ya mbalo na zwickili.

Session 2: Space and Shape (Geometry)

1 hour

Facilitator's notes

- ◆ Explain that the focus of Week 7 is on Space and Shape (Geometry).
- ◆ Refer participants to pages 126–131 of the *Concept Guide*.
- ◆ Have participants work in groups to complete **Activity 6**. Ask one person from each group to report back.
- ◆ The focus on Space and Shape (Geometry) in this workshop extends the discussion in Workshop 2.

The focus of Term 1 Week 7 is Space and Shape (Geometry). In Workshop 2, we discussed 3-dimensional objects and 2-dimensional shapes and the content of Weeks 3–5 to be implemented in the classroom.

Term 1 Content overview: Space and Shape (Geometry)



Activity 6

Refer to the Space and Shape (Geometry) Content Area on pages 126–131 of the *Concept Guide*. You will see that circles, squares and triangles are introduced in CAPS in Term 1 and rectangles are introduced in Term 4. The Maths Programme suggests that rectangles are introduced incidentally in Term 1.

1. When you taught squares did you find that learners confused squares and rectangles? Give reasons to support your answer.

Learners need to see the differences between the two shapes. Even though both have four sides and four corners, the rectangle has two long sides and two short sides, and the square has four sides that are the same length.

2. How were rectangles introduced in Week 3 of the Maths Programme?

Practically by using boxes and discussing and comparing the sides of a box.

Dzulo la 2: Tshikhala na Tshivhumbeo (Dzhometiri)

Awara 1

Notsi dza mutshimbidzi

- ◆ Kha vha talutshedze uri Vhege ya 7 yo sedzesa kha Tshikhala na Tshivhumbeo (Dzhometiri).
- ◆ Kha vha rumele vhashelamulenzhe kha masiatari a 126–131 a *Nyendedzi ya Divhaipfi*.
- ◆ Kha vha ri vhashelamulenzhe vha shume nga zwigwada u fhedzisa **Nyito ya 6**. Kha vha humbele muthu muthihi u bva tshigwadani tshiinwe na tshiinwe u vhigela murahu.
- ◆ U sedzeswa ha Tshikhala na Tshivhumbeo (Dzhometiri) kha iyi wekishopo hu engedza khasedzo ya Wekishopo ya 2.

Zwo sedzwaho kha Kotara ya 1 Vhege ya 7 ndi Tshikhala na Tshivhumbeo (Dzhometiri). Kha Wekishopo ya 2, ro hasedza nga zwithu zwa mielo miraru na zwivhumbeo zwa mielo mivhili na magudiswa a Vhege ya 3–5 ane a do thomiwa ngomu klasini.

Manweledzo a magudiswa a Kotara ya 1: Tshikhala na Tshivhumbeo (Dzhometiri)



Nyito ya 6

Kha vha sedze kha Sia la Magudiswa la Tshikhala na Tshivhumbeo (Dzhometiri) kha masiatari a 126–131 a *Nyendedzi ya Divhaipfi*. Vha do zwi vhona uri zwitendeledzi, zwickwea na thofunderaru zwo divhadzwa kha TSHIPHOKHALI kha Kotara ya 1 na uri thofundeina dzo divhadzwa kha Kotara ya 4. Mbekanyamushumo ya Mbalo i dzinginya uri thofundeina dzi divhadzwa nga u sokou itea kha Kotara ya 1.

1. Musi vha tshi funza zwickwea, vho vhuya vha zwi limuwa uri vhagudi vha kanganyisa zwickwea na thofundeina? Kha vha nee mihumbulo u tikedza phindulo yavho.

Vhagudi vha fanela u vhona phambano vhukati ha zwivhumbeo zwivhili. Na musi zwothe zwi na masia mana na khuda nna, thofundeina i na masia mavhili malapfu na masia mavhili mapufhi, ngeno tshikwea tshi na masia mana ane a a fana nga vhulapfu.

2. Thofundeina dzo divhadzwa hani kha Vhege ya 3 ya Mbekanyamushumo ya Mbalo?

Nga u tou ita vha tshi shumisa mabogisi na u hasedza na u vhambedza masia a bogisi.

Identifying 2-dimensional shapes (triangles)

Facilitator's notes

- ◆ Remind participants that in Workshop 2 they learnt about 3-dimensional objects and 2-dimensional shapes.
3-dimensional means that an object has three dimensions: length, width and height.
2-dimensional means that a shape has length and width.
- ◆ Explain that triangles are taught in a similar way to circles and squares in Term 1 (Week 7).

In Grade R learners recognise, identify and name 2-dimensional shapes: circles, squares, triangles and rectangles. The Maths Programme also suggests that learners are encouraged to describe the properties of these shapes, e.g. straight or curved lines, number of lines and corners.

Learners apply their new knowledge of shapes and reinforce this learning in the independent small group activities.



Video 3

Activity Guide: Term 1, Week 7, Days 1 and 2 (pages 120–125)

Watch the video of the teacher introducing the learners to the triangle.

Notice how the teacher encourages the learners to describe the properties of the triangle.

Facilitator's notes

- ◆ In **Activity 7** participants will reflect on how the *Poster Book* can be used during activities to stimulate discussion.
- ◆ PPT: Display Poster 8 and ask participants to respond to the questions in **Activity 7**.
- ◆ After the activity ask participants which properties of 2-dimensional shapes were discussed and what maths language was used.
- ◆ Remind participants that 2-dimensional means that a shape has length and width (breadth) and that 3-dimensional means that an object has length, width and height.

U topola zwivhumbeo zwa mielo mivhili (thofunderaru)

Notsi dza mutshimbidzi

- ◆ Kha vha hambudze vhashelamulenzhe uri kha Wekishopo ya 2 vho guda nga zwithu zwa mielo miraru na zwivhumbeo zwa mielo mivhili.
Mielo miraru zwi amba uri tshithu tshi na mielo miraru: vhulapfu, u țandavhuwa na vhunțha.
Mielo mivhili zwi amba uri tshivhumbeo tshi na vhulaphu na u țandavhuwa.
- ◆ Thofunderaru dzi funzwa nga ndila i fanaho na ya zwitendeledzi na zwickwea kha Kotara ya 1 (Vhege ya 7).

Kha Gireidi ya Ṭ vhagudi vha a vhona, vha topola na u bula zwivhumbeo zwa mielo mivhili: zwitendeledzi, zwickwea, thofunderaru na thofundeina. Mbekanyamushumo ya Mbalo i dzinginya hafhu uri vhagudi vha țuțuwedzwa u țalusa vhunzani ha izwi zwivhumbeo, sa tsumbo, mitalo tswititi kana yo khevaho, tshivhalo tsha mitalo na dzikhuđa.

Vhagudi vha shumisa ndivho ntswa yavho ya zwivhumbeo nahone vha khwațhisedza u guda uhu kha nyito dza zwigwada zwițuku zwo diimisaho nga zwoțhe.



Vidiyo ya 3

Nyendedzi ya Nyito: Kotara ya 1, Vhege ya 7, Mađuvha 1 na 2 (masiațari a 120–125)

Kha vha țalele vidiyo ya mugudisi a tshi khou đivhadza vhagudi thofunderaru.

Kha vha dzhiele nzhele uri mugudisi u țuțuwedza hani vhagudi u țalusa vhunzani ha thofunderaru.

Notsi dza mutshimbidzi

- ◆ Kha **Nyito ya 7** vhashelamulenzhe vha đo amba nga uri Bugu ya Dzipositara i nga shumiswa hani nga tshifhinga tsha nyito u țuțula khaseledzo.
- ◆ PPT: Kha vha țane Phositara ya 8 vha humbele vhashelamulenzhe u fhindula mbudziso dzi re kha **Nyito ya 7**.
- ◆ Nga murahu ha nyito, kha vha vhudzise vhashelamulenzhe uri ndi vhunzani vhufhio ha zwivhumbeo zwa mielo mivhili ho haseledzwaho na uri ndi luambo lwa mbalo lufhio lwo shumiswaho.
- ◆ Kha vha hambudze vhashelamulenzhe uri mielo mivhili zwi amba uri tshivhumbeo tshi na vhulapfu na u țandavhuwa (vhuphara) na uri mielo miraru zwi amba uri tshithu tshi na vhulapfu, u țandavhuwa na vhunțha.

Activity Guide: Term 1 provides many opportunities throughout the term for teachers to use open-ended questions. The *Poster Book* is used during whole class activities and small group teacher-guided activities to encourage learners to express their own ideas and solve problems.

In Activity 7, you will discuss a poster and talk about whether the questions posed are ‘open-ended’ or ‘closed’ questions.



Activity 7

1. Look at Poster 8 and respond to the following questions.

◆ How many triangles can you see? closed

◆ How do you know it is a triangle? open-ended

◆ How many sides does it have? closed

◆ How many corners does it have? closed

◆ How many lines? closed

◆ Can you see any other triangles? closed

◆ What other shapes can you see? closed

◆ What is the same about these two shapes? open-ended

◆ What is different about these two shapes? open-ended

2. Which of the questions above are open-ended and which are closed questions?

Nyendedzi ya Nyito: Kotara ya 1 i netshedza vhagudisi zwickhala zwinzhi kha kotara yothe u shumisa mbudziso dzo tãndavhuwaho. *Bugu ya Dziphositar*a i shumiswa nga tshifhinga tsha nyito dza kilasi yothe na nyito dza zwigwada zwiŕuku zwo rangwaho phanã nga mugudisi u itela u tuŕuwedza vhagudi u tãhisa mihumbulo yavho na u tandulula thaidzo.

Kha Nyito ya 7, vha ðo haseledza phositara na u amba nga uri mbudziso dzo vhudziswa nga ndila yo 'tãndavhuwaho' kana mbudziso 'dza phindulo nthihi'.



Nyito ya 7

1. Kha vha lavhelese Phositara ya 8 vha fhindule mbudziso dzi tevhelaho.
 - ◆ Ndi tãhofunderaru nngana dzine vha khou dzi vhona? mbudziso ya phindulo nthihi

 - ◆ Vha zwi ðivha hani uri ndi tãhofunderaru? mbudziso yo tãndavhuwaho

 - ◆ I na masia mangana? mbudziso ya phindulo nthihi

 - ◆ I na khuã nngana? mbudziso ya phindulo nthihi

 - ◆ I na mitalo mingana? mbudziso ya phindulo nthihi

 - ◆ Ni khou kona u vhona dziñwe tãhofunderaru? mbudziso ya phindulo nthihi

 - ◆ Ndi zwifhio zwiñwe zwivhumbeo zwine vha khou vhona? mbudziso ya phindulo nthihi

 - ◆ Ndi zwifhio zwi fanaho nga izwi zwivhumbeo zwivhili? mbudziso yo tãndavhuwaho

 - ◆ Ndi zwifhio zwo fhambanaho nga izwi zwivhumbeo zwivhili? mbudziso yo tãndavhuwaho

2. Ndi dzifhio dza mbudziso dzi re afho nãha dzine dza vha mbudziso dzo tãndavhuwaho na dzine dza vha dza phindulo nthihi?

Facilitator's notes

- ◆ Discuss the kinds of questions that were asked in **Activity 7** and how the **guidance principle** encourages problem solving through effective questioning.
- ◆ Highlight the importance of using maths vocabulary in discussions with learners.
- ◆ Remind participants that not all learners will grasp the ideas/concepts at the same time (**level principle**) and that they should be encouraged to share their thinking and be given plenty of practical activities and opportunities to talk about shapes.

The **guidance principle** encourages teachers and learners to work together to solve problems using effective questioning.

- ◆ **Closed questions** are questions that have a limited 'yes' or 'no' response. Closed questions can be helpful in finding out what learners know, like 'Which shape is a triangle?', 'What colour is it?'
- ◆ **Open-ended questions** have more than one possible answer, stimulate thinking and encourage learners to express their own ideas when solving problems.

Not all learners will grasp these concepts or learn the maths language at the same time (**level principle**).

Maths vocabulary

When learners investigate, and describe shapes and objects, they use everyday language like 'flat', 'smooth' and 'pointy'. Teachers can introduce maths vocabulary to replace everyday language, for example: straight lines, curved lines, corners, sides. We also talk about how long something is, how wide it is and refer to the height of something.

Refer to the pages 190–193 of the *Concept Guide* to read more about asking questions related to teaching and learning Space and Shape (Geometry) concepts. Also read page 192 for more about Space and Shape (Geometry) vocabulary in Grade R.

Notsi dza mutshimbidzi

- ◆ Kha vha haseledze tshakha dza mbudziso dze dza vhudziswa kha **Nyito ya 7** na uri **mulayo wa nyendedzi** u ṭụṭuwedza hani u tandulula thaidzo nga mavhudzisele a khwine.
- ◆ Kha vha sumbedze ndeme ya u shumisa ðivhaipfi ya mbalo kha khaseledzo na vhagudi.
- ◆ Kha vha humbudze vhashelamulenzhe uri a si vhagudi vhoṱhe vhane vha ḡo pfesesa mihumbulo/ðivhaipfi nga tshifhinga tshithihi (**mulayo wa maimo**) na uri vha fanela u ṭụṭuwedzwa u vhudzana kuhumbulele kwavho nahone vha ṅetshedzwa nyito nanzhi na zwickhala zwa u amba nga zwivhumbeo.

Mulayo wa nyendedzi u ṭụṭuwedza vhagudisi na vhagudi u shuma vhoṱhe u itela u tandulula thaidzo vha tshi shumisa mavhudzisele a khwine.

- ◆ **Mbudziso dza phindulo nthihi** ndi mbudziso dzine dza vha na phindulo ya 'ee' kana 'hai'. Mbudziso dza phindulo nthihi dzi nga thusa kha u wana zwine vhagudi vha ðivha, sa 'Ndi tshivhumbeo tshifhio tshine tsha vha ṱhofunderaru?' 'I na muvhala ufhio?'
- ◆ **Mbudziso dzo ṱandavhuwaho** dzi na khonadzeo ya phindulo i fhiraho nthihi, dzi ṭụṭula u humbula na u ṭụṭuwedza vhagudi u ṱahisa mihumbulo yavho musi vha tshi tandulula thaidzo.

A si vhagudi vhoṱhe vhane vha ḡo pfesesa iyi ðivhaipfi kana u guda luambo lwa mbalo nga tshifhinga tshithihi (**mulayo wa maimo**).

Ḋivhaipfi ya mbalo

Musi vhagudi vha tshi sengulusa, na u ṱalusa zwivhumbeo na zwithu, vha shumisa luambo lwa ḡuvha ḡiṅwe na ḡiṅwe sa 'fulethe', 'tswavhelele' na 'ṱhodzi'. Vhagudisi vha nga ḡivhadza ḡivhaipfi ya mbalo madzuloni a luambo lwa ḡuvha ḡiṅwe na ḡiṅwe, sa tsumbo: mitalo tswititi, mitalo yo khevaho, khuḡa, masia. Ri dovha hafhu ra amba nga uri tshithu ndi tshilapfu hani, tsho ṱandavhuwa hani na u amba nga vhulapfu ha tshiṅwe tshithu.

Kha vha sedze masiaṱari a 190–193 a *Nyendedzi ya Ḋivhaipfi* u itela u vhala zwinzhi nga u vhudzisa mbudziso dzi re na vhushaka na u funza na u guda ḡivhaipfi ya Tshikhala na Tshivhumbeo (Dzhomeṭiri). Kha vha vhale hafhu na siaṱari ḡa 193 u itela zwinzhi nga ḡivhaipfi ya Tshikhala na Tshivhumbeo (Dzhomeṭiri) kha Gireidi ya Ṱ.

Session 3: Measurement

1 hour

Facilitator's notes

- ◆ Explain that the focus of Week 8 is on Measurement.
- ◆ Refer participants to pages 132–135 of the *Concept Guide*.
- ◆ Have participants work in groups to complete **Activity 8**. Ask one person from each group to share their ideas.

The focus of Term 1 Week 8 is Measurement: time and length.

Term 1 Content overview: Measurement



Activity 8

Refer to the Measurement Content Area on pages 132–135 of the *Concept Guide*.

In your group, review:

1. What concepts are covered in Term 1?

2. What are the differences between this content and the content from CAPS?

What is measurement?

Facilitator's notes

- ◆ Ask participants to think about what measurement is.
- ◆ PPT: Same picture as in Activity 9.
- ◆ Participants complete **Activity 9** and share what they have written.
- ◆ Brainstorm the following questions with the group:
Who is taller?
Who is heavier?
Who is older?
- ◆ Explain that measurement is about finding out 'how much' there is of a something, e.g. the length of something, how much something holds (the capacity), the mass of something or how long it takes to do something (time).
- ◆ Explain that to talk about measurement you need to say what you want to measure – the attribute. Give examples of attributes: length, height, mass, capacity.
- ◆ Use the information below Activity 9 to explain standard and non-standard measuring units.
- ◆ Explain that in Grade R, learners measure informally using non-standard measuring units to measure time, length, mass and capacity or volume.

Notsi dza mutshimbidzi

- ◆ Kha vha ṭalutshedze uri Vhege ya 8 yo sedzesa kha Muelo.
- ◆ Kha vha rumele vhashelamulenzhe kha masiatari a 132–135 a *Nyendedzi ya Divhaipfi*.
- ◆ Kha vha ri vhashelamulenzhe vha shume nga zwigwada u fhedzisa **Nyito ya 8**. Kha vha humbele muthu muthihi u bva tshigwadani tshiṅwe na tshiṅwe uri a kovhane mihumbulo yavho.

Kha Kotara ya 1 Vhege ya 8 ho sedzeswa kha Muelo: tshifhinga na vhulapfu.

Manweledzo a magudiswa a Kotara ya 1: Muelo



Nyito ya 8

Kha vha sedze Sia la Magudiswa la Muelo li re kha masiatari a 132–135 a *Nyendedzi ya Divhaipfi*.

Tshigwadani tshavho, kha vha sedzuluse:

1. Ndi divhaipfi ifhio yo katelwaho kha Kotara ya 1?

2. Ndi phambano dzifhio dzi re vhukati ha magudiswa na magudiswa a bvaho kha TSHIPHOKHALI?

Muelo ndi mini?

Notsi dza mutshimbidzi

- ◆ Kha vha humbele vhashelamulenzhe u humbula nga uri muelo ndi mini.
- ◆ PPT: Tshifanyiso tshi fanaho na tshi re kha Nyito ya 9.
- ◆ Vhashelamulenzhe vha fhedzisa **Nyito ya 9** vha kovhana zwe vha ṅwala.
- ◆ Kha vha haseledze nga mbudziso dzi tevhelaho na tshigwada:
Ndi nnyi mulapfu?
Ndi nnyi a no lemelesa?
Ndi nnyi muhulwane?
- ◆ Kha vha ṭalutshedze uri muelo ndi u wana uri 'ndi zwingana' zwi re hone zwa tshiṅwe tshithu, sa tsumbo, vhulapfu ha tshiṅwe tshithu, tshiṅwe tshithu tshi faredza zwingafhani (vhungomu), tshileme tsha tshiṅwe tshithu kana zwi dzhia tshifhinga tshingafhani u ita tshiṅwe tshithu (tshifhinga).
- ◆ Kha vha ṭalutshedze uri u amba nga muelo vha fanela u amba zwine vha khou ṭoda u ela – tshidodombedzwa. Kha vha ṅee tsumbo dza zwidodombedzwa: vhulapfu, vhuṅṅha, tshileme, vhungomu.
- ◆ Kha vha shumise mafhungo a re fhasi ha Nyito ya 9 u ṭalutshedza zwithu zwa u ela zwa tshitandadi na zwi si zwa tshitandadi.
- ◆ Kha vha ṭalutshedze uri kha Gireidi ya Ṭ, vhagudi vha ela lu si fomaḷa vha tshi shumisa zwithu zwa u ela zwi si zwa tshitandadi u ela tshifhinga, vhulapfu, tshileme na vhungomu kana voḷumu.

In Activity 9 we will discuss the question ‘What is measurement?’.



Activity 9

Look at the picture below and answer the question.



Who is the biggest?

Measurement is about finding ‘how much’ there is of a thing, e.g.:

- ◆ the length of something
- ◆ how much something holds
- ◆ the mass of something
- ◆ how long it takes to do something.

In order to measure, we need to decide on which attribute (feature/characteristic) we want to measure, e.g. length, mass, time. We use the following words to describe the measurements: taller, heavier, older.

Kha Nyito ya 9 ri ḁo haseledza mbudziso ‘Muelo ndi mini?’.



Nyito ya 9

Kha vha lavhelese tshifanyiso tshi re afho fhasi vha fhindle mbudziso.



Ndi nnyi muhulwanesa?

Muelo ndi u wana uri ‘ndi zwingana’ zwi re hone zwa tshithu, sa tsumbo:

- ◆ vhulapfu ha tshiḁwe tshithu
- ◆ tshiḁwe tshithu tshi faredza zwingafhani
- ◆ tshileme tsha tshiḁwe tshithu
- ◆ zwi dzhia tshifhinga tshingafhani u ita tshiḁwe tshithu.

U itela u ela, ri fanela u dzhia tsheo ya uri ndi tshidombedzwa tshifhio (mbonalo/tshiḁaluli) tshine ra khou ḁḁa u ela, sa tsumbo, vhulapfu, tshileme, tshifhinga. Ri shumisa maipfi a tevhelaho u ḁalusa mielo: mulapfusa, u lemelesa, muhulwanesa.

We need to use units to measure. These can be non-standard units or standard units.

- ◆ **Non-standard measuring units** include hands, feet, crayons, pieces of string, sticks and blocks.
- ◆ **Standard measuring units** include litres, millilitres, kilograms, grams, metres, hours, minutes, etc.

In Grade R learners measure **informally** and use **non-standard measuring units** to measure time, length, mass, capacity and volume.

Direct comparison

Facilitator's notes

- ◆ Demonstrate how to use direct comparison and a non-standard unit of measurement. Ask eight volunteers to stand in front. Ask:
Who is the tallest in the group? How do you know?
Who is the shortest in the group? How do you know?
Is anyone the same height? How do you know?
How can we find out?
- ◆ Have the participants stand back-to-back to compare their height. Afterwards, ask participants to complete **Activity 10**.
- ◆ Discuss that by directly comparing the attribute (height) of the two people, we could find out who was taller.
- ◆ Point out that this measurement activity has been taken from Week 8 in *Activity Guide: Term 1* (pages 136–149) and that participants should refer to this activity when planning.

Measurement in Grade R includes comparing the attribute of something 'directly' with something else. For example, measuring the length of a crayon against another crayon or comparing the height of two learners standing back-to-back.

Observe the facilitator measuring a group of participants and then complete Activity 10 in your group.



Activity 10

Refer to pages 194–207 of the *Concept Guide* to read more about Measurement and pages 136–149 of *Activity Guide: Term 1* before you answer the questions below.

Ri fanela u shumisa yunitsi dza u ela. Izwi zwi nga vha yunitsi dza u ela dzi si dza tshitandadi kana yunitsi dza u ela dza tshitandadi.

- ◆ **Zwa u ela zwi si zwa tshitandadi** zwi katela zwanḁa, nayo, dzikhirayoni, zwipiḁa zwa miḁali, zwitanda na zwibuḁoko.
- ◆ **Zwa u ela zwa tshitandadi** zwi katela dzilithara, miḁilithara, dzikhilogireme, dzigireme, mimithara, awara, minetse, ngauralongauralo.

Kha Gireidi ya ṽ vhagudi vha ela **lu si fomaḁa** na u shumisa yunitsi **dza u ela dzi si dza tshitandadi** u ela tshifhinga, vhulapfu, tshileme, vhungomu na voḁumu.

Mbambedzo yo livhaho

Notsi dza mutshimbidzi

- ◆ Kha vha sumbedze uri vha shumisa hani mbambedzo yo livhaho na yunitsi dzi si dza tshitandadi dza u ela. Kha vha humbele vhomadilonga vha malo u ima phanḁa. Kha vha vhudzise:
Ndi nnyi mulapfusa kha tshigwada? Ni zwi ḁivha hani?
Ndi nnyi mupfufhisa kha tshigwada? Ni zwi ḁivha hani?
Hu na vhane vha eḁana nga vhulapfu? Ni zwi ḁivha hani?
Ri nga zwi wanisa hani?
- ◆ Kha vha ri vhashelamulenzhe vha ime vho furalelana u itela u vhambedza vhulapfu havho. Nga murahu, kha vha humbele vhashelamulenzhe u fhedzisa **Nyito ya 10**.
- ◆ Kha vha haseledze nga u vhambedza ho livhaho zwidodombedzwa (vhulapfu) ha vhatu vhavhili, ri nga wana uri ndi nnyi we a vha e mulapfu.
- ◆ Kha vha sumbedzise uri nyito iyi ya u ela yo dzhiwa u bva kha Vhege ya 8 kha *Nyendedzi ya Nyito: Kotara ya 1* (masiaḁari a 136–149) na uri vhashelamulenzhe vha fanela u sedza nyito iyi musi vha tshi pulana.

Muelo kha Gireidi ya ṽ u katela u vhambedza zwidodombedzwa ‘zwo livhaho’ zwa tshiḁwe tshithu na tshiḁwe. Sa tsumbo, u ela vhulapfu ha khirayoni na iḁwe khirayoni kana u vhambedza vhulapfu ha vhagudi vhavhili vho ima vho furalelana.

Kha vha lavhelese mutshimbidzi a tshi ela tshigwada tsha vhashelamulenzhe vha kone u fhedzisa Nyito ya 10 tshigwadani tshavho.



Nyito ya 10

Kha vha sedze masiaḁari a 194–207 a *Nyendedzi ya Nyito* u itela u vhala zwinzhi nga Muelo na masiaḁari a 136–149 a *Nyendedzi ya Nyito: Kotara ya 1* phanḁa ha musi vha tshi fhindula mbudziso dzi re afho fhasi.

1. What non-standard unit of measurement was used to measure the height of the participants?

Learners' bodies.

2. What other non-standard units of measurement could be used to measure the height of the participants?

E.g. string, pencil, block.

Time

Facilitator's notes

- ◆ Facilitate a discussion about teaching time to learners in Grade R – that it is an abstract concept and that learners need to learn about time from daily experiences that are familiar to them.
- ◆ Ask participants to complete **Activity 11** and share their ideas with the large group. These should include:
 - sequencing of repeated events or activities during the day
 - the weather chart with day, date and month and pictures on a weekly calendar
 - the calendar with days of the week.

Time is a difficult abstract concept for learners to understand. Learners need to understand how time passes in their own lives, so teachers need to relate time to the learner's daily experiences and events that are familiar to them.



Activity 11

Refer back to Term 1 Week 8 in *Activity Guide: Term 1* and with a partner discuss how time is taught in these lessons. Share your ideas about the following.

1. How can Grade R teachers/practitioners help learners understand more about the concepts of:
 - ◆ day and night?
 - ◆ yesterday, today and tomorrow?
 - ◆ how long things take?
 - ◆ the sequence of time?

1. Ndi yuniti ya u ela i si ya tshitandadi ifhio yo shumiswaho u ela vhulapfu ha vhashelamulenzhe?

Mivhili ya vhagudi.

2. Ndi yunitsi dziñwe dzifhio dza u ela dzi si dza tshitandadi dzine dzi nga shumiswa u ela vhulapfu ha vhashelamulenzhe?

Sa tsumbo, muḑali, penisela, tshibuḑoko.

Tshifhinga

Notsi dza mutshimbidzi

- ◆ Kha vha tshimbidze khaseledzo nga u funza tshifhinga kha vhagudi kha Gireidi ya ṽ – uri ndi ḑivhaipfi ya u humbulela na uri vhagudi vha fanela u guda nga tshifhinga u bva kha tshenzhemo dzavho dza ḑuvha ḑiñwe na ḑiñwe dzine vha dzi ḑivha.
- ◆ Kha vha humbele vhashelamulenzhe u fhedzisa **Nyito ya 11** na u kovhana mihumbulo na tshigwada tshihulwane. Izwi zwi fanela u katela:
 - thevhekanyo ya zwiwo zwi dovhoholaho kana nyito nga masiari
 - tshati ya mutsho i re na ḑuvha, datumu na ḑwedzi na zwifanyiso kha khaḑenda ya vhege iñwe na iñwe
 - khaḑenda i re na maḑuvha a vhege.

Tshifhinga ndi ḑivhaipfi ya u humbulela kha vhagudi uri vha pfesese. Vhagudi vha fanela u pfesesa uri tshifhinga tshi tshimbila hani kha vthutshilo havho, zwenezwo vhagudisi vha fanela u ṽalutshedza tshifhinga kha tshenzhemo ya vhagudi ya ḑuvha ḑiñwe na ḑiñwe na zwiwo zwine vha zwi ḑivha.



Nyito ya 11

Kha vha sedze murahu kha Kotara ya 1 Vhege ya 8 kha *Nyendedzi ya Nyito: Kotara ya 1* na uri vha na mufarakani vha haseledze uri tshifhinga tshi funzwa hani kha idzi ngudo. Kha vha kovhane mihumbulo yavho nga zwi tevhelaho.

1. Vhagudisi vha Gireidi ya ṽ vha nga thusa hani vhagudi u pfesesa zwinzhi nga ḑivhaipfi dza:
 - ◆ masiari na vhusiku?
 - ◆ mulovha, ḑamusi na matshelo?
 - ◆ uri zwithu zwi dzhia tshifhinga tshingafhani?
 - ◆ u tevhekana ha tshifhinga?

2. How can you use your daily programme activities to teach learners about the concept of time?

Discussing the sequence of activities – e.g. what do we do first, next, what happened before Storytime – provides opportunities to reflect on what happened first/next/last.

3. What vocabulary is important to understand the concept of time?

Before, after, next, now, then, day, night, morning afternoon, today, yesterday, tomorrow.

Refer to pages 194–207 of the *Concept Guide* to read more about Measurement and time. Refer to the page 210 of the *Concept Guide* to read more about asking questions related to teaching and learning of Measurement in Grade R.

2. Vha nga shumisa hani nyito dza mbekanyamushumo ya ðuvha ðiñwe na ðiñwe yavho u funza vhagudi nga ðivhaipfi ya tshifhinga?

U haseledza thevhekano ya nyito – sa tsumbo, ri ita mini u thoma, zwi tevhelaho, zwe zwa itea phanḁa ha tshifhinga tsha tshiḁori – zwi ñetshedza zwickhala zwa u amba nga zwe zwa itea u thoma/zwi tevhelaho/mafhedziseloni.

3. Ndi ðivhaipfi ifhio ya ndeme ya u pfesesa ðivhaipfi ya tshifhinga?

Phanḁa ha, murahu ha, zwi tevhelaho, zwino, kale, masiari, vhusiku, matsheloni, masiari, ḁamusi, mulovha, matshelo.

Kha vha sedze masiaḁari a 194–207 a *Nyendedzi ya ðivhaipfi* u itela u vhala zwinzhi nga Muelo na tshifhinga. Kha vha sedze siaḁari ḁa 211 ḁa *Nyendedzi ya ðivhaipfi* u itela u vhala zwinzhi nga u vhudzisa mbudziso dzi re na vhushaka na u funza na u guda Muelo kha Gireidi ya Ṱ.

Session 4: Numbers, Operations and Relationships

1 hour

Facilitator's notes

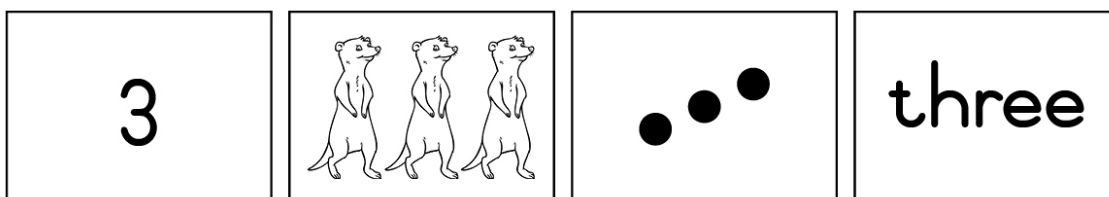
- ◆ Draw the participants' attention to how the number 3 is introduced on pages 102–105 of *Activity Guide: Term 1*.
- ◆ Explain that even though the Content Area Focus is Patterns, Functions and Algebra in Week 6, the number 3 is also introduced in this week.
- ◆ Discuss the routine that is followed for the numbers 1 and 2 and reflect on whether the same routine is followed for number 3. Discuss how each number of pictures and dots is one more than the previous one and make the connection to the fact that 2 is one more than 1 and 3 is one more than 2.
- ◆ Explain that in Week 6 learners are also introduced to dot cards.
- ◆ Use the dot cards in the *Resource Kit* to demonstrate how learners match counters to the dot cards and discover that 3 is made up of 1 and 2 dots.

In Workshop 2, you were introduced to the concepts of counting and representation of number. In this workshop we will see how the same ideas continue into Week 6 as the number 3 is introduced. The same routine is followed as with numbers 1 and 2, namely:

Refer to pages 102–105 of *Activity Guide: Term 1* for the introduction of number '3' activity.

Tell the *Number 3 story* and dramatise as you build up the story with the different representations of the number using frieze cards from the *Resource Kit*:

- ◆ animal (picture)
- ◆ number symbol
- ◆ number word
- ◆ dots (representing the doorbells).



Look for objects and match the number symbol (3) and number word (three). In Week 6, learners are introduced to dot cards (from the *Resource Kit*). Learners match counters to the dot cards and discuss that 3 is made up of 1 and 2 dots.

Dzulo la 4: Nomboro, Tswayo na Vhushaka Awara 1

Notsi dza mutshimbidzi

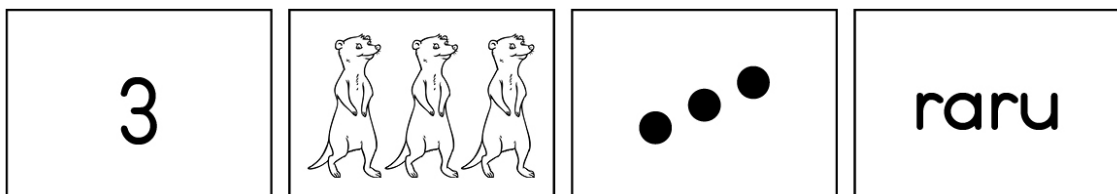
- ◆ Kha vha ite uri vhashelamulenzhe vha ðivhe uri nomboro ya 3 yo ðivhadzwa hani kha masiaṭari a 102–105 a *Nyendedzi ya Nyito: Kotara ya 1*.
- ◆ Kha vha ṭalutshedze uri naho Sia la Magudiswa lo Sedzwaho hu Phetheni, Fankisheni na Alidzhebura kha Vhege ya 6, nomboro ya 3 i dovha hafhu ya ðivhadzwa kha ino vhege.
- ◆ Kha vha haseledze ndowelo ine ya tevhelwa ya nomboro ya 1 na ya 2 na u amba arali ndowelo yeneyo i fanaho i tshi tevhelwa kha nomboro ya 3. Kha vha haseledze uri nomboro inwe na inwe ya zwifanyiso na zwithoma i fhira ya murahu hani vha ite ṭhumanyo kha mbuno ya uri 2 ndi nnzhi nga nthihi kha 1 na uri 3 ndi nnzhi nga nthihi kha 2.
- ◆ Kha vha ṭalutshedze uri kha Vhege ya 6 vhagudi vha ðivhadzwa hafhu magaraṭa a tshithoma.
- ◆ Kha vha shumise magaraṭa a tshithoma a re kha Khithi ya Zwishumiswa u sumbedza uri vhagudi vha fanyisa hani zwithu zwa u vhalela ngazwo na magaraṭa a tshithoma na u tumbula uri 3 yo vhumbwa nga zwithoma 1 na 2.

Kha Wekishopo ya 2, vho ðivhadzwa ðivhaipfi ya u vhalela na ya u imela nomboro. Kha ino wekishopo ri do vhona uri mihumbulo yeneila i fanaho i bvela hani phanda kha Vhege ya 6 zwenezwi nomboro 3 i tshi khou ðivhadzwa. Nðowelo yeneyo nthihi i a tevhelwa sa kha nomboro 1 na 2, ine ya vha:

Kha vha sedze masiaṭari a 102–105 a *Nyendedzi ya Nyito: Kotara ya 1* u itela u ðivhadzwa ha nyito ya nomboro ya '3'.

Kha vha anetshele *Tshiṭori tsha nomboro ya 3* vha ite sa litambwa zwenezwi vha tshi khou fhaṭa tshiṭori nga u imela ho fhambanaho ha nomboro vha tshi shumisa magaraṭa a tshati ya luvhondoni ya nomboro u bva kha *Khithi ya Zwishumiswa*:

- ◆ phukha (tshifanyiso)
- ◆ tshiga tsha nomboro
- ◆ ipfinomboro
- ◆ zwithoma (zwo imelaho bele dza munangoni).



Kha vha lavhelese zwithu vha fanyise zwiga zwa nomboro (3) na ipfinomboro (raru). Kha Vhege ya 6, vhagudi vha ðivhadzwa magaraṭa a tshithoma (u bva kha *Khithi ya Zwishumiswa*). Vhagudi vha fanyisa zwithu zwa u vhalela ngazwo na magaraṭa a tshithoma vha haseledza uri 3 yo vhumbwa nga zwithoma 1 na 2.

Term 1 Content overview: Numbers, Operations and Relationships

Facilitator's notes

- ◆ Explain that the focus of Week 9 is on Numbers, Operations and Relationships.
- ◆ Refer participants to pages 114–123 of the *Concept Guide*.
- ◆ Have participants work in groups to complete **Activity 12**. Ask one person from each group to share their ideas.

Week 7 focuses on Space and Shape (Geometry) while Week 8 focuses on Measurement. The focus of Week 9 in Term 1 is once more on number concepts. In this session, you will investigate the relationship between numbers.



Activity 12

Refer to the Numbers, Operations and Relationships content overview on pages 114–123 of the *Concept Guide*. In your group, discuss the following features of the content overview:

1. What is Topic 1.4?
2. What sub-topics are listed under this topic?
3. What are the differences between the blue and black text? Explain why you think this is so.

Calculating

Facilitator's notes

- ◆ Point out that learners in Grade R do not do number operations such as addition and subtraction, multiplication and division. Give an example of how these concepts are gradually built up through counting and manipulation of concrete materials and through problem solving in appropriate real-life contexts.
- ◆ Demonstrate an activity that involves breaking down and building up numbers ('Shake and break' on pages 166–169 of *Activity Guide: Term 1*).
- ◆ After the demonstration, participants complete **Activity 13**. Ask one person from each group to share their ideas.
- ◆ Discuss which of the questions asked were open-ended and which were closed questions.
- ◆ Remind participants that not all learners will demonstrate an understanding of these number concepts at the same time (**level principle**).

In Grade R learners do not do number operations like addition and subtraction, multiplication and division. These concepts are gradually built up through investigation and through problem solving. For example: *I have three apples. I eat one. How many apples do I have left?*

Manweledzo a magudiswa a Kotara ya 1: Nomboro, Tswayo na Vhushaka

Notsi dza mutshimbidzi

- ◆ Kha vha ṭalutshedze uri Vhege ya 9 yo sedzesa kha Nomboro, Tswayo na Vhushaka.
- ◆ Kha vha rumele vhashelamulenzhe kha masiaṭari a 114–123 a *Nyendedzi ya Divhaipfi*.
- ◆ Kha vha ri vhashelamulenzhe vha shume nga zwigwada u fhedzisa **Nyito ya 12**. Kha vha humbele muthu muthihi u bva tshigwadani tshiṅwe na tshiṅwe uri a kovhane mihumbulo yavho.

Vhege ya 7 yo sedzesa kha Tshikhala na Tshivhumbeo (Dzhometiri) ngeno Vhege ya 8 yo sedza kha Muelo. Zwo sedzwaho nga Vhege ya 9 kha Kotara ya 1 hu kha ḍi vha ḍivhaipfi ya nomboro. Kha ili dzulo, vha ḍo sengulusa vhushaka vhukati ha nomboro.



Nyito ya 12

Kha vha sedze kha manweledzo a magudiswa a Nomboro, Tswayo na Vhushaka kha masiaṭari a 114–123 a *Nyendedzi ya Divhaipfi*. Tshigwadani tshavho, kha vha haseledze mbonalo dzi tevhelaho dza manweledzo a magudiswa:

1. Thero ndi mini 1.4?
2. Ndi therwana dzifhio dzo ṅewaho fhasi ha iyi thero?
3. Ndi phambano ifhio i re vhukati ha ḷinwalo ḷa lutombo na ḷitswu? Kha vha ṭalutshedze uri ndi ngani vha tshi humbula uri zwo ralo.

U rekanya

Notsi dza mutshimbidzi

- ◆ Kha vha ambe uri vhagudi kha Gireidi ya Ṭ a vha iti mashumele a nomboro u fana na u ṭanganya na u ṭusa, u andisa na u kovha. Kha vha ṅee tsumbo ya uri ḍivhaipfi iyi i fhaṭwa hani nga zwiṭuku nga u vhalela na u shandukisa matheriala na nga u tandulula thaidzo kha nyimele dza vhutshilo ha vhukuma dzo teaho.
- ◆ Kha vha sumbedze nyito ine ya katela u kwasha na u fhaṭa nomboro ('U kwasha na u fhaṭa) kha masiaṭari a 166–169 a *Nyendedzi ya Nyitio: Kotara ya 1*.
- ◆ Nga murahu ha u sumbedzela, vhashelamulenzhe vha fhedzisa **Nyito ya 13**. Kha vha humbele muthu muthihi u bva tshigwadani tshiṅwe na tshiṅwe uri a kovhane mihumbulo yavho.
- ◆ Kha vha haseledze uri ndi mbudziso dzifhio dzo vhudziswa dze dza vha dzi dzo ṭandavhuwaho na uri ndi dzifhio dze dza vha dzi dza phindulo nthihi.
- ◆ Kha vha humbudze vhashelamulenzhe uri a si vhagudi vhoṭhe vhane vha ḍo sumbedza u pfesesa ḍivhaipfi iyi nga tshifhinga tshithihi (**mulayo wa maimo**).

Kha Gireidi ya Ṭ vhagudi a vha iti mashumele a nomboro u fana na u ṭanganya na u ṭusa, u andisa na u kovha. Divhaipfi iyi i fhaṭiwa nga zwiṭuku nga u sengulusa na nga u tandulula thaidzo. Sa tsumbo: *Ndi na maapula mararu. Nda ḷa ḷithihi. Ndo sala na maapula mangana?*

Learners need to understand the relationship between numbers. Activities that involve breaking down and building up numbers help learners to understand the relationships between numbers and the value of numbers. For example: *5 is made up of 2 and 3, 1 and 4.*

Demonstration

Watch the demonstration of a 'shake-and-break' game and then discuss your observations in your group.



Activity 13

Discuss the demonstration you have just watched.

1. What number concepts could the learners learn by playing this game?

Combining (adding) and separating (subtraction).

2. What questions did the facilitator use that highlighted addition and subtraction?

How many counters do I have in this hand? And in this hand? When I put them together how many do I have?

How did you break up your counters?

How many do you have on each lid? When you put them together how many do you have?

If you take the ones on this lid away how many will you have left?

Not all learners will demonstrate an understanding of these number concepts at the same time (**level principle**).

Vhagudi vha fanele u pfesesa vhushaka vhukati ha nomboro. Nyito dzine dza katela u kwasha na u fhaṭa nomboro dzi thusa vhagudi u pfesesa vhushaka vhukati ha nomboro na ndeme ya nomboro. Sa tsumbo: 5 yo vhubwwa nga 2 na 3, 1 na 4.

Musumbedzo

Kha vha ṭalele musumbedzo wa mutambo wa u dzinginya na u kwasha vha koneha u haseledza zve vha vhona tshigwadani tshavho.



Nyito ya 13

Kha vha haseledze nga musumbedzo une vha kha ḍi bva u u ṭalela.

1. Ndi ḍivhaipfi ya nomboro ifhio ine vhagudi vha nga guda nga u tamba mutambo uyu?

U paṭekanya (u ṭanganya) na u fhambanya (u ṭusa).

2. Ndi mbudziso dzifhio dze mutshimbidzi a dzi shumisa dze dza sumbedza u ṭanganya na u ṭusa?

Ndi zwithu zwa u vhalela ngazwo zwingana zwine nda vha nazwo kha itshi tshanda? Afha kha tshinwe? Musi ndi tshi zwi ṭanganyisa ndi vha na zwingana?

Vho kwashisa hani zwithu zwa u vhalela ngazwo zwavho?

Vha na zwingana kha tshitibo tshinwe na tshinwe? Musi vha tshi zwi ṭanganyisa vha vha na zwingana?

Arali vha bvisa zwi re kha itshi tshitibo vha ḍo vha vho sala na zwingana?

A si vhagudi vhoṭhe vhane vha ḍo sumbedza u pfesesa ḍivhaipfi ya nomboro iyi nga tshifhinga tshithihi (**mulayo wa maimo**).

Session 5: Planning for teaching

1 hour

Facilitator's notes

- ◆ Refer participants to Appendix A: Term 1 Weekly Content Summary (Weeks 6–9).
- ◆ Read the whole class, teacher-guided and workstation activities sections.
- ◆ Have participants work in groups to complete **Activity 14**.

Term 1 Content Summary (Weeks 6–9)

Appendix A: Term 1 Weekly Content Summary (Weeks 6–9) outlines the main Content Area Focus for each week, the topics to be covered, the new knowledge and practise focus for each week, and suggested activities for whole class, teacher-guided and independent group work for the week.



Activity 14

Look at Appendix A: Term 1 Weekly Content Summary (Weeks 6–9). Answer the questions.

Questions	Week 6	Week 7	Week 8	Week 9
What is the Content Area Focus for the week?	Patterns, Functions and Algebra	Space and Shape (Geometry)	Measurement	Numbers, Operations and Relationships
What are the key concepts that learners will be learning?	Patterns Number 3 Sequencing numbers	2-D shapes Figure ground Position Oral counting	Length/height Time	Estimation More and less Position Problem solving
What new knowledge is introduced?	Identifying patterns Copying patterns Number 3 Sequencing numbers 1–3	2-D triangles Figure ground Position: in front of, behind	Sequencing time: day and night; light and dark Length: height chart Position: on, under, on top Counting backwards 5–1	Estimation Numbers in familiar contexts One more, one less Position: up/down
What skills are being practised?	Oral counting 1–5 Counting objects 1–5 Reinforce number concepts 1 and 2	Circle, square Counting objects 1–5 Reinforce number concept 1–3 Sequence numbers 1–3 Symmetry Big, small	Oral counting 1–10 Sequencing numbers 1–3 Counting objects 1–5 Reinforce 1–3	Oral counting 1–10 Counting backwards from 5 Sequence numbers 1–3 Count objects 1–5 Number concept 1–3 Problem solving Circle, square, triangle

Dzulo la 5: U pulanela u funza

Awara 1

Notsi dza mutshimbidzi

- ◆ Kha vha rumele vhashelamulenzhe kha Thumetsshedzo ya A: Manweledzo a Magudiswa a Vhege nga Vhege a Kotara ya 1 (Vhege ya 6–9).
- ◆ Kha vha vhale zwipiḁa zwa nyito dza kilasi yoḁhe, dzo rangwaho phanḁa nga mugudisi na dza zwiḁitshini zwa u shumela.
- ◆ Kha vha ri vhashelamulenzhe vha shume nga zwigwada u fhedzisa **Nyito ya 14**.

Manweledze a Magudiswa a Kotara ya 1 (Vhege ya 6–9)

Thumetsshedzo ya A: Manweledzo a Magudiswa a Vhege nga Vhege a Kotara ya 1 (Vhege ya 6–9) a ri gavhela Sia ḁa Magudiswa ḁo Sedzwaho ḁa ndeme ḁa vhege inwe na inwe, thero dzine dza ḁo kwamiwa, ndivho ntswa na ndowedzo yo sedzwaho ya vhege inwe na inwe, na nyito dzo dzinginywaho dza kilasi yoḁhe, dzo rangwaho phanḁa nga mugudisi na mushumo wa zwigwada zwo ḁiimisaho nga zwoḁhe wa vhege.



Nyito ya 14

Kha vha sedze kha Thumetsshedzo ya A: Manweledzo a Magudiswa a Vhege nga Vhege a Kotara ya 1 (Vhege ya 6–9). Kha vha fhindule mbudziso.

Mbudziso	Vhege ya 6	Vhege ya 7	Vhege ya 8	Vhege ya 9
Ndi Sia ḁifhio ḁa Magudiswa ḁo Sedzeswaho ḁa vhege?	Phetheni, Fankisheni na ḁidzhebura	Tshikhala na Tshivhumbeo (Dzhometiri)	Muelo	Nomboro, Tswayo na Vhushaka
Ndi ḁivhaipfi ifhio ya ndeme ine vhagudi vha ḁo guda?	Phetheni Nomboro ya 3 U tevhekanya nomboro	Zwivhumbeo zwa 2-D Zwithu zwiḁuku nga zwiḁulwane Vhuimo U vhalela ha mutevhetsindo	Vhulapfu/vhunḁha Tshifhinga	Nyanganyelo Zwinzhi na zwiḁuku Vhuimo U tandulula thaidzo
Ndi ndivho ntswa ifhio ine ya khou ḁivhadzwa?	U topola phetheni U kopa phetheni Nomboro ya 3 U tevhekanya nomboro 1–3	Thofunderaru dza 2-D Zwithu zwiḁuku nga zwiḁulwane Vhuimo: phanḁa ha, murahu	U tevhekanya tshifhinga: masiari na vhusiku, tshedza na swiswi Vhulapfu: tshati ya vhulapfu Vhuimo: kha, fhasi, nḁha ha U vhalela u ya murahu 5–1	Nyanganyelo Nomboro kha nyimele dzo ḁowealeaho Zwinzhi nga tshithihi, zwiḁuku nga tshithihi Vhuimo: nḁha/fhasi
Ndi zwikili zwifhio zwine ha khou itwa ndowedzowe ngazwo?	U vhalela ha mutevhetsindo 1–5 U vhalela zwithu 1–5 U khwaḁhisedza ḁivhaipfi ya nomboro 1 na 2	Tshitendeledzi, tshikwea U vhalela zwithu 1–5 U khwaḁhisedza ḁivhaipfi ya nomboro 1–3 U tevhekanya nomboro 1–3 Ndinganyahuvhili Khulwane, ḁhukhu	U vhalela ha mutevhetsindo 1–10 U tevhekanya nomboro 1–3 U vhalela zwithu 1–5 U khwaḁhisedza 1–3	U vhalela ha mutevhetsindo 1–10 U vhalela u ya murahu u bva kha 5 U tevhekanya nomboro 1–3 U vhalela zwithu 1–5 ḁivhaipfi ya nomboro 1–3 U tandulula thaidzo Tshitendeledzi, tshikwea, thofunderaru

Activity Guide: Term 1: Weeks 6, 7, 8 and 9

Refer to Weeks 6, 7, 8 and 9 in *Activity Guide: Term 1*. Complete Activity 15 in your group.



Activity 15

Find Weeks 6, 7, 8 and 9 in *Activity Guide: Term 1*. Answer the questions.

1. What is the Content Area Focus for each week?
2. What topics and new knowledge are taught in each week?
3. How does the 'Practise' content link to the previous week?
4. What do you need to get ready before teaching each week?
5. Read the whole class activities and small group activities.
6. Discuss in your small group how you will plan and organise your class for these four weeks of teaching.



Remember that in Grade R assessment is informal and continuous. We need to observe learners throughout the day, inside and outside the classroom. The eye icon reminds us that we need to observe the learners while they are busy, and we need to listen carefully while they are talking to us and to their peers.

The Maths Programme is designed around the rotation of small groups during a week and the teacher pays special attention to one group a day, watching and listening as the learners complete specific tasks. This time gives the teacher the opportunity to carefully observe each learner and gather information on their progress.

Look at the shaded block at the end of the teacher-guided activity: '**Check that learners are able to**'. The teacher makes a mental note of each learner and once the learners have left for the day she writes down her observations in a dedicated observation book that has space for each learner's notes.

Closing activities

Facilitator's notes

- ◆ **Lessons learnt:** Ask participants to think about what they have learnt during the workshop and to complete **Activity 16** individually.
- ◆ **Take back to school task:** Read through this task. Ask if there is anything that is not clear and that requires more explanation.
- ◆ **Evaluation:** Hand out copies of the Workshop Evaluation Form and have participants complete the form.
- ◆ **Next workshop:** Give dates for the next workshop and close the workshop.

Nyendedzi ya Nyito: Kotara ya 1: Vhege ya 6, 7, 8 na 9

Kha vha sedze kha Vhege ya 6, 7, 8 na 9 ngomu ha *Nyendedzi ya Nyito: Kotara ya 1*. Kha vha fhedzise Nyito ya 15 tshigwadani tshavho.



Nyito ya 15

Kha vha wane Vhege ya 6, 7, 8 na 9 dza *Nyendedzi ya Nyito: Kotara ya 1*. Kha vha fhindule mbudziso.

1. Ndi Sia la Magudiswa lo Sedzwaho lifhio la vhege inwe na inwe?
2. Ndi thero dzifhio na ndivho ntswa zwi funzwaho vhege inwe na inwe?
3. Magudiswa a 'Ndowedzo' a tumana hani na a vhege yo fheleho?
4. Vha toda zwifhio u itela u lugisela phanda ha u funza vhege inwe na inwe?
5. Kha vha vhale nyito dza kilasi yothe na nyito dza zwigwada zwituku.
6. Kha vha haseledze zwigwadani zwavho zwituku uri vha do pulana na u dzudzanya hani kilasi yavho u itela idzi vhege nga dza u funza.



Vha humbule uri kha Gireidi ya T u linga a hu foma la nahone ndi u linga hu yaho phanda. Ri fanela u sedza vhagudi ri sa imi duvha lothe, ngomu na nda ha kilasirumu. Luswayo lwa ito lu ri humbudza uri ri fanela u sedza vhagudi musi vhe kati, nahone ri fanela u thetshesha nga vhuronwane musi vha tshi khou amba na ri ne na musi vha tshi amba na thangana dza murole dzavho.

Mbekanyamushumo ya Mbalo yo dizainiwa u mona na u tshintshana ha zwigwada zwituku vhukati ha vhege nahone mugudisi u sedzesa tshigwada tshithihi nga duvha, a tshi talela na u thetshesha zwenezwi vhagudi vha tshi fhedzisa mishumo yo tiwaho. Tshifhinga itshi tshi nea mugudisi tshikhala tsha u sedza nga vhuronwane mugudi muwe na muwe na u kuvhanganya mafhungo nga mvelaphanda yavho.

Kha vha lavhelese tshibu loko tsho swifhadzwaho magumoni a nyito yo rangwaho phanda nga mugudisi: '**Kha vha tole uri vhagudi vha a kona u**'. Mugudisi u ita notsi muhumbuloni wawe nga mugudi muwe na muwe nahone musi vhagudi vho no tuwa nga ili duvha, u nwala zwe a vhona ngomu kha bugu yo tetshelwaho u vhona ine ya vha na tshikhala tsha notsi dza mugudi muwe na muwe.

U vala nyito

Notsi dza mutshimbidzi

- ◆ **Ngudo dzo gudwaho:** Kha vha humbele vhashelamulenzhe u humbula nga zwe vha guda nga tshifhinga tsha wekishopo nahone vha fhedzise **Nyito ya 16** nga muthihimuthihi.
- ◆ **Mushumo wa u tuwa nawo tshikoloni:** Kha vha vhale mushumo uyu. Kha vha vhudzise arali hu na zwinwe zwi sa pfali zwine zwa toda u talutshedzwa.
- ◆ **U linga:** Kha vha phakhele khophi dza Fomo ya u Linga ya Wekishopo vha ri vhashelamulenzhe vha dadze idzo fomo.
- ◆ **Wekishopo i tevhelaho:** Kha vha nee ma duvha a wekishopo i tevhelaho vha vale wekishopo.



Activity 16

Lessons learnt: Think about what you learnt during the workshop and complete the table.

Things I am already doing that work well	New ideas that I would like to try



Take back to school task

1. Read the *Concept Guide* pages that were referred to during this workshop.
2. Use *Activity Guide: Term 1* to plan and implement Weeks 6–9 of the Maths Programme, including creating a maths area with a focus on the concept for each week.
3. Write an evaluation of what worked well and what did not work so well. Bring your plan and evaluation to the next workshop.
4. Bring examples or photographs of work that learners did.

Evaluation

Complete the Evaluation Form.



Nyito ya 16

Ngudo dzo gudwaho: Kha vha hambule nga zwe vha guda nga tshifhinga tsha wekishopo vha fhedzise thebulu.

Zwithu zwine ndi a zwi ita zwi ntshumelaho zwavhuḽi	Mihumbulo miswa ine nda tama u i lingedza



Mushumo wa u tuwa nawo tshikoloni

1. Kha vha vhale masiatari a *Nyendedzi ya Divhaipfi* e a buliwa nga tshifhinga tsha wekishopo.
2. Kha vha shumise *Nyendedzi ya Nyito: Kotara ya 1* u pulana na u thoma Vhege ya 6–9 dza Mbekanyamushumo ya Mbalo, hu tshi katelwa u sika fhethu ha mbalo ho sedzeswa kha divhaipfi ya vhege inwe na inwe.
3. Kha vha nwale muhumbulo wa u linga zwe zwa shuma zwavhuḽi na zwe zwa si shume zwavhuḽi. Kha vha de na pulane na muhumbulo wa u linga zwavho kha wekishopo i tevhekaho.
4. Kha vha dise tsumbo kana zwinepe zwa mushumo we vhagudi vha ita.

U linga

Kha vha dadze Fomo ya u Linga.

APPENDIX A: TERM 1 WEEKLY CONTENT SUMMARY (WEEKS 6-9)

Term 1: Activity Plan

Week 6				
CONTENT AREA: PATTERNS, FUNCTIONS and ALGEBRA				
TOPIC: Geometric patterns				
INTRODUCE NEW KNOWLEDGE: Identify patterns, copy patterns, complete patterns, introduce number 3, sequencing numbers 1-3. Making groups the same.				
PRACTISE: Oral counting 1-5, counting objects 1-5, number concept 1 and 2, circle, square, big and small, forwards and backwards				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Introduce number 3 number frieze story.	Play a movement game using symbols 1 and 2. Match and order dot picture/number cards 1-3. Simple pattern using counters. Discuss the pattern, use counters to copy the pattern. Problem solving 1-3. Making groups the same.	Activity 1	Frame a picture using pattern and draw three objects.
Day 2	Uses different sized and coloured circles to make simple patterns. Discuss patterns (repetition, differences, similarities).		Activity 2	Fingerprint counting.
Day 3	Body percussion patterns and problem solving.		Activity 3	Pattern cards using counters and sticks.
Day 4	Using big and small circles and objects to make simple patterns. Identify patterns in classroom.		Activity 4	Template with playdough – make 3.
Day 5	Problem solving 1-3. Making groups the same.			
Week 7				
CONTENT AREA: SPACE and SHAPE (GEOMETRY)				
TOPIC: Recognise, identify and name 2-D shapes: triangle; describe and compare 3-D objects and 2-D shapes: triangles; sort 2-D shapes; figure ground; symmetry				
INTRODUCE NEW KNOWLEDGE: Triangle; figure ground; position (in front and behind); oral counting 1-10				
PRACTISE: Oral counting 1-10, sequencing number 1-3, counting objects 1-5, reinforce number concept 1-3, what number before/after, circle, square, symmetry, big and small				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Introduce triangle and its properties.	Oral counting. Touch and count using number towers 1-3 (Unifix blocks). One-to-one correspondence. Properties of a triangle (2-D). Sort and compare 3-D objects and 2-D shapes into two groups, one of triangles and one not triangles.	Activity 1	Triangle activity – cut and decorate four triangles.
Day 2	Identify triangle shapes in <i>Poster Book</i> , problem solving.		Activity 2	Butterfly prints – symmetry.
Day 3	In front of and behind; midline crossing.		Activity 3	Shape person – use pre-cut shapes.
Day 4	Compare biggest and smallest. Bigger and smaller.		Activity 4	Shape puzzles – (minimum six pieces).
Day 5	Symmetry.			

THUMETSHEDZO YA A: MANWELEDZO A MAGUDISWA A VHEGE NGA VHEGE A KOTARA YA 1 (VHEGE YA 6-9)

Kotara ya 1: Pulane ya Nyito

Vhege ya 6				
SIA LA MAGUDISWA: PHETHENI, FANKISHENI NA ALIDZHEBURA				
THERO: Phetheni dza dzhometiri				
KHA VHA DIVHADZE NDIVHO NTSWA: U topola phetheni, u kopa phetheni, u fhedzisa phetheni, u divhadza nomboro ya 3, u tevhékanya nomboro 1-3. U ita uri zwigwada zwi fane.				
NDOWEDZO: U vhalela ha mutevhetsindo 1-5, u vhalela zwithu 1-5, divhaipfi ya nomboro 1 na 2, tshitendeledzi, tshikwea, khulu na thukhu, u ya phanda na u ya murahu				
Nyito dza kilasi yothe		Nyito yo rangwaho phanda nga mugudisi		Nyito dza tshithshini tsha u shumela
Duvha la 1	Kha vha divhadze tshitori tsha tshati ya luvhondoni ya ya mbalo ya nomboro ya 3.	Kha vha tambe mutambo wa musudzuluwo vha tshi shumisa zwi ga 1 na 2.		Nyito ya 1
Duvha la 2	U shumisa saizi dzo fhambanaho na zwitendeledzi zwa mivhala u ita phetheni dzi sa konqi. Kha vha haseledze phetheni (ndovhololo, u fhambana, u fana).	Kha vha fanyise na u tevhékanya tshifanyiso tsha tshithoma/magaraa a nomboro 1-3.		Nyito ya 2
Duvha la 3	Phetheni dza musudzuluwo wa muvhili na u tandulula thaidzo.	Kha vha ite phetheni dzi sa konqi vha tshi shumisa zwithu zwa u vhalela ngazwo. Kha vha haseledze nga phetheni, kha vha shumise zwithu zwa u vhalela ngazwo u kopa phetheni.		Nyito ya 3
Duvha la 4	U shumisa zwitendeledzi na zwithu zwi hulwane na zwituku u vumba phetheni dzi sa konqi. U topola phetheni ngomu kilasini.	Kha vha tandulule thaidzo 1-3. U ita zwigwada uri zwi fane.		Nyito ya 4
Duvha la 5	U tandulula thaidzo 1-3. U ita zwigwada uri zwi fane.			
Vhege ya 7				
SIA LA MAGUDISWA: TSHIKHALA NA TSHIVHUMBEO (DZHOMETIRI)				
THERO: U vhona, u topola na u bula zwivhumbeo zwa 2-D: thofunderaru; u talusa na u vhambedza zwithu zwa 3-D na zwivhumbeo zwa 2-D: thofunderaru; u vhekanya zwivhumbeo zwa 2-D; u nanguludza vhukati ha zwi nwe; ndinganyahuvhili				
U DIVHADZA NDIVHO NTSWA: Thofunderaru; u nanguludza vhukati ha zwi nwe; vhuimo (phanda ha na murahu ha); u vhalela ha mutevhetsindo 1-10				
NDOWEDZO: U vhalela ha mutevhetsindo 1-10, u tevhékanya nomboro 1-3, u vhalela zwithu 1-5, u khwahtisedza divhaipfi ya nomboro 1-3, ndi nomboro ifhio i daho phanda ha/murahu ha, tshitendeledzi, tshikwea, ndinganyahuvhili, khulu na thukhu				
Nyito dza kilasi yothe		Nyito yo rangwaho phanda nga mugudisi		Nyito dza tshithshini tsha u shumela
Duvha la 1	U divhadza thofunderaru na vhezani hayo.	U vhalela ha mutevhetsindo.		Nyito ya 1
Duvha la 2	U topola zwivhumbeo zwa thofunderaru kha <i>Bugu ya Dzipositara</i> , u tandulula thaidzo.	U kwama na u vhalela vha tshi shumisa dzithawara dza nomboro 1-3 (zwi buko zwa Yunifikisi).		Nyito ya 2
Duvha la 3	Phanda ha na murahu; u pfuka mutalo wa vhukati.	U livhanyisa tshithu nga tshithu.		Nyito ya 3
Duvha la 4	U vhambedza tshihulusesa na tshithukusesa. Tshihulwanesa na tshithukusa	Vhezani ha thofunderaru (2-D).		Nyito ya 4
Duvha la 5	Ndinganyahuvhili.	U vhekanya na u vhambedza zwithu zwa 3-D na zwivhumbeo zwa 2-D nga zwigwada zwivhili, tshithihi tsha thofunderaru na tshithihi tshi si thofunderaru.		

Week 8				
CONTENT AREA: MEASUREMENT				
TOPIC: Time: day and night; Length: compare and order objects to describe height				
INTRODUCE NEW KNOWLEDGE: Sequencing day and night, light and dark; height chart; position (on, under, on top, below, next to, between); counting backwards 5-1				
PRACTISE: Oral counting 1-10, counting backwards from 5, sequencing numbers 1-3, counting objects 1-5, reinforce number concept 1-3, patterns				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Day and night; light and dark.	Routine introduction.	Activity 1	Day and night activity – cutting out pictures.
Day 2	Introduce height chart; position vocabulary.	Day and night; dark and light activities:	Activity 2	Draw from shortest to tallest.
Day 3	Height chart. Sorting day and night everyday objects.	- blanket - activity cards.	Activity 3	Paste shapes from biggest to smallest.
Day 4	Poster – Day and night. Positional vocabulary: on, under, below and on top.	Day and night story and sequencing. Position (on, under, below, on top, next to, between).	Activity 4	Day/night matching cards.
Day 5	Compare heights. Movement-positions.	Pattern (animals). Height chart.		
Week 9				
CONTENT AREA: NUMBERS, OPERATIONS and RELATIONSHIPS				
TOPIC: Describe, order and compare numbers; estimation; problem-solving techniques; using numbers in familiar contexts; position				
INTRODUCE NEW KNOWLEDGE: Estimation, numbers in familiar contexts, one more, one less, position (up/down)				
PRACTISE: Oral counting 1-10, counting backwards from 5, sequencing numbers 1-3, counting objects 1-5, number concept 1-3, problem-solving techniques. Circle, square and triangle.				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Describe and order numbers 1-3.	Oral counting.	Activity 1	Playdough making 1-3 objects.
Day 2	Matching number representations 1-3. Estimation.	One-to-one correspondence. Describe and order numbers 1-3.	Activity 2	Draw pictures 1-3 in shapes.
Day 3	Counting – one more/one less. Position: up and down.	Estimation. Shake and break.	Activity 3	Pasting. Picture with three stars, two trees, one moon.
Day 4	Problem solving (more/less). Poster 1.		Activity 4	Puzzles (minimum six piece).
Day 5	Using number in familiar context: How old are you?			

Vhege ya 8			
SIA LA MAGUDISWA: MUELO			
THERO: Tshifhinga: masiari na vhusiku; Vhulapfu: u vhambedza na u tevhekanya zwithu u itela u talusa vhulapfu			
U DIVHADZA NDIVHO NTSWA: U tevhekanya masiari na vhusiku, tshedza na swiswi; tshati ya vhulapfu; vhuimo (kha, fhasi, ntha ha, fhasi ha, tsini na, vhukati); u vhalela u ya murahu 5-1			
NDOWEDZO: U vhalela ha mutevhetsindo 1-10, u vhalela u ya murahu u bva kha 5, u tevhekanya nomboro 1-3, u vhalela zwithu 1-5, u khwaḥisedza divhaipfi ya nomboro 1-3, phetheni			
Nyito dza kilasi yothe		Nyito yo rangwaho phanda nga mugudisi	Nyito dza tshitiḥshini tsha u shumela
Duvha la 1	Masiari na vhusiku, tshedza na swiswi.	U divhadza ndowelo. Vhusiku na masiari; nyito dza swiswini na dza tshedzani: - nguvho - magaraḥa a nyito. Tshitori tsha masiari na vhusiku na u tevhekanya. Vhuimo (kha, fhasi, fhasi ha, ntha ha, tsini na, vhukati). Phetheni (phukha). Tshati ya vhulapfu.	Nyito ya 1 Nyito ya 2 Nyito ya 3 Nyito ya 4
Duvha la 2	U divhadza tshati ya vhulapfu; vhuimo divhaipfi.		
Duvha la 3	Tshati ya vhulapfu. U vhekanya zwithu zwa duvha linwe na linwe zwa masiari na vhusiku.		
Duvha la 4	Phositara – Masiari na vhusiku. Divhaipfi ya vhuimo: kha, fhasi, fhasi ha na ntha ha.		
Duvha la 5	U vhambedza vhulapfu. Musudzuluwo-vhuimo.		
Vhege ya 9			
SIA LA MAGUDISWA: NOMBORO, TSWAYO NA VHUSHAKA			
THERO: U talusa, u tevhekanya na u vhambedza nomboro; nyanganyelo; thekiniki dza u tandulula thaidzo; u shumisa nomboro kha nyimele dzo dowealeho; vhuimo			
U DIVHADZA NDIVHO NTSWA: Nyanganyelo, nomboro kha nyimele dzo dowealeho, zwinzhi nga tshithihi, zwiḥuku nga tshithihi, vhuimo (ntha/fhasi).			
NDOWEDZO: U vhalela ha mutevhetsindo 1-10, u vhalela u ya murahu u bva kha 5, u tevhekanya nomboro 1-3, u vhalela zwithu 1-5, divhaipfi ya nomboro 1-3, thekiniki dza u tandulula thaidzo. Tshitendeledi, tshikwea na thofunderaru.			
Nyito dza kilasi yothe		Nyito yo rangwaho phanda nga mugudisi	Nyito dza tshitiḥshini tsha u shumela
Duvha la 1	U talusa na u tevhekanya nomboro 1-3.	U vhalela ha mutevhetsindo. U livhanyisa tshithu nga tshithu. U talusa na u tevhekanya nomboro 1-3. Nyanganyelo. U dzinginya na u kwasha.	Nyito ya 1 Nyito ya 2 Nyito ya 3 Nyito ya 4
Duvha la 2	U fanyisa u imela nomboro 1-3. Nyanganyelo.		
Duvha la 3	U vhalela –zwinzhi nga tshithihi/ zwiḥuku nga tshithihi. Vhuimo: ntha na fhasi.		
Duvha la 4	U tandulula thaidzo (zwinzhi/zwiḥuku). Phositara ya 1.		
Duvha la 5	U shumisa nomboro kha nyimele dzo dowealeho: Ni na minwaha mingana?		

Workshop 3 Evaluation Form

1. Did the workshop meet your expectations?

2. What did you learn in this workshop that helped you the most?

3. Was there anything that you did not like or had difficulty understanding?

4. How will you apply what you have learnt in your Grade R classroom?

5. Do you have any suggestions for improving further workshops?

Fomo ya u Linga ya Wekishopo ya 3

1. Wekishopo yo swikelela ndavhelelo dzavho?

2. Ndi zwifhio zwe vha guda kha iyi wekishopo zwe zwa vha thusesa?

3. Ho vhuya ha vha na zwiṅwe zwe vha si zwi takalele kana zwe vha konḑelwa u zwi pfesesa?

4. Vha ḑo shumisa hani zwe vha guda ngomu kiḷasirumuni yavho ya Gireidi ya T?

5. Vha na zwine vha tama u dzinginya u itela u khwinisa wekishopo dzi tevhelaho?
