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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 7 • Workshop 7**

**Bugu ya Mushumo ya Vhashelamulenzhe • Participant's Workbook**

The Grade R Mathematics and Language Improvement Project is an initiative of the **Gauteng Department of Education** and its key partner, the **Gauteng Education Development Trust**.

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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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- The R-Maths writing team: SDU staff and consultants.



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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 seventh 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 continue assisting teachers to implement the Maths Programme in their classrooms. Participants will have the opportunity to reflect on their observations. They will explore how the guiding principles of teaching maths in Grade R should inform their planning, teaching and assessment. They will also consider learner progress, and individual developmental and learning needs. The workshop explores the content for Term 3 Weeks 1–3 and its classroom implementation.

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 2 Weeks 8–10
- ◆ To apply the Maths Programme principles in weekly planning
- ◆ To explore play-based strategies to support teaching maths in Grade R
- ◆ To identify potential barriers to learning
- ◆ To introduce perceptual and motor development
- ◆ To engage with the Maths Programme content of Term 3 Weeks 1–3 (Patterns, Functions and Algebra; Numbers, Operations and Relationships)

## Workshop content

- |   |              |
|---|--------------|
| ◆ Opening and reflection                      | (30 minutes) |
| ◆ Session 1: Setting the scene                | (30 minutes) |
| ◆ Session 2: Play-based teaching and learning | (1 hour)     |
- TEA
- |   |              |
|---|--------------|
| ◆ Session 3: The Grade R maths learning environment | (30 minutes) |
| ◆ Session 4: Factors affecting maths learning       | (30 minutes) |
| ◆ Session 5: Perceptual and motor development       | (1 hour)     |
- LUNCH

# **Manweledzo**

## **Ndivho**

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

Ndivho ya wekishopo iyi ndi u thusa vhagudisi u thoma Mbekanyamushumo ya Mbalo ngomu kiłasirumuni dzavho. Vhashelamulenzhe vha ḥo vha na tshikhala tsha u amba nga zwe vha vhona. Vha ḥo tandula uri milayo ya nyendedzi ya u funza mbalo kha Gireidi ya T̄ i thusa hani vhupulani, u funza na u linga havho. Vha ḥo dovha hafhu vha sedza mvelaphanda ya vhagudi, na mveledziso ya mugudi nga ēthe na ḥodea dza u guda. Wekishopo i tandula magudiswa a Kotara ya 3 Vhege ya 1–3 na u zwi thoma ngomu kilasini.

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

## **Mvelelo dza u guda**

- ◆ U humbula nga u thomiwa ha Kotara ya 2 Vhege ya 8–10
- ◆ U shumisa milayo ya Mbekanyamushumo ya Mbalo kha u pulana ha vhege nga vhege
- ◆ U tandula maano o ḫisendekaho nga mitambo u itela u tikedza u funza mbalo kha Gireidi ya T̄
- ◆ U topola khonadzeo ya zwikhukhulisi zwa u guda
- ◆ U ḫivhadza zwikili zwa zwipfi na misipha na marambo
- ◆ U shuma na magudiswa a Mbekanyamushumo ya Mbalo ya Kotara ya 3 Vhege ya 1–3 (Phetheni, Fankisheni na Alidzheburu; Nomboro, Tswayo na Vhushaka)

## **Magudiswa a wekishopo**

- ◆ Mvulatswinga na mihumbulo (Minetse ya 30)
- ◆ Dzulo la 1: U dzudzanya vhupo (Minetse ya 30)
- ◆ Dzulo la 2: U guda na u funza ho ḫisendekaho nga mitambo (Awara 1)

TIE

- ◆ Dzulo la 3: Vhupo ha u guda mbalo dza Gireidi ya T̄ (Minetse ya 30)
- ◆ Dzulo la 4: Zwithu zwi khakhisaho u guda mbalo (Minetse ya 30)
- ◆ Dzulo la 5: Zwikili zwa zwipfi na misipha na marambo (Awara 1)

TSHISWITULO

- ◆ Session 6: Planning for teaching (1½ hours)
- ◆ Closing activities (30 minutes)

- ◆ Dzulo la 6: U pulanela u funza
- ◆ Nyito dza u vala

(Awara 1½)  
(Minetse ya 30)

# Opening and reflection

30 minutes

## The post box

Some of your issues and questions may not be addressed during this workshop. Write down any concerns or questions you may have during the workshop and post them in the post box. Your facilitator will make sure that these are addressed.

Here is the *Take back to school task* from Workshop 6.



### Take back to school task (Workshop 6)

1. Use *Activity Guide: Term 2* to plan and implement Weeks 8–10 of the Maths Programme.
2. Write an evaluation of what worked well, what did not work so well and what you could do differently to improve teaching and learning.
3. Bring the evaluation to the next workshop.

It is important for you to reflect on your teaching practices as this will help you to better understand why things happened as they did. You can find ways to do things differently and improve your teaching.

There will be many opportunities during these workshops to reflect on your successes and challenges with implementing the Maths Programme. We would like you to start the reflective process by spending a few minutes sharing your experiences of implementing Term 2 Weeks 8–10 based on the *Take back to school task*.



### Activity 1

1. In your group, share your experiences of implementing Term 2 Weeks 8–10.

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2. Share your successes and challenges with the large group.

# Mvulatswinga na mihumbulo

Minetse ya 30

## Bogisi ḥa poswo

Dziṁwe dza thaidzo na mbudziso zwavho a zwi nga ḫo tandululwa nga tshifhinga tsha wekishopo ino. Kha vha ḥwale mbilaelo kana mbudziso dziṁwe na dziṁwe dzine vha vha nadzo nga tshifhinga tsha wekishopo vha dici pange ngomu ha bogisi ḥa poswo.

Mutshumbidzi wavho u ḫo vhona uri izwi zwi a tandululwa.

*Mushumo wa u ḥuwa nawo tshikoloni* ngoyu u bva kha Wekishipo ya 6.



### **Mushumo wa u ḥuwa nawo tshikoloni (Wekishipo ya 6)**

1. Kha vha shumise *Nyendedzi ya Nyito: Kotara ya 2* u pulana na u thoma Vhege ya 8–10 dza Mbekanyamushumo ya Mbalo.
2. Kha vha ḥwale zwe vha ḥola zwe zwa shuma zwavhuđi, zwe zwa si shume zwavhuđi na zwine vha nga ita nga iñwe ndila yo fhambanaho u itela u khwinisa u funza na u guda.
3. Kha vha ḫe na zwe vha ela kha wekishopo i tevhelaho.

Ndi zwa ndeme u amba nga ndowelo dza u funza dzavho vhunga izwi zwi tshi ḫo vha thusa u pfesesa khwine uri ndi ngani zwithu two itea nga ndila ye zwa itea ngayo. Vha nga wana ndila dza u ita zwithu nga iñwe ndila na u khwinisa u funza havho.

Hu ḫo vha na zwikhala zwinzhi nga zwifhinga zwa dziwekishopo idzi zwa u amba nga zwe vha shuma zwavhuđi khazwo na dzikhaedu nga u thoma Mbekanyamushumo ya Mbalo. Ri tama vha tshi thoma maitele a u amba nga u fhedza minetse i si gathi vha tshi ri vhudza nga tshenzhemo yavho ya u thoma Kotara ya 2 Vhege ya 8–10 two ḫisendeka kha *Mushumo wa u ḥuwa nawo tshikoloni*.



### **Nyito ya 1**

1. Zwigadani zwavho, kha vha ambe nga tshenzhemo dzavho dza u thoma Kotara ya 2 Vhege ya 8–10.

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2. Kha vha ambe zwe vha shuma zwavhuđi khazwo na dzikhaedu na tshigwada tshihulwane.

# Session 1: Setting the scene

30 minutes

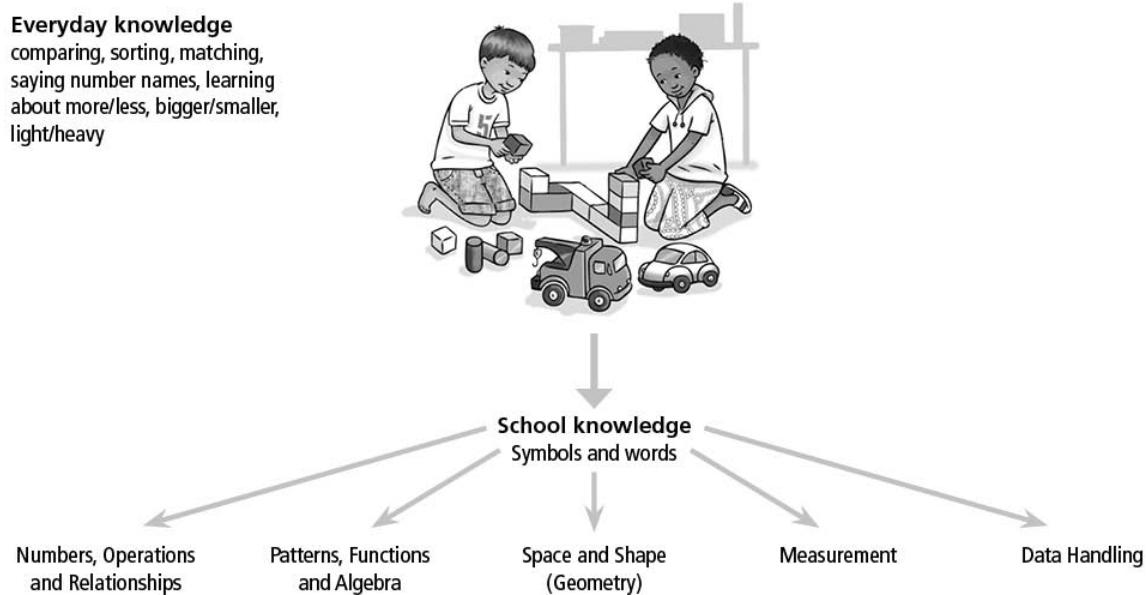
## Maths in the school context

It is important to provide maths' experiences for Grade R learners that relate to their everyday lives.

Read the **context principle** on pages 16–25 of the *Concept Guide*.

**The context principle:** Learning takes places daily in classroom and home situations (contexts) that are meaningful to learners.

Learners come to school with an understanding of the world around them that is based on their own experiences. This is called everyday knowledge. At school, children build on this. We call this school knowledge. Let's look at the diagram below and think more about how learners build on their everyday knowledge.



# Dzulo la 1: U dzudzanya vhupo

Minetse ya 30

## Mbalo kha nyimele ya tshikoloni

Ndi zwa ndeme u qetshedza tshenzhemo ya mbalo kha vhagudi vha Gireidi ya T iné ya vha na vhushaka na vhutshilo havho ha duvha linwe na linwe.

Kha vha vhale **mulayo wa magudiswa** kha masiaṭari a 16–25 a *Nyendedzi ya Divhaipfi*.

**Mulayo wa magudiswa:** U guda hu bvelela duvha linwe na linwe kha nyimele dza ngomu hayani dzine dza vha dza ndeme kha vhagudi.

Vhagudi vha da tshikoloni vha tshi pfesesa lifhasi lavho line lo disendeka nga tshenzhemo yavho. Izwi zwi vhidzwa u pfi ndivho ya duvha linwe na linwe. Tshikoloni, vhana vha fhaṭa khayo. Ri i vhidza uri ndi ndivho ya tshikolo. Kha ri lavhelese kha dayagiramu i re afho fhasi ri humbule zwinzhi nga uri vhagudi vha fhaṭisa hani ndivho ya duvha linwe na linwe yavho.

**Ndivho ya duvha linwe na linwe**  
u vhambedza, u vhekanya, u fanyisa,  
u bula madzina a nomboro, u guda  
nga ha zwinzhi/zvitukku, tshihulwanesa/  
tshitukusa, leluwa/lemela



**Ndivho ya tshikolo**  
Zwiga na maipfi

Nomboro, Tswayo  
na Vhushaka

Phetheni, Fankisheni na  
Alidzhebura

Tshikhala na Tshivhumbeo  
(Dzhometiri)

Muelo

U shuma na Data



## Activity 2

1. What everyday knowledge have the learners in your class demonstrated?

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2. How have you built on this knowledge in your daily maths programme at school?

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## Nyito ya 2

1. Ndi ndivho ya ḋuvha ḥinwe na ḥinwe ifho ye vhagudi vha kilasini yavho vha i sumbedza?

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2. Vho fhatisa hani kha ndivho iyo kha mbekanyamushumo ya mbalo ya ḋuvha nga ḋuvha tshikoloni?

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## Session 2: Play-based teaching and learning 1 hour

The Curriculum and Assessment Policy Statement (CAPS): Grade R Mathematics, encourages a play-based, active approach to teaching and learning. This is in line with current research and understanding about how children learn. The Maths Programme supports the use of play to inform lesson planning and assessment.

**The play principle:** This principle promotes the idea that children learn best in free-play and guided-play activities and encourages indoor and outdoor play-based activities.

Read the **play principle** on pages 28–33 of the *Concept Guide*.



Watch the video of a group of children engaged in different types of play.

Identify the five types of play explained on page 28 of the *Concept Guide*.

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### The play continuum

A continuum is a series of things that are slightly different from one another that lie somewhere between two different points.

Play inside and outside the classroom can take different forms, ranging from free play initiated and directed by the learners, to playful instruction that is initiated and directed by the teacher.

## Dzulo ḥa 2: U guda na u funza ho disendekaho nga mitambo

Awara 1

Tshitatamennde tsha Pholisi tsha Kharikhulamu na u Linga (TSHIPHOKHALI): Mbalo dza Gireidi ya ṭ, dzi ṭuṭuwedza u tamba ho disendekaho na maele a mafulufulu kha u funza na u guda. Izwi zwi tshimbilelana na ṭhodisiso dza zwino na u pfectesa uri vhana vha guda hani. Mbekanyamushumo ya Mbalo i tikedza tshumiso ya u tamba u thusa u pulanelu ngudo na u linga.

**Mulayo wa u tamba:** Mulayo uyu u ṭuṭuwedza muhumbulo wa uri vhana vha guda zwavhuđi nga u tamba nga u funa na nyito dzo rangwaho phanđa na uri u ṭuṭuwedza nyito dzo disendekaho kha u tamba ha ngomu na ha nnđa.

Kha vha vhale **mulayo wa u tamba** kha masiařari a 28–33 a *Nyendedzi ya Divhaipfi*.



### Vidiyo ya 1

Kha vha ṭalele vidiyo ya tshigwada tsha vhana vha no khou tamba tshakha dza mitambo yo fhambanaho.

Kha vha topole tshakha ṭhanu dza u tamba dzo ṭalutshedzwaho kha siařari ḥa 29 ḥa *Nyendedzi ya Divhaipfi*.

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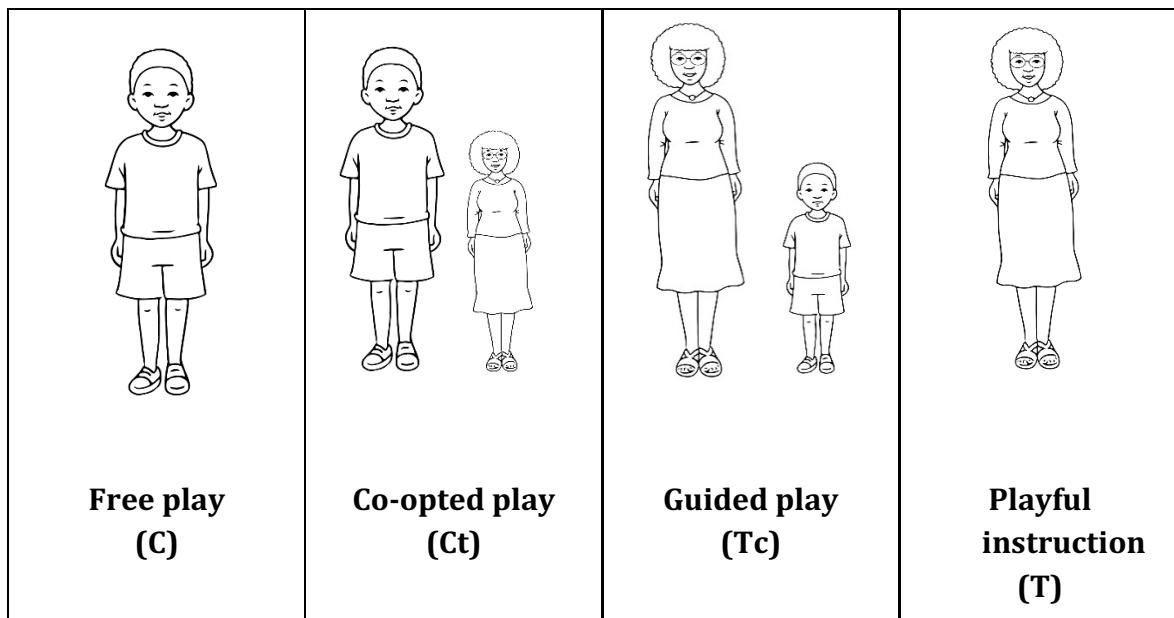
### Thevhekanyo dza u tamba

Thevhekanyo dza u tamba ndi mutevhe wa zwithu zwine two fhambana zwitku zwine zwa vha hone huňwe fhethu vhukati ha fhethu huvhili ho fhambanaho.

U tamba ngomu na nnđa ha kiļasirumu zwi nga vha nga ndila dzo fhambanaho, u bva kha u tamba nga u funa ho thomiwaho na u langwa nga vhagudi, u ya kha ndaela dza mitambo dzine dzi thomiwa na u langwa nga mugudisi.

A play-based approach to teaching and learning recognises that sometimes children learn best from free-play activities initiated and directed by the child without adult involvement. At other times children learn best from guided-play activities that are directed by the teacher for the whole class or in small groups.

The forms of play described below are closely related. Although they are illustrated as separate, very often one form of play changes into another form as the teacher and the children take on different roles.



### **Free play (C)**

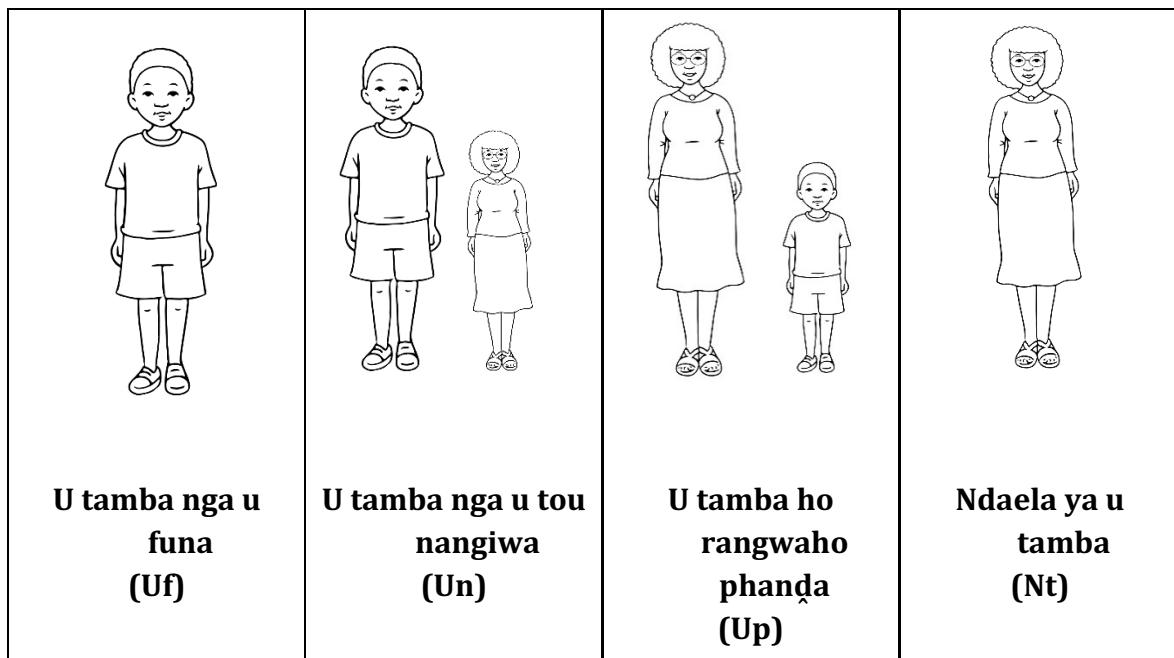
The child initiates and directs all of the play. The child decides and organises when, where, what and how to play, and who is playing. The teacher does not intervene or engage with the playing children. The teacher follows the direction set by the child.

### **Co-opted play (Ct)**

The child initiates and directs most of the play. The teacher occasionally intervenes in the children's play in order to extend the children's learning, e.g., by asking a question, making a suggestion or adding extra apparatus.

Maele o disendekaho kha mitambo u itela u funza na u guda a tenda uri tshiñwe tshifhinga vhana vha guda khwine nga nyito dza u tamba nga u funa dzine dzi thomiwa na u langwa nga vhana hu si na u dzenela ha vhaaluwa. Nga zwiñwe zwifhinga vhana vha guda khwine u bva kha nyito dza mitambo dzo rangwaho phanđa dzine dza langwa nga mugudisi a tshi itela kilasi yothe kana zwigwada zwiñuku.

Zwivhumbeo zwa mitambo zwe ɿaluswaho afha fhasi zwi na vhushaka. Naho zwe sumbedzwa zwe fhandekanywa, kanzhi tshivhumbeo tshithihi tsha u tamba tshi a shanduka tsha vha tshiñwe zwenezwi mugudisi na vhana vha tshi khou shela mulenzhe nga ndila dzo fhambanaho.



### **U tamba nga u funa (Uf)**

Ñwana u thoma na langa mutambo wothe. Ñwana u dzhia tsheo na u dzudzanya uri ndi lini, ngafhi, mini na uri hu tambiwa hani, na uri ndi nnyi ane a khou tamba. Mugudisi ha dzeneli kana u amba na vhana vhane vha khou tamba. Mugudisi u tevhela ndaela yo vhewaho nga ñwana.

### **U tamba nga u tou nangiwa (Un)**

Ñwana u thoma na u langa vhunzhi ha mutambo. Mugudisi u tou dzenela fhaļa na fhaļa kha mutambo wa vhana u itela u engedza u guda ha vhana, sa tsumbo: nga u vhudzisa mbudziso, u dzinginya kana u engedza zwiñwe zwishumiswa.

### **Guided play (Tc)**

The teacher initiates and directs most of the children's play by setting out specific activities, e.g., creative art, small group activities or an obstacle course. The children have some control because they can decide which activity they want to do or how they would like to do the activity.

### **Playful instruction (T)**

The teacher initiates and directs all the play. The teacher plans the activity with a particular teaching/learning purpose in mind, e.g., a story that teaches listening skills, matching counters to number symbols, or sorting shapes. The child follows the direction set by the teacher.



### **Activity 3**

In your group, discuss the following questions related to play.

1. How does *free play* provide opportunities to extend learning?

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2. According to the play continuum, what is the difference between *guided play* and *playful instruction*?

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3. Look at the teacher-guided activity of pages 32–35 of *Activity Guide: Term 3*.

- ◆ Discuss how the five activities are intentionally planned around a particular curriculum skill/concept.

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### **U tamba ho rangwaho phanda (Up)**

Mugudisi u thoma na u langa vhunzhi ha mutambo nga u dzudzanya nyito tiwa, sa tsumbo: vhutsila ha vhukoni, nyito dza tshigwada tshiṭuku kana tshikundisi tshi fanelaho u kundwa. Vhana vha na ndango ngauri vha nga dzhia tsheo ya uri ndi nyito ifhio ine vha khou ḥoda u ita kana vha khou ḥoda u itisa hani nyito.

### **Ndaela ya u tamba (Nt)**

Mugudisi u thoma na u langa mutambo woṭhe. Mugudisi u pulana nyito o sedza u funza ho tiwaho/kana ndivho ya u guda muhumbuloni, sa tsumbo: tshiṭori tshine tsha funza zwikili zwa u thetshelesa, u fanyisa zwithu zwa u vhalela ngazwo na zwiga zwa nomboro, kana u vhekanya zwivhumbeo. Nwana u tevhela ndaela dzo vhewaho nga mugudisi.



### **Nyito ya 3**

Zwigwadani zwavho, kha vha haseledze mbudziso dzi tevhelaho dzi re na vhushaka na u tamba.

1. *U tamba nga u funa hu ḥea hani zwikhala zwa u engedza u guda?*

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2. *U ya nga thevhekanyo ya u tamba, ndi phambano ifhio i re vhukati ha u tamba ho rangwaho phanda na ndaela ya u tamba?*

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3. Kha vha lavhelese nyito yo rangwaho phanda nga mugudisi i re kha masiatari a 32–35 a *Nyendedzi ya Nyito: Kotara ya 3*.

- ◆ Kha vha haseledze uri nyito ḥthanu dzo pulanwa hani ho sedzwa tshikili tsha kharikhuḍamu/divhaipfi nkene.

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- ◆ How does the teacher use questions to prompt the learners ‘playfully’ during the activities?

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- ◆ How does this assist the teacher with her observation for informal assessment?

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- ◆ Mugudisi u shumisa hani mbudziso u tutula vhagudi ‘nga u tou tamba’ nga tshifhinga tsha nyito?

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- ◆ Izwi zwi thusa hani mugudisi kha zwe a lavhelesa u itela u linga hu si ha fomala?

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# Session 3: The Grade R maths learning environment

30 minutes

The Grade R maths learning environment should support learning through play. A well-planned teaching and learning programme should include a balance of all the different types of play activities.



## Activity 4

Look at the photograph of a Grade R classroom.



1. Think about what you know about how young children learn. Discuss whether the learning environment in the photograph is appropriate for Grade R.

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2. How could you improve this learning environment?

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# Dzulo ḥa 3: Vhupo ha u guda mbalo dza Gireidi ya Ṭ

Minetse ya 30

Vhupo ha u guda mbalo dza Gireidi ya Ṭ vhu fanela u tikedza u guda nga u tamba. Mbekanyamushumo ya u guda na u funza yo pulanwaho zwavhuđi i fanela u katela ndinganyo ya tshakha dzo fhambanaho dza nyito dza u tamba.



## Nyito ya 4

Kha vha lavhelese tshifanyiso tsha kīlasirumu ya Gireidi ya Ṭ.



1. Kha vha humbule nga zwine vha ḫivha nga uri vhana vhaṭuku vha gudisa hani. Kha vha haseledze arali vhupo ha u guda tshifanyisoni ho tea Giredi ya Ṭ.

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2. Vha nga khwinisa hani vhupo uhu ha u guda?

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3. Evaluate your own learning environment.

Tick ✓

Is the classroom inviting?	
Is the space organised so that learners can gather in large groups for whole class sessions, and also work in teacher-guided and other small group activities?	
Are there free choice activity areas where learners can choose their own activities, explore, investigate and solve problems?	
Are learners able to be active in their own learning, and explore things around them through their five senses?	
Are learners able to work together, and talk, listen and learn from one another?	
Are the materials placed so that learners can help themselves?	
Are learners able to move around freely from one activity to another?	
Are the daily programme, weather chart, posters and learners' work displayed at learners' eye level?	
How have you organised the maths environment? Do you have: <input type="checkbox"/> a maths area <input type="checkbox"/> number friezes <input type="checkbox"/> the <i>Poster Book</i> displayed <input type="checkbox"/> a <i>Resource Kit</i> <input type="checkbox"/> tubs for each learner <input type="checkbox"/> the learners' work displayed	
How have you integrated maths in the free choice activities? Do you have: <input type="checkbox"/> construction toys <input type="checkbox"/> books <input type="checkbox"/> fantasy play <input type="checkbox"/> puzzles <input type="checkbox"/> art <input type="checkbox"/> sand and water <input type="checkbox"/> outdoor play <input type="checkbox"/> educational games <input type="checkbox"/> a collection of recycled materials, e.g. plastic tubs and lids Other: _____	
What challenges do you face in setting up your Grade R environment?	
Would you make any changes?	

3. Kha vha ele vhupo havho ha u guda.

Kha vha swaye ✓

Kilasirumu yavho i a kunga?	
Tshikhala tsho dzudzanywa u itela uri vhagudi vha kone u kuvhangana nga zwigwada zwiħulwane u itela vhudzulo ha kiłasi yoħe, na u shuma hafhu kha nyito dzo rangwaho phanda nga mugudisi na dziñwe nyito dza zwigwada zwitku?	
Hu na fhethu ha nyito dza u dinangela hune vhagudi vha nga nanga nyito dzavho vhone vhañe, u tandula, u sengulusa na u tandulula dzithaidzo?	
Vhagudi vha a kona u vha na mafulufulu kha u guda havho, na u tandula zwithu u mona navho nga zwipfi zwavho zwitanu?	
Vhagudi vha a kona u shuma vhoħe, na u amba, u thetšelesa na u guda kha vhañwe ngavho?	
Matheriala o vħewa u itela uri vhagudi vha kone u dithusa vhone vhañe?	
Vhagudi vha a kona u tshimbila vho vhofholowa u bva kha nyito nthihi u ya kha iñwe?	
Hone mbekanyamushumo ya duvha ljiñwe na ljiñwe, tshati ya mupo, dziphositara na mishumo ya vhagudi yo ħaniwa kha levele ya mañu a vhagudi?	
Vho dzudzanyisa hani vhupo ha mbalo? Vha na:	
<input type="checkbox"/> vhupo ha mbalo <input type="checkbox"/> tshati ya luvhondoni ya mbalo <input type="checkbox"/> <i>Bugu ya Dziphositara yo ħaniwaho</i> <input type="checkbox"/> <i>Khithi ya Zwishumiswa</i> <input type="checkbox"/> zwidongo zwa mugudi muñwe na muñwe <input type="checkbox"/> mishumo ya vhagudi yo ħaniwaho	
Vho ħanganisa hani mbalo kha nyito dza u dinangela? Vha na:	
<input type="checkbox"/> zwitambiswa zwa u fhaña <input type="checkbox"/> bugu <input type="checkbox"/> mitambo khumbulelwa <input type="checkbox"/> dziphazili <input type="checkbox"/> vhutsila <input type="checkbox"/> muṭavha na mañi <input type="checkbox"/> mitambo ya nnđa <input type="checkbox"/> mitambo ya pfunzo <input type="checkbox"/> khuvhanganyo ya matheriala o bikululwaho, sa tsumbo: zwifaredzi zwa pułasiżiki na zwitibo	
Zwiñwe: _____	
Ndi khaedu dzifhio dzine vha ħanganana nadzo musi vha tshi dzudzanya vhupo ha Gireidi ya T?	
Vha nga ita tshanduko?	

# Session 4: Factors affecting maths learning

30 minutes

The **inclusivity principle**: All learners have a right to feel special, participate and be included in classroom activities and discussions. This includes children who have disabilities, behavioural issues or other barriers to learning.

## Barriers to learning maths

Many learners experience barriers to learning maths that are the result of a range of factors. Let's take a closer look at some of the barriers to learning that learners may experience. Look at Figure 29 on page 58 of the *Concept Guide*.



### Activity 5

Make a list of the kinds of barriers that learners in your class are experiencing that impact on their learning.

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With careful planning and in collaboration with families and other support people, learners with special developmental needs can participate fully in the Grade R programme.



### Activity 6

In your group, share your experiences about learners who are experiencing barriers to learning maths. Choose a learner who is not successfully coping with classroom tasks and activities. Attempt to answer these questions.

1. What is the barrier to learning?

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# Dzulo ḥa 4: Zwithu zwi khakhisaho u guda mbalo

Minetse ya 30

**Mulayo wa vhukateli:** Vhagudi vhoṭhe vha na pfanelo ya u pfa vho khethea, u shela mulenzhe na u katelwa kha nyito dza kiłasini na khaseledzo. Izwi zwi katela vhana vha re na vhuholefhali, vhuđifari vhu si havhudı kana zwiñwe zwithithisi zwa u guda.

## Zwithithisi zwa u guda mbalo

Vhagudi vhanzhi vha na zwithithisi zwa u guda mbalo zwine zwa vhangwa nga zwithu zwinzhi two fhambanaho. Kha ri sedze zwiñwe zwa zwithithisi zwa u guda zwine vhagudi vha vha nazwo. Kha vha lavhelese Tshifanyiso tsha 29 kha siatari ḥa 59 ḥa Nyendedzi ya *Divhaipfi*.



### Nyito ya 5

Kha vha ite mutevhe wa tshakha dza zwithithisi zwine vhagudi vha kiłasini yavho vha vha nazwo zwine zwa vha kundisa u guda.

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Nga u pulana nga vhuronwane na nga tshumisano na miṭa na vhañwe vhathu vha thusaho, vhagudi vha re na ḥodea dza mveledziso dzo khetheaho vha nga shela mulenzhe nga vhuđalo kha mbekanyamushumo dza Gireidi ya ḫ.



### Nyito ya 6

Zwigwadani zwavho, kha vha ambe nga tshenzhemo yavho ya vhagudi vhane vha vha na zwithithisi zwa u guda mbalo. Kha vha nange mugudi ane ha khou kona u shuma mishumo na nyito zwa kiłasini. Kha vha lingedze u fhindula mbudziso idzi.

1. Ndi tshithithisi tshifhio tsha u guda?

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2. What are the learner's learning needs?

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3. What support is needed?

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4. What steps could you take to minimise the barrier to learning so that the learner can participate more successfully in Grade R maths?

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5. If you cannot identify the barrier, the learning needs or the support required, who could you consult?

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Read some of the ways you can include all learners in the Grade R classroom on page 60 of the *Concept Guide*.

Remember that it is important to identify barriers to learning as early as possible so that a plan can be put in place to address a learner's individual developmental and learning needs. Your ongoing observations of learners' progress will help you recognise any potential gaps in their learning and also help you plan ways to address these.

2. Ndi Ქໂධේa dzifhio dza u guda dza mugudi?

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3. Ndi thikhedzođe i Ქໂධේahō?

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4. Ndi maga afhio ane vha nga a dzhia u fhungudza zwithithisi zwa u guda u itela uri mugudi a kone u shela mulenzhe lu bveledzaho kha mbalo dza Gireidi ya Ხ?

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5. Arali vha sa koni u topola tshithithisi, Ქໂධේa dza u guda kana thikhedzo i Ქໂධේahō, vha nga kwama nnyi?

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Kha vha vhale dziňwe dza ndila dzine vha nga katela vhagudi vhothe kha kilasi ya Gireidi ya Ხ kha siačari la 61 la *Nyendedzi ya Divhaipfi*.

Vha humbule uri ndi zwa ndeme u topola zwithithisi zwa u guda nga u Ქavhanya u itela uri pulane i kone u vha hone ya u tandulula Ქໂධේa dza u guda na mveledziso zwa mugudi nga eþhe. U lavhelesa havho hu yaho phanda ha mvelephanda ya vhagudi zwi do vha thusa u topola zwikhala zwine zwi nga vha hone kha u guda havho na u vha thusa hafhu u pulana ndila dza u tandulula izwi.

# Session 5: Perceptual and motor development

1 hour

Perception develops through information that is gathered from the senses of touch, sight, smell, taste and hearing, and helps children to learn about the world. Motor development unfolds with perceptual development – as children use their motor skills to move through the environment, they gather information with their senses.

Perceptual and motor skills are very important for learning maths. They include:

- ◆ visual perception
- ◆ auditory perception
- ◆ tactile and kinaesthetic perception.

## Visual perception

Visual perception is the ability to use what the eyes see and to interpret this visual information. There are different categories of visual perceptual skills.



### Activity 7

The following are scenarios that illustrate visual perceptual skills in young children.

1. Read the information on visual perception on pages 64–67 of the *Concept Guide* and identify which visual perceptual skills the children below are practising.
    - ◆ Welekazi is playing in the fantasy play area. She looks for and finds her favourite red shoes amongst all the other shoes in the wardrobe.
    - ◆ The teacher makes a pattern of different coloured beads on a string. Leah makes her own string of beads by repeating the pattern her teacher has made.
- 
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## Dzulo ḥa 5: Mveledziso ya zwipfi na misipha na marambo

Awara 1

Zwipfi zwi aluwa nga mafhundo ane a kuvhanganywa u bva kha zwipfi zwa u kwama, u vhona, u nukhedza, u thetshela na u pfa, nahone zwi thusa vhana u guda nga ḥifhasi. Mveledziso ya misipha na marambo zwi vha hone nga mveledziso ya zwipfi – vhunga vhana vha tshi shumisa zwikili zwa misipha na marambo zwavho u sudzuluwa nga mupo, vha kuvhanganya mafhundo nga zwipfi zwavho.

Zwikili zwa zwipfi na misipha na marambo ndi zwa ndeme nga maanda kha u guda mbalo. Zwi katela:

- ◆ zwipfi zwa u vhona
- ◆ zwipfi zwa u pfa
- ◆ zwipfi zwa u kwama na zwipfi zwa vhunzani.

### Zwipfi zwa u vhona

Zwipfi zwa u vhona ndi vhukoni ha u shumisa zwine maṭo a vhona na u ḥalutshedza mafhundo ayo. Hu na khethekanyo dzo fhambanaho dza zwikili zwa zwipfi zwa u vhona.



### Nyito ya 7

Zwi tevhelaho ndi nyimele dzine dza sumbedza zwikili zwa zwipfi zwa u vhona kha vhana vhatku.

1. Kha vha vhale mafhundo nga zwipfi zwa u vhona kha masiaṭari a 64–67 a *Nyendedzi ya Divhaipfi* vha topole uri ndi zwikili zwifhio zwa zwipfi zwa u vhona zwine vhana vha re afho fhasi vha khou zwi shumisa.
  - ◆ Welekazi u khou tamba fhethu ha mitambo khumbulelwa. O ḥoda a wana zwienda zwawe zwitswuku zwine a zwi funesa vhukati ha zwiñwe zwienda zweṭhe zwi re ngomu ha wađirobo.
  - ◆ Mugudisi u ita phetheni ya vhulungu ha mivhala yo fhambanaho kha muḍali. Leah u ita vhulungu ha muḍali ha ene muñe nga u dovhola phetheni ye mugudisi wawe a ita.

2. What are the kinds of activities you have done in your Grade R class that support these perceptual skills?
- 
- 
- 
- 

## Auditory perception

Auditory perception is the ability to use what the ears hear and to interpret this auditory information. There are different categories of auditory perceptual skills.



### Activity 8

The following are scenarios that illustrate auditory perceptual skills in young children.

1. Read the information on auditory perception on page 68 of the *Concept Guide* and identify which auditory perceptual skills the children below are practising.
  - ◆ Raiz is playing in the noisy block area. Even though there are many other learners around him talking as they play, he can focus on what his teacher is asking him to do with the blocks.

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- ◆ Thobeka listens to her teacher as she counts ten counters while placing them on the mat. Thobeka remembers what she has heard and repeats the order of the numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
- 

2. What are the kinds of activities you have done in your Grade R class that support these perceptual skills?
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2. Ndi tshakha dza nyito dzifhio dze vha ita kilasini yavho ya Gireidi ya T dzine dza tikedza zwikili zwa zwipfi izwi?
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- 
- 
- 

### Zwipfi zwa u pfa

U pfa nga muhumbulo ndi vhukoni ha vhuluvhi ha u shumissa zwine nđevhe dza pfa na u ḥalutshedza mafhungo ayo. Hu na khethekanyo dzo fhambanaho dza zwikili zwa u pfa nga muhumbulo.



### Nyito ya 8

Nyimele dici tevhelaho dici sumbedza zwikili zwa u pfa nga muhumbulo kha vhana vhaṭuku.

- Kha vha vhale mafhungo nga zwikili zwa u pfa kha siaṭari ḥa 69 ḥa Nyendedzi ya Divhaipfi vha topole uri ndi zwikili zwa u pfa nga muhumbulo zwifhio zwine vhana vha re afho phasi vha khou ita nđowendowe.
    - ◆ Raiz u khou tamba fhethu ha phosho ha zwibuloko. Naho hu na vhaṇwe vhagudi vhanzhi tsini hawe vhane vha khou amba zwenezwi vha tshi khou tamba, u a kona u futelela kha zwine mugudisi wawe a khou mu humbelu uri a ite nga zwibuloko.
- 

- ◆ Thobeka u thetshelesa mugudisi wawe zwenezwi a tshi khou vhalela zwithu zwa u vhalela ngazwo zwa fumi ngeno a tshi khou zwi vhea nṭha ha methe. Thobeka u humbulu zwe a pfa nahone u dovhola mutevhe wa nomboro: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
- 

- Ndi tshakha dzifhio dza nyito dze vha ita kha kiłasi yavho ya Gireidi ya T dzine dza tikedza zwikili izwi zwa zwipfi?
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## Tactile and kinaesthetic perception

These two types of perception go hand in hand. Tactile perception is the ability to notice similarities and differences in the way things feel. Kinaesthetic perception is the ability to use body movements and muscle feelings. Together they provide the brain with information.



### Activity 9

How can we help learners develop their tactile and kinaesthetic perception?

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Refer to the other activity ideas on page 68 of the *Concept Guide*.

## **U kwama na maga a u guda nga u ita**

Tshakha idzi mbili dza zwipfi dzi tshimbila dzo<sup>the</sup>. Zwipfi zwa u kwama ndi vhukoni ha u vhona zwi fanaho na two fhambanaho nga ndila ine zwithu zwa pfala ngayo. Liga la u guda nga u ita ndi vhukoni ha u shumisa misudzuluwo ya muvhili na vhudipfi ha misipha. Zwi shuma zwe<sup>the</sup> u netshedza vhuluvhi mafhungo.



### **Nyito ya 9**

Ri nga thusa hani vhagudi u bveledza zwikili zwavho zwa u kwama na maga a u guda nga u ita?

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Kha vha sedze miñwe mihumbulo ya nyito kha siatari la 69 la *Nyendedzi ya Divhaipfi*.

# Session 6: Planning for teaching

1½ hours

It is important to plan and prepare thoroughly for each week. This will allow you to feel confident about what you are doing and help you to focus on teaching and working with the learners. As you have already experienced in Terms 1 and 2, the Maths Programme is carefully structured, and the maths content is presented in a progressive developmental sequence. It has been designed to ensure that all the Grade R Mathematics content and skills are covered and learners are well prepared for Grade 1. Teachers need to be cautious about selecting activities from different weeks and leaving other activities out.



## Activity 10

Your facilitator will assign each group either Week 1, 2 or 3 of Term 3 to focus on.

1. Look at page 18 of *Activity Guide: Term 3* to identify the Content Area Focus of your week.
2. Find the CAPS content for this Content Area on pages 114–137 of the *Concept Guide*.
3. Read the contents of your assigned week in *Activity Guide: Term 3*.
4. Complete the planning template in Appendix A to capture the focus of the whole class and small group activities. Discuss the following to guide your planning:
  - ◆ The key concepts that learners will be learning in this week
  - ◆ The topic
  - ◆ The new knowledge to be introduced
  - ◆ The skills from previous weeks to be practised
  - ◆ How learners will be taught and will learn during:
    - whole class activities
    - small group activities
      - teacher-guided
      - independent small groups (at the workstations).
5. Identify any potential challenges in implementing the activities for your assigned week. Propose suggestions to resolve or minimise these. Record your points on flipchart paper to share with the whole group.

## Dzulo ḥa 6: U pulanela u funza

Awara 1½

Ndi zwa ndeme u pulana na u lugisela nga vhudzivha vhege iñwe na iñwe. Izwi zwi ḥo vha thusa uri vha vhe na fulufhelo kha zwine vha khou ita na u vha thusa u sedzesu kha u funza na u shuma na vhagudi. Vhunga vho no ḥi zwi vhona kha Kotara ya 1 na 2, Mbekanyamushumo ya Mbalo yo dzudzanywa nga vhuronwane, nahone magudiswa a mbalo o kumedzwa nga u tevhekana ha mveledziso hu bvelaho phanda. Yo dizainiwa u itela u khwaṭhisidza uri magudiswa oṭhe a Mbalo dza Gireidi ya Ṭ na zwikili two kwamiwa nahone vhagudi vho lugiselwa zwavhuḍi Gireidi ya 1. Vhagudisi vha fanela u ḥogomela musi vha tshi nanga nyito u bva kha vhege dzo fhambanaho na u litsha dziñwe nyito.



### Nyito ya 10

Mutshimbidi wavho u ḥo ḥea tshigwada tshiñwe na tshiñwe khamusi Vhege ya 1, 2 kana 3 ya Kotara ya 3 uri tshi sedze khayo.

1. Kha vha lavhelese siaṭari ḥa 19 ḥa Nyendedzi ya Nyito: Kotara ya 3 uri vha topole Sia ḥa Magudiswa ḥo Sedzwaho ḥa vhege yavho.
2. Kha vha wane magudiswa a TSHIPHOKHALI a ili Sia ḥa Magudiswa kha masiatari a 114–137 a Nyendedzi ya Divhaipfi.
3. Kha vha vhale magudiswa a vhege ye vha ḥewa kha Nyendedzi ya Nyito: Kotara ya 3.
4. Kha vha ḥadze themphuļeithi ya u pulana i re kha ḥhumetshedzo ya A u itela u rekhoda two sedzwaho zwa nyito dza kiłasi yoṭhe na dza tshigwada tshiṭuku. Kha vha haseledze zwi tevhelaho u itela u endedza u pulana havho:
  - ◆ ḥDivhaipfi ya ndeme ine vhagudi vha ḥo guda vhege ino
  - ◆ Thero
  - ◆ Ndivho ntswa ine ya ḥo ḥivhadzwa
  - ◆ Zwikili u bva kha vhege dzo fhiraho zwine zwa ḥo itwa nđowendowe
  - ◆ Uri vhagudi vha ḥo funzwa na u guda hani nga tshifhinga tsha:
    - nyito dza kiłasi yoṭhe
    - nyito dza zwigwada zwiṭuku
      - nyito dzo rangwaho phanda nga mugudisi
      - zwigwada zwiṭuku two ḥiimisaho (zwiṭitshini zwa u shumela).
5. Kha vha topole dzikhaedu dzine dici nga vha hone kha u thoma nyito dza vhege ye vha ḥewa yone. Kha vha kumedze madzinginywa u itela tandulula kana u fhungudza izwi. Kha vha rekhode mbuno dzavho kha bammbiri ḥa filipitshati u itela u kovhana na tshigwada tshihulwane.

# Closing activities

30 minutes



## Activity 11

**Workshop reflection:** Take a few minutes to reflect on the day. Page through your *Participant's Workbook* to remind yourself of what was covered.

The facilitator will direct the groups to the sheets of paper on the walls. Each sheet will prompt you on how to comment.



### Take back to school task

1. Use the Term 3 Weekly Planning Template in Appendix A to plan and implement Term 3 Weeks 1–3 of the Maths Programme.
2. Document how you used the '**Check that learners are able to**' observation list (in the eye box) during each of the teacher-guided activities.
3. Write an evaluation of what worked well, what did not work so well and what you could do differently to improve teaching and learning.
4. Bring your evaluation to the next workshop.

## Evaluation

Complete the Evaluation Form.



## Nyito ya 11

**U amba nga wekishopo:** Kha vha dzhie minetse i si gathi u amba nga ḫuvha. Kha vha fhende *Bugu ya Mushumo ya Vhashelamulenzhe* yavho u ḫi humbudza nga zwa kwamiwa.

Mutshimbidzi u ḫo laedza zwigwada kha mashithi a bammbiri a re kha dzimbondo. Shithi ḫinwe na ḫinwe ḫi vha ṫuṭuwedza uri vha bule muhumbulo wavho hani.



### Mushumo wa u ṫuwa nawo tshikoloni

1. Kha vha shumise Themphuṛeithi ya u Pulana ya Vhege nga Vhege ya Kotara ya 3 i re kha Ṭhumetshedzo ya A u pulana na u thoma Kotara ya 3 Vhege ya 1–3 dza Mbekanyamushumo ya Mbalo.
2. Kha vha ḫwale uri vho shumisa hani '**Kha vha ṫole uri vhagudi vha a kona u**' kha mutevhe wa u lavhelesa (kha ḫo tshibogisini) nga tshifhinga tsha nyito dzo rangwaho phanda nga mugudisi.
3. Kha vha ḫwale zwe vha ṫola zwe zwa shuma zwavhuđi, zwe zwa si shume zwavhuđi na zwine vha nga ita nga inwe ndila yo fhambanaho u itela u khwinisa u funza na u guda.
4. Kha vha ḫe na zwe vha linga kha wekishopo i tevhelaho.

## U linga

Kha vha ḫadze Fomo ya u Linga.

## APPENDIX A: TERM 3 WEEKLY PLANNING TEMPLATE

### Term 3: Activity Plan: Week \_\_\_\_

<b>CONTENT AREA:</b>			
<b>TOPIC:</b>			
<b>INTRODUCE NEW KNOWLEDGE:</b>			
<b>PRACTISE:</b>			
<b>Whole class activities</b>	<b>Teacher-guided activity</b>	<b>Workstation activities (independent small group activities)</b>	
Day 1		Activity 1	
Day 2		Activity 2	
Day 3		Activity 3	
Day 4		Activity 4	
Day 5			

## **THUMETSHEDZO YA A: THEMPHULEITHI YA U PULANA YA VHEGE NGA VHEGE YA KOTARA YA 3**

**Kotara ya 3: Pulane ya Nyito: Vhege \_\_\_\_\_**

<b>SIA LA MAGUDISWA:</b>																			
<b>TERO:</b>																			
<b>KHA VHA DIVHADZE NDIVHO NTSWA:</b>																			
<b>NDOWEDZO:</b>																			
<table border="1"> <thead> <tr> <th><b>Nyito dza kilasi yothe</b></th><th><b>Nyito yo rangwaho phanda nga mugudisi</b></th><th><b>Nyito dza tshititshini tsha u shumela (nyito dza tshigwada tshituku tsho diimisaho)</b></th></tr> </thead> <tbody> <tr> <td>Duvha la 1</td><td></td><td>Nyito ya 1</td></tr> <tr> <td>Duvha la 2</td><td></td><td>Nyito ya 2</td></tr> <tr> <td>Duvha la 3</td><td></td><td>Nyito ya 3</td></tr> <tr> <td>Duvha la 4</td><td></td><td>Nyito ya 4</td></tr> <tr> <td>Duvha la 5</td><td></td><td></td></tr> </tbody> </table>		<b>Nyito dza kilasi yothe</b>	<b>Nyito yo rangwaho phanda nga mugudisi</b>	<b>Nyito dza tshititshini tsha u shumela (nyito dza tshigwada tshituku tsho diimisaho)</b>	Duvha la 1		Nyito ya 1	Duvha la 2		Nyito ya 2	Duvha la 3		Nyito ya 3	Duvha la 4		Nyito ya 4	Duvha la 5		
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Duvha la 1		Nyito ya 1																	
Duvha la 2		Nyito ya 2																	
Duvha la 3		Nyito ya 3																	
Duvha la 4		Nyito ya 4																	
Duvha la 5																			

## **Workshop 7 Evaluation Form**

1. Did the workshop meet your expectations?

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

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

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

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

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## Fomo ya u Linga ya Wekishopo ya 7

1. Wekishopo yo swikelela ndavhelelo dzavho?

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

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3. Ho vhuya ha vha na zwiñwe zwe vha si zwi takalele kana zwe vha kondelwa u zwi pñsesa?

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4. Vha ñ do shumisa hani zwe vha guda ngomu kiñasirumuni yavho ya Gireidi ya T<sup>ñ</sup>?

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

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