GAUTENG PROVINCE
EDUCATION
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GGT 2030
GROWING GAUTENG TOGETHER

Xitsonga/English

Nongonoko wa Antswiso wa Matematiki wa Giredi ya V
Grade R Mathematics Improvement Programme

Ndzetelavutivi wa 3 ● Workshop 3
Xiletelo xa Muhumelerisi ● Facilitator's Guide

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 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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Phurojeke ya Antswiso wa Matematiki na Tindzimi ya Giredi ya V i matshalatshala ya **Ndzawulo ya Dyondzo ya Gauteng (Gauteng Department of Education)** na mutirhisaninkulu wa yona, **Gauteng Education Development Trust**.

Nhluvukiso na vuhumelerisi bya swipfuno swa vuleteri na swa le kamareni ro dyondzela swa Phurojeke ya Antswiso wa Matematiki na Tindzimi ya Giredi ya V swi endliwile swi koteka hi timali ta tiphurojeke to hananiwa kusuka eka **United States Agency for International Development** na **Zenex Foundation**.

Phurojeke ya Antswiso wa Matematiki na Tindzimi ya Giredi ya V yi fambisiwa hi **JET Education Services** na **Schools Development Unit** ya **UCT** na **Wordworks** tanihi vatirhisani va xithekiniki.

Schools Development Unit (SDU) leyi nga eka **University of Cape Town** (UCT) i mutirhisani wa xithekiniki wa matematiki eka Phurojeke ya Antswiso wa Matematiki na Tindzimi ya Giredi ya V. SDU i yuniti leyi kumekaka eka School of Education ya le UCT leyi yi kongomisaka eka nhluvukiso wa xiphurofexinali wa vadyondzisi eka Matematiki, Sayense, Litheresi/Ririmi na Swikili swa Vutomi kusuka eka Giredi ya V kufika eka Giredi ya 12. SDU yi nyika mithwaso ya vudyondzisi na tikhoso to koma ta UCT leti pfumeleriweke, ntirho lowu kumekaka exikolweni, nhluvukiso wa timatheriyali na ndzavisiso ku seketela madyondziselo na madyondzelo eka mivangu ya Afrika-Dzonga hinkwayo.

SWIKHENSO

Ku khensa ko hlawuleka eka:

- Vakulukumba va Ndzawulotsongo ya Kharikhulamu, Dyondzo ya Vadyondzisi na Dyondzo yo Hlawuleka ta Ndzawulo ya Dyondzo ya Gauteng eka vuhoxaxandla bya vona ku fambelanisa matheriyali wa hina.
- Vakulukumba na vadyondzisi va Western Cape Education Department (WCED) eka vuhoxaxandla bya vona eka nsimeko lowu humeleleke wa Grade R Mathematics Programme (R-Maths) eKapa-Vupeladyambu exikarhi ka 2016 na 2019.
- Xipano xo tsala xa *R-Maths*: Vatirhi na vatsundzuxi va SDU.

Nongonoko wa Antswiso wa Matematiki wa Giredi ya V wu fambelanisiwile kusuka eka *R-Maths*, wu kandziyisiwile rosungula hi 2017 hi Schools Development Unit, University of Cape Town. Mfaneloxinawu ya mutumbuluxi ya *R-Maths* yi khomiwile hi University of Cape Town.

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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)

Nkatsakanyo

Xikongomelo

Lowu i wa vunharhu wa khumembirhi ya miletelavutivi ya Nongonoko wa Antswiso wa Matematiki wa Giredi ya V (Nongonoko wa Matematiki), leyi yi vumbaka xiphemu xa Phurojeke ya Antswiso wa Matematiki na Tindzimi ya Giredi ya V ya Ndzawulo ya Dyondzo ya Gauteng (Gauteng Department of Education (GDE)).

Xikongomelo xa ndzetelavutivi lowu i ku pfuna vadyondzisi ku tirhisa Nongonoko wa Matematiki etikamareni to dyondzela ta vona. Vatekaxiave va ta tiyisa ntwisiso wa vona wa Swiyenge swa Vundzeni swa XIPHOKHAMA leswi angarheliweke eka Mavhiki ya 6–9 ya Kotara ya 1 na ku titoloveta swikili eka ku hlanganisa madyondzelo ya matematiki.

Mikongomiso eka Swiyenge swa Vundzeni wa Matematiki wa Giredi ya V swi tekiwa kusuka eka *Xitatimente xa Pholisi ya Kharikhulamu na Makambelelo (XIPHOKHAMA): Matematiki wa Giredi ya V (Mpfapfarhuto wo Hetelela),* 2011, Ndzawulo ya Dyondzo ya Masungulo, Afrika-Dzonga.

Mivuyelo ya dyondza

- Ku ehleketisisa hi matirhelo ya Mavhiki ya 3–5 ya Kotara ya 1
- Ku tirhisa milawu ya Nongonoko wa Matematiki eka nkunguhato wa vhiki na vhiki
- Ku valanga maqhinga ya ku seketela ku dyondzisa matematiki eka Giredi ya V
- Ku tirhana na vundzeni bya Nongonoko wa Matematiki wa Mavhiki ya 6–9 ya Kotara ya 1 (Tipatironi, Tifankixini na Alijebura; Ndhawu na Xivumbeko (Jometiri); Mpimo; Tinomboro, Tioparexini na Vuxaka)
- Ku sungula ku twisisa hilaha mitsakelo yo hambanahambana ya vadyondzi na hilaha tilevhele ta vuswikoti ti letelaka hakona madyondzelo na madyondziselo

Vundzeni bya ndzetelavutivi

- Ku pfula na ku ehleketisisa (1 ya awara)
- Sexini ya 1: Tipatironi, Tifankixini na Alijebura (1 ya awara)

TIYA

- Sexini ya 2: Ndhawu na Xivumbeko (Jometiri) (1 ya awara)
- Sexini ya 3: Mpimo (1 ya awara)

LANCI

- Sexini ya 4: Tinomboro, Tioparexini na Vuxaka (1 ya awara)
- Sexini ya 5: Nkunguhato wa ku dyondzisa (1 ya awara)

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

Malulamiselo

- PPT ku amukela na mivuyelo
- Hlaya:

Xiletelo xa Minongoti, tipheji ta 114–137
Xiletelo xa Migingiriko: Kotara ya 1, tipheji ta 18–21
Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 1

- Lulamisa *Khiti ya Swipfuno* ya Nongonoko wa Matematiki eka tafula ra ntlawa wun'wana na wun'wana.

Timatheriyali

- Maphepha ya chati yo pfula, tikhoki
- *Khiti ya Swipfun*o ya ntlawa wun'wana na wun'wana
- *Buku ya Tiphositara* ya ntlawa wun'wana na wun'wana
- *Khiti ya Swipfuno*: tibuloko ta swihlawulekisi

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.

_____

_____

_____

_____

Ku pfula na ku ehleketisisa

1 ya awara

Tinotsi ta muhumelerisi

- PPT: Pfula sexini kutani u hlaya nongoloko na mivuyelo ya ku dyondza ya ndzetelavutivi lowu.
- Tsundzuxa vatekaxiave hi *Xintirhwana xo tlhelela na xona exikolweni* kusuka eka makumu ya Ndzetelavutivi wa 2. Kombela vatekaxiave ku ehleketisisa hi mayelana na xintirhwana lexi na ku tirhisiwa ka Mavhiki ya 3–5 na ku hetisa **Nghingiriko wa 1**.
- Mitlawa yi avelana mianakanyokulu na ntlawa lowukulu. Ehleketisisani hi mayelana na hilaha makambelelo ya yaka emahlweni hakona na leswaku mixiyaxiyo yi fanele ku va leyi yaka emahlweni.

Ehleketisisani hi mayelana na ku tirhisiwa ka Nongonoko wa Matematiki eka nongonoko wa wena wa siku na siku kutani u hetisa nghingiriko lowu landzelaka entlaweni wa wena.

Nghingiriko wa 1

1. Kanelani ku humelela ka n'wina eka ku tirhisa Mavhiki ya 3–5 na *Xintirhwana xo tlhelela na xona exikolweni* kusuka eka Ndzetelavutivi wa 2.
2. Avelana xinepe xa wena xa nkongomo wa Ndhawu na Xivumbeko (Jometiri) eka ndhawu ya matematiki.
3. Xana u yi rhekodile njhani mixiyaxiyo ya wena ya mudyondzi un'wana na un'wana hi nkarhi wa nghingiriko lowu leteriwaka hi mudyondzisi?
4. Xana i milawu yo dyondzisa yihi leyi u yi tivaka swinene ekamareni ro dyondzela ra wena?

Vhidiyo ya 1

Xiletelo xa Migingiriko: Kotara ya 1, Vhiki ra 3, Siku ra 2 #1, 2 na 3 (pheji ya 57)

Hlalelani vhidiyo ya hilaha mudyondzisi a tirhisaka hakona rhayimi ku titoloveta ku hlayela na ku ololoxa swiphiqo swa marito.

Kanelani hilaha u lawuleke hakona leswi na tidyondzotsongo tin'wana leti ti katseke tirhayimi eka migingiriko ya ku hlayela.

_____

_____

_____

_____

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).

Sexini ya 1: Tipatironi, Tifankixini na Alijebura

1 ya awara

Tinotsi ta muhumelerisi

- Hlamusela leswaku ndzetelavutivi lowu wu tirhana na vundzeni bya Mavhiki ya 6–9 ya Kotara ya 1 ya Nongonoko wa Matematiki, na leswaku nkongomo wa Vhiki ra 6 i Tipatironi, Tifankixini na Alijebura.
- Kongomisa vatekaxiave eka pheji ya 124 ya *Xiletelo xa Minongoti*. Hlamusela leswaku xikongomelokulu xa **Nghingiriko wa 2** i ku kombisa vundzeni bya Xiyenge xa Vundzeni xa Tipatironi, Tifankixini na Alijebura xa Kotara ya 1.
- Kombela vatekaxiave ku tirha hi mitlawa ku hetisa **Nghingiriko wa 2**. Kombela munhu un'we kusuka eka ntlawa wun'wana na wun'wana ku avelana mianakanyo ya vona.

Ndzetelavutivi lowu wu kongomisa eka ku dyondzisa vundzeni bya Nongonoko wa Matematiki: Mavhiki ya 6–9 ya Kotara ya 1. Sexini leyi yi kongomisa eka Vhiki ra 6 ra Kotara ya 1: Tipatironi, Tifankixini na Alijebura.

Nkatsakanyo wa vundzeni wa Kotara ya 1: Tipatironi, Tifankixini na Alijebura

Kongomisa eka Xiyenge xa Vundzeni xa Tipatironi, Tifankixini na Alijebura lexi nga eka pheji ya 124 ya *Xiletelo xa Minongoti*.

Nghingiriko wa 2

Entlaweni wa n'wina, kanelani:

1. Xana i minongoti yihi leyi angarheliwaka eka Kotara ya 1?

_____

_____

_____

2. Xana hi kwihi ku hambana exikarhi ka vundzeni lebyi na vundzeni byo huma eka XIPHOKHAMA?

_____

_____

_____

Lemuka mbuyelelo eka tipatironi.
Tivisa ririmi, xik. Xana i yini lexi landzelaka? Xana i yini lexi rhangaka?
Tumbuluxa patironi ya wena n'wini hi ku tirhisa michumu yo khomeka, swidirowiwa, tipatironi ta jometiri.
Hlamusela patironi ya wena n'wini (nawu wo vuyelela).

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).

Ku twisisa tipatironi

Tinotsi ta muhumelerisi

- PPT: Kongomisa mitlawa eka Phositara ya 7 leyi nga eka *Buku ya Tiphositara* kutani u va endla leswaku va hetisa **Nghingiriko wa 3.**
- PPT: Nyika nhlamuselo ya patironi na malongolokelo, hi ku tirhisa vuxokoxoko lebyi nga laha hansi. Kombisa tinhlamuselo leti.
  Patironi *yi hlamusela hi ku hlawulekisa malongolokelo ya ntolovelo ya michumu, mifambafambo, swiendlo kumbe swiendleko leswi swi vuyeleriweke hi ndlela yo vhumbeka.*
  Malongolokelo *i nandzelelano wo karhi lowu michumu, swifaniso, mifambafambo, swiendlo kumbe swiendleko swi landzelelanaka hayona*

Ku tumbuluxa ntwisiso wa tipatironi i xiphemu xa nkoka xa matematiki. Tipatironi ti kona hinkwakonkwako laha hi nga kona naswona vana va hlangana na tipatironi to tala evuton'wini bya vona bya siku na siku ekaya na le xikolweni.

Ehleketa hi mayelana na ntwisiso wa wena n'wini wa Xiyenge xa Vundzeni: Tipatironi, Tifankixini na Alijebura kutani u hetisa Nghingiriko wa 3 na ntlawa wa wena.

Nghingiriko wa 3

Entlaweni wa n'wina, kanelani:

1. Xana i mixaka yihi ya tipatironi leyi vadyondzi va Giredi ya V va nga ha hlanganaka na yona evuton'wini bya vona bya siku na siku?

_____

_____

Tipatironi eka swiambalo, eka miako, eka ntumbuluko (xik. xiluva, xisaka xa tinyoxi).

Tinotsi ta muhumelerisi

- PPT: Swifaniso swa tipatironi leti nga laha hi nga kona eka mbangu wa ntumbuluko na mbangu lowu akiweke.
- Kanelani hilaha malongolokelo ya michumu ya nga ndlandlamukisiwaka hakona kambe ngopfungopfu a swi nga ta tumbuluxa patironi.
- Langutani swikombiso swa laha malongolokelo ya vuyeleriwaka hakona ku tumbuluxa patironi.

2. Langutani eka Phositara ya 7 leyi nga eka *Buku ya Tiphositara*.

- Xana i tipatironi tihi leti mi ti vonaka?

_____

_____

- Xana patironi leyi i yini?

_____

_____

Kuma xiphemu lexi 'vuyelelaka' xa patironi leyi.
Swiphemu swa vuyeleriwa (handlekaloko ku ri patironi yo gombonyoka, xik. rihanti ra nsinya, tipatironi ta muhulahula leti nga ephepheni kumbe elapini).

- 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.

- Xana u nga kota ku vuyelela patironi leyi? Hlamusela.

_____

_____

Patironi yi hlamusela hi ku hlawulekisa malongolokelo ya ntolovelo ya michumu, mifambafambo, swiendlo kumbe swiendleko leswi swi vuyeleriweke hi ndlela yo vhumbeka. **Malongolokelo** i nandzelelano wo karhi lowu michumu, swifaniso, mifambafambo, swiendlo kumbe swiendleko swi landzelelanaka hayona.

Ku kuma tipatironi

Tinotsi ta muhumelerisi

- Hlamusela leswaku eka patironi yo olova hi nga kota ku vona hilaha swiphemu leswi nga eka patironi swi vuyeleriwaka hakona, naswona hi nga kota ku vhumba nandzelelano kumbe malongolokelo lama patironi yi nga ta ma landzelela.
- PPT: Swirhendzevutana na swikwere leswi swi nga vuyeleriwa ku vumba patironi.
- Kongomisa vatekaxiave eka tipatironi ta xirhendzevutana na ta xikwere leti nga eka *Buku ya Ntirho ya Vatekaxiave*. Tirhisa swivutiso leswi landzelaka ku kombisa hilaha hi nga vonaka hakona leswaku xirhendzevutana na xikwere swa vuyeleriwa na ku tirhisa leswi ku vhumba leswaku xivumbeko lexi landzelaka xi ta va yini.
- Eka patironi leyi hi nga kota ku vona leswaku xirhendzevutana na xikwere swa vuyeleriwa, naswona hi nga kota ku vhumba leswaku xivumbeko lexi landzelaka eka malongolokelo ku ta va xirhendzevutana, xi landzeriwa hi xikwere na swo kota sweswo.

Eka patironi yo olova, hi nga kota ku vona hilaha swiphemu leswi nga eka malongolokelo swi vuyeleriwaka hakona. Hi nga tlhela hi kota ku vhumba nandzelelano kumbe malongolokelo ya swiphemu na hilaha swi nga ta vuyeleriwa hakona ku tumbuluxa patironi. Eka patironi leyi nga laha hansi hi nga kota ku vona leswaku xirhendzevutana na xikwere swa vuyeleriwa naswona hi nga kota ku vhumba leswaku xivumbeko lexi landzelaka eka malongolokelo lama xi ta va yini.

Nghingiriko wa 4

1. Xana i xivumbeko xi rhangaka?

_____

2. Xana i xivumbeko xihi xi landzelaka?

_____

3. Xana i xivumbeko xihi u ehleketaka leswaku xi ta ta endzhaku ka xikwere lexo hetelela?'

_____

4. Xana ndzi boheka ku endla yini ku ndlandlamuxa patironi leyi?

_____

Tipatironi leti vuyelelaka ti vumbiwa hi malongolokelo lama vuyeleriweke ya swiphemu, xik. swivumbeko, mihlovo, mipfumawulo, michumu, mifambafambo.

Facilitator's notes

- PPT: Display the following sequence of attribute blocks:

yellow red blue yellow

- 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**).

Tinotsi ta muhumelerisi

- PPT: Kombisa malongolokelo lama landzelaka ya tibuloko ta swihlawulekisi:

xitshopana tshwuka wasi xitshopana

- Kombela vatekaxiave ku languta patironi leyi na ku tirhisa tibuloko ta swihlawulekisi leti nga ematafuleni ya vona ku kopunula malongolokelo. Endzhaku mitlawa yi hetisa **Nghingiriko wa 5**.

Eka nghingiriko lowu landzelaka, muhumelerisi u ta mi kombisa malongolokelo ya swivumbeko. Mi ta tirhisa tibuloko ta swihlawulekisi leti nga etafuleni ra n'wina ku kopunula malongolokelo lama kutani mi kanela hilaha leswi swi nga ndlandlamukisiwaka hakona ku tumbuluxa patironi.

Nghingiriko wa 5

1. Xana patironi leyi i yini?

_____

_____

2. Xana i yini xiphemu lexi vuyelelaka xa patironi leyi?

_____

_____

Tinotsi ta muhumelerisi

- Mongo wa nghingiriko lowu i ku kuma xiphemu lexi vuyelelaka xa malongolokelo, hlsw. patironi. Xana patironi leyi yi sungula hi xikwere xa xitshopana kutani yi hetelela hi xirhendzevutana xa wasi? Kumbexana patironi leyi yi sungula hi xikwere xa xitshopana kutani yi hetelela hi xirhendzevutana xa xitshopana?
- Hlamusela leswaku vadyondzi va fanele ku kota ku kuma patironi va nga si ndlandlamukisa kumbe ku tumbuluxa patironi ya vona vini.
- Tshikelela leswaku vadyondzisi va fanele mikarhi hinkwayo va vuyelela patironi hi mpimohansi wa kambirhi va nga si kombela vadyondzi ku yi ndlandlamukisa, tanihi xikombiso:

- Endzhaku ka migingiriko leyi kombisa nkoka wa ku tivisa vadyondzi eka tipatironi leti nga na xihlawulekisi xin'we ntsena lexi xi hambanaka, xik. xivumbeko, na ku va nyika malongolokelo yo vuyelela yo leha ku ringanela (xik. mivuyelelo yinharhu) ku endlela leswaku va kota ku tirha na patironi leyi.
- Kombela vatekaxiave ku nyika swikombiso swa mixaka ya tipatironi leti mindyangu yi nga ha ti kumaka emakaya ya yona vini na le migangeni ya vona vini (**nawu wa mbangu**).
- Ehleketisisa hi mayelana na hilaha ntokoto wa mudyondzi wa tipatironi ta masiku hinkwawo wu nga ndhawu yo sangula hakona eka ku twisisa nongoti wa patironi (**nawu wa levhele**).

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.

Tivisa vadyondzi eka tipatironi leti ti sungulaka hi xihlawulekisi xin'we ntsena lexi xi hambanaka, xik. xivumbeko, na ku nyika michumu yo enela leyi nga eka malongolokelo lama ku endlela leswaku vadyondzi va kota ku tirha va kuma leswaku patironi leyi i yini (xiphemu lexi vuyelelaka eka malongolokelo lama).

I swa nkoka leswaku vadyondzisi va nyika vadyondzi swivandlanene swo hambanahambana ku kuma, ku kopunula na ku tumbuluxa mixaka yo hambanahambana hi ku tirhisa mipfumawulo, swiendlo, michumu na swifaniso.

Vhidiyo ya 2

Xiletelo xa Migingiriko: Kotara ya 1, Vhiki ra 6, Masiku ya 2, 3 na 4 (tipheji ta 104–111)

Hlalelani vhidiyo ya mudyondzisi a ri karhi a lulamisa migingiriko leyi yi nyikaka swivandlanene eka vadyondzi ku tumbuluxa tipatironi na ku ti kanela.

Vonani hilaha mudyondzisi a leteleka hakona vadyondzi hi ku tirhisa swivutiso na switsundzuxo ku tumbuluxa patironi. Tsalani ntivomarito lowu yena na vadyondzi va wu tirhisaka hi nkarhi wa migingiriko leyi.

_____

_____

_____

_____

Kongomisa eka tipheji ta 160–173 ta *Xiletelo xa Minongoti* ku hlaya swo tala hi mayelana na ku dyondzisa Tipatironi, Tifankixini na Alijebura eka Giredi ya V. U ta tlhela u kuma nxaxamelo wa swivutiso leswi faneleke na ntivomarito wa Xiyenge xa Vundzeni lexi.

Nawu wa levhele wu vula leswaku vadyondzi va le ka tindhawu to sungula to hambanahambana eka Giredi ya V. Vutivi bya khale bya mudyondzi un'wana na un'wana i ndhawu ya masungulo ya leswi a nga ta swi dyondza. Va nga tirhisa leswi se va swi tivaka ku dyondza minongoti na swikili swa matematiki swintshwa.

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.

Sexini ya 2: Ndhawu na Xivumbeko (Jometiri)

1 ya awara

Tinotsi ta muhumelerisi

- Hlamusela leswaku nkongomo wa Vhiki ra 7 wu hi mayelana na Ndhawu na Xivumbeko (Jometiri)
- Kongomisa vatekaxiave eka tipheji ta 126–131 ta *Xiletelo xa Minongoti*.
- Endla leswaku vatekaxiave va tirha hi mitlawa ku hetisa **Nghingiriko wa 6**. Kombela munhu un'we kusuka eka ntlawa wun'wana na wun'wana ku nyika xiviko.
- Nkongomo wa Ndhawu na Xivumbeko (Jometiri) eka ndzetelavutivi lowu wu ndlandlamukisa nkanelo eka Ndzetelavutivi wa 2.

Nkongomo wa Vhiki ra 7 ra Kotara ya 1 i Ndhawu na Xivumbeko (Jometiri). Eka Ndzetelavutivi wa 2, hi kanele michumu ya matlhelo ma3 na swivumbeko swa matlhelo ma2 na vundzeni bya Mavhiki ya 3–5 leswi faneleke ku tirhisiwa ekamareni ro dyondzela.

Nkatsakanyo wa vundzeni wa Kotara ya 1: Ndhawu na Xivumbeko (Jometiri)

Nghingiriko wa 6

Kongomisa eka Xiyenge xa Vundzeni xa Ndhawu na Xivumbeko (Jometiri) eka tipheji ta 126–131 ta *Xiletelo xa Minongoti*. Mi ta vona leswaku swirhendzevutana, swikwere na tinhlanharhu swa tivisiwa eka XIPHOKHAMA eka Kotara ya 1 na tinhlamune ta tivisiwa eka Kotara ya 4. Nongonoko wa Matematiki wu ringanyeta leswaku tinhlamune ti tivisiwa hi xiwelo eka Kotara ya 1.

1. Loko u dyondzisa swikwere xana u kume leswaku vadyondzi va hlanganisiwa nhloko hi swikwere na tinhlamune? Nyika swivangelo ku seketela nhlamulo ya n'wina.

_____

_____

_____

_____

Vadyondzi va fanele ku vona ku hambana exikarhi ka swivumbeko leswimbirhi. Hambiloko haswimbirhi swi ri na mune wa matlhelo na mune wa tikhona, yinhlamune yi na matlhelo yo leha mabirhi na matlhelo yo koma mambirhi, kasi xikwere xi na mune wa matlhelo lama ma nga na vulehi byo fana.

2. Xana tinhlamune ti tivisiwile njhani eka Vhiki ra 3 ra Nongonoko wa Matematiki?

_____

_____

_____

_____

Hi ku endla swi vonaka hi ku tirhisa mabokisi na ku kanela na ku fananisa matlhelo ya bokisi.

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.

Ku kuma swivumbeko swa matlhelo ma2 (tinhlanharhu)

Tinotsi ta muhumelerisi

- Tsundzuxa vatekaxiave leswaku eka Ndzetelavutivi wa 2 va dyondzile hi mayelana na michumu ya matlhelo ma3 na swivumbeko swa matlhelo ma2.
  Matlhelo ma3 *swi vula leswaku nchumu wu na matlhelo manharhu: vulehi, vuanami na vulehelahenhla.*
  Matlhelo ma2 *swi vula leswaku xivumbeko xi na vulehi na vuanami.*
- Hlamusela leswaku tinhlanharhu ti dyondzisiwa hi ndlela yo fana na swirhendzevutana na swikwere eka Kotara ya 1 (Vhiki ra 7).

Eka Giredi ya V vadyondzi va lemuka, kuma na ku nyika mavito ya swivumbeko swa matlhelo ma2: swirhendzevutana, swikwere, tinhlanharhu na tinhlamune. Nongonoko wa Matematiki wu tlhela wu ringanyeta leswaku vadyondzi va khutaziwa ku hlamusela hi ku hlawulekisa swihlawulekisi swa swivumbeko leswi, xik. tilayini to thwixama kumbe tilayini to gombonyoka, nhlayo ya tilayini na tikhona.

Vadyondzi va tirhisa vutivi bya vona byintshwa bya swivumbeko na ku tiyisa ku dyondza loku eka migingiriko ya mitlawa leyitsongo leyi tshunxekeke.

Vhidiyo ya 3

Xiletelo xa Migingiriko: Kotara ya 1, Vhiki ra 7, Masiku ya 1 na 2 (tipheji ta 120–125)

Hlalelani vhidiyo ya mudyondzisi loyi a tivisaka vadyondzi yinhlanharhu.

Vonani hilaha mudyondzisi a khutazaka vadyondzi hakona ku hlamusela swihlawulekisi swa yinhlanharhu.

_____

_____

_____

_____

_____

Tinotsi ta muhumelerisi

- Eka **Nghingiriko wa 7** vatekaxiave va ta ehleketisisa hi mayelana na hilaha *Buku ya Tiphositara* yi nga tirhisiwaka hakona hi nkarhi wa migingiriko ku nyanyula nkanelo.
- PPT: Kombisa Phositara ya 8 kutani u kombela vatekaxiave ku hlamula swivutiso leswi nga eka **Nghingiriko wa 7**.
- Endzhaku ka nghingiriko lowu vutisa vatekaxiave leswaku i swihlawulekisi swihi swa swivumbeko swa matlhelo ma2 swi kaneriweke na leswaku i ririmi rihi ra matematiki ri tirhisiweke.
- Tsundzuxa vatekaxiave leswaku matlhelo ma2 swi vula leswaku xivumbeko xi na vulehi na vuanami (anama) na leswaku matlhelo manharhu swi vula leswaku nchumu wu na vulehi, vuanami na vulehelahenhla.

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?

_____

_____

Xiletelo xa Migingiriko: Kotara ya 1 yi nyika vadyondzisi swivandlanene swo tala eka kotara hinkwayo ku tirhisa swivutiso leswi nga na makumu yo pfuleka. *Buku ya Tiphositara* yi tirhisiwa hi nkarhi wa migingiriko ya tlilasi hinkwayo na migingiriko leyi leteriwaka hi mudyondzisi ya mitlawa leyitsongo ku khutaza vadyondzi ku paluxa mianakanyo ya vona na ku ololoxa swiphiqo.

Eka Nghingiriko wa 7, mi ta kanela phositara na ku vulavula hi mayelana na loko swivutiso leswi vutisiwaka swi ri swivutiso leswi nga na 'makumu yo pfuleka' kumbe swo 'pfaleka'.

Nghingiriko wa 7

1. Langutani Phositara ya 8 kutani mi hlamula swivutiso leswi landzelaka.

- Xana i tinhlanharhu tingani mi kotaka ku ti vona? xo pfaleka

_____

- Xana mi swi tiva njhani leswaku leyi i yinhlanharhu? makumu yo pfuleka

_____

- Xana yi na matlhelo mangani? xo pfaleka

_____

- Xana yi na tikhona tingani? xo pfaleka

_____

- Xana i tilayini tingani? xo pfaleka

_____

- Xana mi nga kota ku vona tinhlanharhu tin'wana tihi kumbe tihi? xo pfaleka

_____

- Xana i swivumbeko swihi swin'wana mi kotaka ku swi vona? xo pfaleka

_____

- Xana hi swihi swi fanaka hi mayelana na swivumbeko leswimbirhi? makumu yo pfuleka

_____

- Xana hi kwihi ku hambana hi mayelana na swivumbeko leswimbirhi? makumu yo pfuleka

_____

2. Xana hi swihi swa swivutiso leswi vutisiweke laha henhla swi nga na makumu yo pfuleka naswona hi swihi swi nga swivutiso swo pfaleka?

_____

_____

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.

Tinotsi ta muhumelerisi

- Kanelani mixaka ya swivutiso leswi swi vutisiweke eka **Nghingiriko wa 7** na hilaha **nawu wa ndzetelo** wu khutazaka hakona ku ololoxa swiphiqo hi ku tirhisa mavutiselo ya kahle.
- Kombisa nkoka wa ku tirhisa ntivomarito wa matematiki eka mikanelo na vadyondzi.
- Tsundzuxa vatekaxiave leswaku a hi vadyondzi hinkwavo va nga ta twisisa mianakanyo/minongoti hi nkarhi wo fana (**nawu wa levhele**) na leswaku va fanele ku khutaziwa ku avelana maehleketelelo ya vona na ku nyikiwa nkarhi wo tala wa migingiriko yo endla na swivandlanene swa ku vutisa swivutiso ku vulavula hi mayelana na swivumbeko leswi.

Nawu wa ndzetelo wu khutaza vadyondzisi na vadyondzi ku tirhisana ku ololoxa swiphiqo hi ku tirhisa mavutiselo ya kahle.

- **Swivutiso swo pfaleka** i swivutiso leswi nga na nhlamulo leyi pimiweke ya 'ina' kumbe 'e-e'. Swivutiso swo pfaleka swi nga pfuna eka ku kumisisa leswi vadyondzi va swi tivaka, ku fana na 'Xana i xivumbeko xihi xi nga yinhlanharhu?', 'Xana i xa muhlovo muni?
- **Swivutiso leswi nga na makumu yo pfuleka** swi na kutlula nhlamulo yin'we leyi nga vaka yona, swi nyanyula ku ehleketa na ku khutaza vadyondzi ku paluxa mianakanyo ya vona vini loko va ri karhi va ololoxa swiphiqo.

A hi vadyondzi hinkwavo va nga ta twisisa minongoti leyi kumbe ku dyondza ririmi ra matematiki hi nkarhi wo fana (**nawu wa levhele**).

Ntivomarito wa matematiki

Loko vadyondzi va lavisisa, na ku hlamusela swivumbeko na michumu, va tirhisa ririmi ra masiku hinkwawo ro tanihi 'patlama', 'rhetela', na 'tontswa'. Vadyondzisi va nga tivisa ntivomarito wa matematiki ku siva ririmi ra masiku hinkwawo, tanihi xikombiso: tilayini to thwixama, tilayini to gombonyoka, tikhona, matlhelo. Hi tlhela hi vulavula hi mayelana na hilaha xin'wana xi nga leha hakona, hilaha xi nga anama hakona na ku kongomisa eka vulehelahenhla bya xin'wana.

Kongomisa eka tipheji ta 190–193 ta *Xiletelo xa Minongoti* ku hlaya swo tala hi mayelana na ku vutisa swivutiso leswi fambelanaka na madyondziselo na madyondzelo ya minongoti ya Ndhawu na Xivumbeko (Jometiri). Tlhela u hlaya pheji ya 192 ku kuma swo tala hi mayelana na ntivomarito wa Ndhawu ya Xivumbeko (Jometiri) eka Giredi ya V.

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.

Sexini ya 3: Mpimo

1 ya awara

Tinotsi ta muhumelerisi
♦ Hlamusela leswaku nkongomo wa Vhiki ra 8 wu le ka Mpimo.
♦ Kongomisa vatekaxiave eka tipheji ta 132–135 ta *Xiletelo xa Minongoti*.
♦ Endla leswaku vatekaxiave va tirha hi mitlawa ku hetisa **Nghingiriko wa 8**. Kombela munhu un'we kusuka eka ntlawa wun'wana na wun'wana ku avelana mianakanyo ya vona.

Nkongomo wa Vhiki ra 8 ra Kotara ya 1 i Mpimo: nkarhi na vulehi.

Nkatsakanyo wa vundzeni wa Kotara ya 1: Mpimo

Nghingiriko wa 8

Kongomisa eka Xiyenge xa Vundzeni xa Mpimo lexi nga eka tipheji ta 132–135 ta *Xiletelo xa Minongoti*.

Entlaweni wa n'wina, kambisisani:

1. Xana i minongoti yihi leyi angarheliwaka eka Kotara ya 1?

_____

_____

2. Xana hi kwihi ku hambana exikarhi ka vundzeni lebyi na vundzeni byo huma eka XIPHOKHAMA?

_____

_____

Xana mpimo i yini?

Tinotsi ta muhumelerisi
♦ Kombela vatekaxiave ku ehleketa hi mayelana na leswaku mpimo ku nga swona.
♦ PPT: Xifaniso xo fana tanihi le ka Nghingiriko wa 9.
♦ Vatekaxiave va hetisa **Nghingiriko wa 9** kutani va avelana leswi va swi tsaleke.
♦ Tanani na miehleketo hi mayelana na swivutiso leswi landzelaka na ntlawa: Xana i mani a nga lehanyana? Xana i mani a tikakanyana? Xana i mani a nga wa khalenyana?
♦ Hlamusela leswaku mpimo wu hi mayelana na ku kumisisa 'i swo tala kufika kwihi' swi nga kona swa xin'wana, xik. vulehi bya xin'wana, i swo tala kufika kwihi xin'wana xi nga swi khomaka (vundzeni), ntiko wa xin'wana kumbe i nkarhi wo leha kufika kwihi swi wu tekaka ku endla xin'wana (nkarhi).
♦ Hlamusela leswaku ku vulavula hi mayelana na mpimo u fanele ku vula leswi u lavaka ku swi pima – xihlawulekisi. Nyika swikombiso swa swihlawulekisi: vulehi, vulehelahenhla, ntiko, vundzeni.
♦ Tirhisa vuxokoxoko lebyi nga laha hansi eka Nghingiriko wa 9 ku hlamusela tiyuniti to pima ta ntolovelo na leti nga riki ta ntolovelo.
♦ Hlamusela leswaku eka Giredi ya V, vadyondzi va pima hi ndlela ya nkamafundza va ri karhi va tirhisa tiyuniti leti nga riki ta ntolovelo ku pima nkarhi, vulehi, ntiko na vundzeni kumbe vholomu.

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.

Eka Nghingiriko wa 9 hi ta kanela xivutiso lexi ‘Xana mpimo i yini?’.

Nghingiriko wa 9

Languta xifaniso lexi nga laha hansi kutani u hlamula xivutiso lexi.

Xana i mani lokulukumba eka hinkwavo?

_____

Mpimo wu hi mayelana na ku kuma leswaku ‘i swingani’ leswi swi nga eka xilo, xik.:

- vulehi bya xin’wana
- i swo tala kufika kwihi xi swi khomaka
- ntiko wa xin’wana
- swi teka nkarhi wo leha kufika kwihi ku endla xin’wana.

Hi xikongomelo xa ku pima, hi fanele ku teka xiboho hi mayelana na leswaku i xihlawulekisi (xivumbeko/xikombo) xihi hi lavaka ku xi pima, xik. vulehi, ntiko, nkarhi. Hi tirhisa marito lama landzelaka ku hlamusela hi ku hlawulekisa mipimo: lehanyana, tikanyana, khalenyana.

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.

Hi fanele ku tirhisa tiyuniti ku pima. Tona ti nga va ti ri tiyuniti leti nga riki ta ntolovelo kumbe tiyuniti ta ntolovelo.

- **Tiyuniti leti nga riki ta ntolovelo** ti katsa swandla, mikondzo, tikhirayoni, swiphemu swa ngoti, swimhandzana na tibuloko.
- **Tiyuniti to pima ta ntolovelo** ti katsa tilitara, timililitara, tikhilogiramu, tigiramu, timitara, tiawara, timinete, sw. na sw.

Eka Giredi ya V vadyondzi va pima hi ndlela ya **nkamafundza** naswona va tirhisa **tiyuniti leti nga riki ta ntolovelo** ku pima nkarhi, vulehi, ntiko, vundzeni na vholomu.

Mfananiso wo kongoma

Tinotsi ta muhumelerisi

- Kombisa hilaha ku tirhisiwaka hakona mfananiso wo kongoma na yuniti leyi nga riki ya ntolovelo ya mpimo. Kombela nhungu wa vatinyiketeri ku yima emahlweni. Vutisa:
  Xana i mani a nga leha kutlula hinkwavo entlaweni lowu? Xana u swi tiva njhani?
  Xana i mani a nga koma kutlula hinkwavo entlaweni lowu? Xana u swi tiva njhani?
  Xana munhu wihi kumbe wihi u na vulehelahenhla byo fana? Xana u swi tiva njhani?
  Xana hi ta swi kumisisa njhani?
- Endla leswaku vatekaxiave va yima va fularhelana hi mihlana ku fananisa vulehelahenhla bya vona. Endzhaku ka swona, kombela vatekaxiave ku hetisa **Nghingiriko wa 10**.
- Kanelani leswaku hi ku fananisa hi ku kongoma xihlawulekisi (vulehelahenhla) xa vanhu vambirhi, hi nga kumisisa leswaku i mani a nga lehanyana.
- Kombeta leswaku nghingiriko lowa mpimo wu tekiwile kusuka eka Vhiki ra 8 eka *Xiletelo xa Migingiriko: Kotara ya 1* (tipheji ta 136–149) na leswaku vatekaxiave va fanele ku kongomisa eka nghingiriko lowu loko va ri karhi va kunguhata.

Mpimo eka Giredi ya V wu katsa ku fananisa xihlawulekisi xa xin'wana 'hi ku kongoma' na xin'wana xo karhi. Tanihi xikombiso, ku pima vulehi bya khirayoni na khirayoni yin'wana kumbe ku fananisa vulehelahenhla bya vadyondzi vambirhi lava nga yima va fularhelana hi mihlana.

Xiyaxiyani muhumelerisi a ri karhi a pima ntlawa wa vatekaxiave kutani mi hetisa Nghingiriko wa 10 entlaweni wa n'wina.

Nghingiriko wa 10

Kongomisa eka tipheji ta 194–207 ta *Xiletelo xa Minongoti* ku hlaya swo tala hi mayelana na Mpimo na tipheji ta 136–149 ta *Xiletelo xa Migingiriko: Kotara ya 1* u nga si hlamula swivutiso leswi nga laha hansi.

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. Xana i yuniti yihi leyi nga riki ya ntolovelo ya mpimo yi tirhisiweke ku pima vulehelahenhla bya vatekaxiave?

_____

Miri ya vadyondzi.

2. Xana i tiyuniti tihi tin'wana leti nga riki ta ntolovelo ta mpimo ti nga tirhisiwaka ku pima vulehelahenhla bya vatekaxiave?

_____

Xik. ngoti, pensele, buloko.

Nkarhi

Tinotsi ta muhumelerisi

- Humelerisa nkanelo hi mayelana na ku dyondzisa vadyondzi nkarhi eka Giredi ya V – wolowo i nongoti wa xianakanyiwa na leswaku vadyondzi va fanele ku dyondza hi mayelana na nkarhi kusuka eka mitokoto ya siku na siku leyi va yi tivaka.
- Kombela vatekaxiave ku hetisa **Nghingiriko wa 11** kutani va avelana mianakanyo ya vona na ntlawa lowukulu. Leswi swi fanele ku katsa:
  - ku longoloxela swiendleko leswi vuyeleriweke kumbe migingiriko esikwini
  - chati ya maxelo leyi nga na vito ra siku, leswaku i tingani na n'hweti na swifaniso eka khalendara ya vhiki na vhiki
  - khalendara leyi nga na masiku ya vhiki.

Nkarhi i nongoti wa xianakanyiwa wo tika eka vadyondzi ku wu twisisa. Vadyondzi va fanele ku twisisa hilaha nkarhi wu hundzaka hakona evuton'wini bya vona vini, hikokwalaho vadyondzi va fanele ku fambelanisa nkarhi eka mitokoto na swiendleko swa siku na siku swa vadyondzi leswi swi nga toloveleka eka vona.

Nghingiriko wa 11

Kongomisa nakambe eka Vhiki ra 8 ra Kotara ya 1 eka *Xiletelo xa Migingiriko: Kotara ya 1* kutani na mutirhisani wa wena mi kanela hilaha nkarhi wu dyondzisiwaka hakona eka tidyondzotsongo leti. Avelanani mianakanyo ya n'wina hi mayelana na leswi landzelaka.

1. Xana vadyondzisi/vatirhi va Giredi ya V va nga pfuna njhani vadyondzi ku twisisa swo tala hi mayelana na minongoti ya: nhlekanhi na vusiku?
   - tolo, namuntlha na mundzuku?
   - xana swilo swi teka nkarhi wo leha kufika kwihi?
   - malongolokelo ya nkarhi?

_____

_____

_____

_____

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. Xana u nga yi tirhisa njhani migingiriko ya wena eka nongonoko wa siku na siku ku dyondzisa hi mayelana na nongoti wa nkarhi?

_____

_____

_____

_____

Ku kanela malongolokelo ya migingiriko – xik. xana hi swihi leswi hi swi endlaka rosungula, leswi landzelaka, xana ku humelele yini ku nga si fika Nkarhi wa xitori – swi nyika swivandlanene swa ku ehleketisisa hi mayelana na leswi humeleleke rosungula/leswi landzeleke/swo hetelela.

3. Xana i ntivomarito wihi wu nga wa nkoka eka ntwisiso wa nongoti wa nkarhi?

_____

_____

_____

Emahlweni ka, endzhaku ka, leswi landzelaka, sweswi, endzhaku ka swona, nhlekanhi, vusiku, mixo, ndzhenga, namuntlha, tolo, mundzuku.

Kongomisa eka tipheji ta 194–207 ta *Xiletelo xa Minongoti* ku hlaya swo tala hi mayelana na Mpimo na Nkarhi. Kongomisa eka pheji ya 211 ya *Xiletelo xa Minongoti* ku haya swo tala hi mayelana na ku vutisa swivutiso leswi fambelanaka na madyondziselo na madyondzelo ya Mpimo eka Giredi ya V.

Session 4: Numbers, Operations and Relationships

1 hour

Facilitator's notes

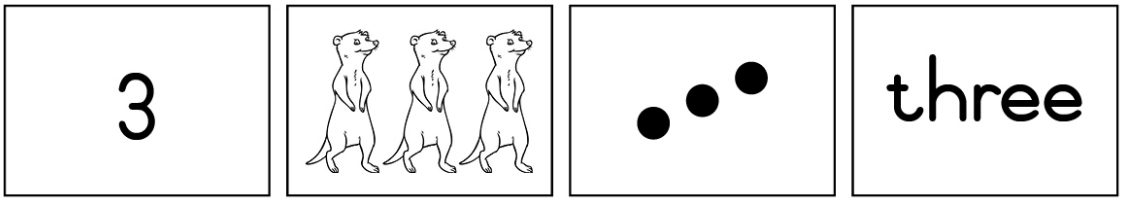
- Draw the participants' attention to how the number 3 is introduced on pages 102–105 of *Activity Guide: Term 1*.
- Explain that even though the Content Area Focus is Patterns, Functions and Algebra in Week 6, the number 3 is also introduced in this week.
- Discuss the routine that is followed for the 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.

Sexini ya 4: Tinomboro, Tioparexini na Vuxaka

1 ya awara

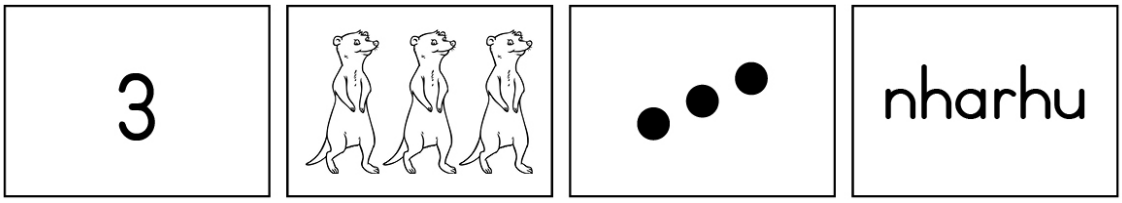
Tinotsi ta muhumelerisi
♦ Kongomisa miehleketo ya vatekaxiave eka hilaha nomboro ya 3 yi tivisiweke hakona eka tipheji ta 102–105 ta *Xiletelo xa Migingiriko: Kotara ya 1*.
♦ Hlamusela leswaku hambiloko Nkongomo wa Xiyenge xa Vundzeni ku ri Tipatironi, Tifankixini na Alijebura eka Vhiki ra 6, nomboro ya 3 yi tlhela yi tivisiwa eka vhiki leri.
♦ Kanelani endlelo ra masiku hinkwawo leri ri landzeleriwaka eka tinomboro ta 1 na 2 kutani mi ehleketisisa hi mayelana na endlelo ra masiku hinkwawo ro fana leri landzeleriwaka eka nomboro ya 3. Kanelani hilaha nomboro yin'wana na yin'wana ya swifaniso na mathonsi yi nga yikulu hi n'we kutlula leyi nga hundza kutani mi vumba vuxaka eka ntiyiso wa leswaku 2 i yikulu hi n'we eka 1 naswona 3 i yikulu hi n'we eka 2.
♦ Hlamusela leswaku eka Vhiki ra 6 vadyondzi va ta tlhela va tivisiwa eka makhadi ya mathonsi.
♦ Tirhisa makhadi ya mathonsi lama nga eka *Khiti ya Swipfuno* ku kombisa hilaha vadyondzi va pananisaka hakona swihlayeri eka makhadi ya mathonsi na ku thumba leswaku 3 yi vumbiwa hi mathonsi ya 1 na 2.

Eka Ndzetelavutivi wa 2, mi tivisile minongoti ya ku hlayela na ku endla vuyimeri bya nomboro. Eka ndzetelavutivi lowu hi ta vona hilaha mianakanyo yo fana yi yaka emahlweni hakona eka Vhiki ra 6 loko nomboro ya 3 yi ri karhi yi tivisiwa. Endlelo ra masiku hinkwawo ro fana ra landzeleriwa na le ka tinomboro ta 1 na 2, ku nga:

Kongomisa eka tipheji ta 102–105 ta *Xiletelo xa Migingiriko: Kotara ya 1* ya ku tivisiwa ka nghingiriko wa nomboro ya '3'.

Rungula *Xitori xa nomboro ya 3* kutani mi endla ntlangu tanihiloko u ri karhi u aka xitori hi vuyimeri byo hambanahambana bya nomboro hi ku tirhisa makhadi ya swipendiwankhaviso kusuka eka *Khiti ya Swipfuno*:

- xiharhi (xifaniso)
- mfungho wa nomboro
- rito ra nomboro
- mathonsi (ku endla vuyimeri bya tibele ta le rivantini).



Lava michumu kutani u yi pananisa na mfungho wa nomboro (3) na rito ra nomboro (nharhu). Eka Vhiki ra 6, vadyondzi va tivisiwa eka makhadi ya mathonsi (kusuka eka *Khiti ya Swipfuno*). Vadyondzi va pananisa swihlayeri eka makhadi ya mathonsi kutani va kanela leswaku 3 yi vumbiwa hi mathonsi ya 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?*

Nkatsakanyo wa vundzeni wa Kotara ya 1: Tinomboro, Tioparexini na Vuxaka

Tinotsi ta muhumelerisi

- Hlamusela leswaku nkongomo wa Vhiki ra 9 wu le ka Tinomboro, Tioparexini na Vuxaka.
- Kongomisa vatekaxiave eka tipheji ta 114–123 ta *Xiletelo xa Minongoti*.
- Endla leswaku vatekaxiave va tirha hi mitlawa ku hetisa **Nghingiriko wa 12**. Kombela munhu un'we kusuka eka ntlawa wun'wana na wun'wana ku avelana mianakanyo ya vona..

Vhiki ra 7 ri kongomisa eka Ndhawu na Xivumbeko (Jometiri) loko Vhiki ra 8 ri kongomisa eka Mpimo. Nkongomo wa Vhiki ra 9 ra Kotara ya 1 wu tlhela wu va eka minongoti ya tinomboro. Eka sexini leyi, u ta lavisisa vuxaka exikarhi ka tinomboro.

Nghingiriko wa 12

Kongomisa eka nkatsakanyo wa vundzeni wa Tinomboro, Tioparexini na Vuxaka lowu nga eka tipheji ta 114–123 ta *Xiletelo xa Minongoti*. Entlaweni wa n'wina, kanelani swihlawulekisi leswi landzelaka swa nkatsakanyo wa vundzeni:

1. Xana Nhlokomhaka ya 1.4 i yini?
2. Xana i tinhlokomhakatsongo tihi leti ti xaxametiweke ehansi ka nhlokomhaka leyi?
3. Xana hi kwihi ku hambana exikarhi ka xitsariwa xa muhlovo wa wasi na xa muhlovo wa ntima? Hlamusela leswaku hikwalahokayini u ehleketa leswaku leswi swi tano.

Ku khakhuleta

Tinotsi ta muhumelerisi

- Kombeta leswaku vadyondzi eka Giredi ya V a va endli tioparexini ta tinomboro to tanihi nhlanganiso na nsuso, andziso na avanyiso. Nyika xikombiso xa hilaha minongoti leyi yi akiwaka kuya ehenhla hi katsongotsongo hi ku tirhisa ku hlayela na ku cincacinca timatheriyali na hi ku tirhisa ku ololoxa swiphiqo eka mivangu ya vutomi bya xiviri.
- Kombisa nghingiriko lowu wu khumbaka ku tlhantlha na ku aka tinomboro ('Dludla kutani u tlhantlha' ('Dludla kutani u hangalasa') eka tipheji ta166–169 ta *Xiletelo xa Migingiriko: Kotara ya 1*).
- Endzhaku ka nkombiso, kombela vatekaxiave ku hetisa **Nghingiriko wa 13**. Kombela munhu un'we kusuka eka ntlawa wun'wana na wun'wana ku avelana mianakanyo ya vona.
- Kanelani leswaku hi swihi swa swivutiso leswi vutisiweke swi nga na makumu yo pfuleka naswona a ku ri swivutiso swihi swo pfaleka.
- Tsundzuxa vatekaxiave leswaku a hi vadyondzi hinkwavo va nga ta kombisa ntwisiso wa minongoti leya tinomboro hi nkarhi wo fana (**nawu wa levhele**).

Eka Giredi ya V vadyondzi a va endli tioparexini ta tinomboro to tanihi nhlanganiso na nsuso, andziso na avanyiso. Minongoti leyi yi akiwa kuya ehenhla hi katsongotsongo hi ku tirhisa vulavisisi na hi ku tirhisa ku ololoxa swiphiqo. Tanihi xikombiso: *Ndzi na maapula manharhu. Ndzi dya rin'we. Xana i maapula mangani lama ndzi nga sala na wona?*

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**).

Vadyondzi va fanele ku twisisa vuxaka exikarhi ka tinomboro. Migingiriko leyi yi khumbaka ku tlhantlha na ku aka tinomboro yi pfuna vadyondzi ku twisisa vuxaka exikarhi ka tinomboro na nkoka wa tinomboro. Tanihi xikombiso: *5 yi vumbiwa hi 2 na 3, 1 na 4*.

Nkombiso

Hlalelani nkombiso wa ntlangu wa 'dludla kutani u hangalasa' kutani endzhaku ka swona mi kanela mixiyaxiyo ya n'wina entlaweni wa n'wina.

Nghingiriko wa 13

Kanelani nkombiso lowu ma ha ku wu hlalelaka.

1. Xana i minongoti yihi ya tinomboro vadyondzi va nga yi dyondzaka hi ku tlanga ntlangu lowu?

_____

_____

Ku katsanisa (ku hlanganisa) na ku hambanisa (ku susa).

2. Xana hi swihi swivutiso leswi muhumelerisi a swi tirhiseke leswi swi kombisaka nhlanganiso na nsuso?

_____

_____

_____

_____

Xana ndzi na swihlayeri swingani exandleni lexi? Kasi eka xandla lexi ke? Loko ndzi swi katsa ndhawu yin'we xana ndzi na swingani?
Xana u swi tlhantlhile njhani swihlayeri swa wena?
Xana u na swingani eka xipfalo xin'wana na xin'wana? Loko u swi katsa endhawini yin'we xana u na swingani?
Loko u susa leswi nga exipfalwini lexi xana u ta sala na swingani?

A hi vadyondzi hinkwavo va nga ta kombisa ntwisiso wa minongoti leya tinomboro hi nkarhi wo fana (**nawu wa levhele**).

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

Sexini ya 5: Nkunguhato wa ku dyondzisa **1 ya awara**

Tinotsi ta muhumelerisi

- Kongomisa vatekaxiave eka Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 1 (Mavhiki ya 6–9)
- Hlaya swiyenge swa migingiriko ya tlilasi hinkwayo, swa migingiriko leyi leteriwaka hi mudyondzisi na swa migingiriko ya le ka xitichi ro tirhela.
- Endla leswaku vatekaxiave va tirha hi mitlawa ku hetisa **Nghingiriko wa 14**.

Nkomiso wa Vundzeni wa Kotara ya 1 (Mavhiki ya 6–9)

Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 1 (Mavhiki ya 6–9) wu katsakanya nkongomokulu wa Xiyenge xa Vundzeni wa vhiki rin'wana na rin'wana, tinhlokomhaka leti angarheliwaka, vutivi byintshwa na nkongomo wa ku titoloveta wa vhiki rin'wana na rin'wana, na migingiriko leyi ringanyetiwaka ya tlilasi hinkwayo, ntirho lowu leteriwaka hi mudyondzisi na ntirho wa ntlawa lowu tshunxekeke wa vhiki.

Nghingiriko wa 14

Languta Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 1 (Mavhiki ya 6–9). Hlamula swivutiso leswi.

Swivutiso	Vhiki ra 6	Vhiki ra 7	Vhiki ra 8	Vhiki ra 9
Xana hi wihi Nkongomo wa Xiyenge xa Vundzeni wa vhiki leri?	Tipatironi, Tifankixini na Alijebura	Ndhawu na Xivumbeko (Jometiri)	Mpimo	Tinomboro, Tioparexini na Vuxaka
Xana hi yihi minongotikulu leyi vadyondzi va nga ta va va ri eku yi dyondzeni?	Tipatironi Nomboro ya 3 Ku longoloxela tinomboro	Swivumbeko swa 2-D Swifaniso swa swivumbeko Xiyimo Ku hlayela kaswanomu	Vulehi/vulehelahenhla Nkarhi	Nkumbetelo Tala na ntsongo Xiyimo Ku ololoxa swiphiqo
Xana i vutivi byintshwa muni byi tivisiwaka?	Kuma tipatironi Kopunula tipatironi Nomboro ya 3 Longoloxela tinomboro 1–3	Tinhlanharhu ta 2-D Mavonakelo ya swifaniso Xiyimo: emahlweni ka, endzhaku ka	Ku longoloxela nkarhi: nhlekanhi na vusiku; ku vonakala na munyama Vulehi: chati ya vulehelahenhla Xiyimo: ehenhla, ehansi, ehansi ka na ehenhla ka. Ku hlayela kuya endzhaku 5–1	Nkumbetelo Tinomboro eka mivangu leyi nga toloveleleka Nkulu hi n'we, ntsongo hi n'we Xiyimo: ehenhla/ehansi
Xana i swikili swihi swi vaka swi titolovetiwa?	Ku hlayela ka swanomu 1–5 Ku hlayela michumu 1–5 Tiyisisa minongoti ya tinomboro ta 1 na 2	Xirhendzevutana, xikwere Ku hlayela michumu 1–5 Tiyisisa nongoti wa tinomboro ta 1–3 Longoloxela tinomboro 1–3 Ndzinganiso Nkulu, ntsongo	Ku hlayela kaswanomu 1–10 Ku longoloxela tinomboro 1–3 Ku hlayela michumu 1–5 Tiyisisa 1–3	Ku hlayela kaswanomu 1–10 Ku hlayela kuya endzhaku kusuka eka 5 Ku longoloxela tinomboro 1–3 Ku hlayela michumu 1–5 Nongoti wa tinomboro 1-3 Ku ololoxa swiphiqo Xirhendzevutana, xikwere, yinhlanharhu

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.

Xiletelo xa Migingiriko: Kotara ya 1: Mavhiki ya 6, 7, 8 na 9

Kongomisa eka Mavhiki ya 6, 7, 8 na 9 eka *Xiletelo xa Migingiriko: Kotara ya 1.* Hetisa Nghingiriko wa 15 eka ntlawa wa wena.

Nghingiriko wa 15

Kuma Mavhiki ya 6, 7, 8 na 9 eka *Xiletelo xa Migingiriko: Kotara ya 1*. Hlamula swivutiso leswi.

1. Xana hi wihi Nkongomo wa Xiyenge xa Vundzeni wa vhiki rin'wana na rin'wana?
2. Xana i tinhlokomhaka tihi na vutivi byintshwa byi dyondzisiwaka eka vhiki rin'wana na rin'wana?
3. Xana vundzeni bya 'Titoloveti' byi xakelanisa njhani na vhiki leri nga hundza?
4. Xana hi swihi leswi u fanelaka ku tshama u swi lulamisile u nga si dyondzisa vhiki rin'wana na rin'wana?
5. Hlaya migingiriko ya tlilasi hinkwayo na migingiriko ya mitlawa leyitsongo.
6. Kanelani entlaweni wa n'wina lowutsongo hilaha mi nga ta kunguhata na ku lulamisa tlilasi ya n'wina hakona eka mavhiki lama mune ya ku dyondzisa.

Tsundzuka leswaku makambelelo ya Giredi ya V i ya nkamafundza na leswaku ma ya emahlweni. Hi fanele ku xiyaxiya vadyondzi esikwini hinkwaro, endzeni na le handle ka kamara ro dyondzela. Mfungho wa tihlo wu hi tsundzuxa leswaku hi fanele ku xiyaxiya vadyondzi loko va ri eku tirheni, naswona hi fanele ku yingisela hi vukheta loko va ri eku vulavuleni na hina na tintangha ta vona.

Nongonoko wa Matematiki wu endliwile hi mayelana na ku cincana ka mitlawa leyitsongo evhikini naswona mudyondzisi u kongomisa miehleketo eka ntlawa wun'we hi siku, a hlalela na ku yingisela loko vadyondzi va ri karhi va hetisa swintirhwana swo karhi. Nkarhi lowu wu nyika mudyondzisi nkarhi wa ku xiyaxiya hi vukheta mudyondzi un'wana na un'wana na ku hlengeleta vuxokoxoko hi mayelana na ku ya emahlweni ka yena.

Languta buloko leyi dzwihatiweke emakumu ka nghingiriko lowu leteriweke hi mudyondzisi: '**Kamba leswaku vadyondzi va kota ku'.** Mudyondzisi u endla noti ya miehleketo ya mudyondzi un'wana na un'wana naswona xikan'wekan'we loko vadyondzi va humile eka siku rolero u tsala mixiyaxiyo ya yena eka buku ya mixiyaxiyo leyi yi nga na tinotsi ta mudyondzi un'wana na un'wana.

Migingiriko yo pfala

Tinotsi ta muhumelerisi

- **Tidyondzotsongo leti dyondziweke:** Kombela vatekaxiave ku ehleketa hi mayelana na leswi va swi dyondzeke hi nkarhi wa ndzetelavutivi na ku hetisa **Nghingiriko wa 16** hi un'weun'we.
- **Xintirhwana xo tlhelela na xona exikolweni**: Hlaya xintirhwana lexi. Vutisa loko ku ri na xihi kumbe xihi lexi xi nga riki erivaleni naswona xi lavaka ku hlamuseriwa hi vutalo swinene.
- **Nkambelo:** Phakela tikopi ta Fomo ya Nkambelo wa Ndzetelavutivi kutani u endla leswaku vatekaxiave va tatisa fomo leyi.
- **Ndzetelavutivi lowu landzelaka:** Nyika masiku ya ndzetelavutivi lowu landzelaka kutani u pfala ndzetelavutivi lowu.

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.

Nghingiriko wa 16

Tidyondzotsongo leti dyondziweke: Ehleketa hi mayelana na leswi u swi dyondzeke hi nkarhi wa ndzetelavutivi kutani u hetisa tafula leri.

Swilo leswi ndzi swi endlaka leswi swi tirhaka kahle swinene	Mianakanyo yintshwa leyi ndzi tsakelaka ku yi ringeta

Xintirhwana xo tlhelela na xona exikolweni

1. Hlaya tipheji ta *Xiletelo xa Minongoti* leti ku kongomisiweke eka tona hi nkarhi wa ndzetelavutivi.
2. Tirhisa *Xiletelo xa Migingiriko*: *Kotara ya 1* ku kunguhata na ku tirhisa Mavhiki ya 6–9 ya Nongonoko wa Matematiki, ku katsa na ku tumbuluxa ndhawu ya matematiki leyi nga na nkongomo eka nongoti wa vhiki rin'wana na rin'wana.
3. Tsala nkambelo wa leswi swi tirheke kahle swinene na leswi swi nga tirhangiki kahle ngopfu. Tana na kungu ra wena na nkambelo wa wena eka ndzetelavutivi lowu landzelaka.
4. Tana na swikombiso kumbe swinepe swa ntirho lowu vadyondzi va endleke.

Nkambelo

Tatisa Fomo leya Nkambelo.

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

Term 1: Activity Plan

<table>
<tr><th colspan="5">Week 6</th></tr>
<tr><td colspan="5">CONTENT AREA: PATTERNS, FUNCTIONS and ALGEBRA</td></tr>
<tr><td colspan="5">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</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Introduce number 3 number frieze story.</td><td rowspan="5">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.</td><td>Activity 1</td><td>Frame a picture using pattern and draw three objects.</td></tr>
<tr><td>Day 2</td><td>Uses different sized and coloured circles to make simple patterns. Discuss patterns (repetition, differences, similarities).</td><td>Activity 2</td><td>Fingerprint counting.</td></tr>
<tr><td>Day 3</td><td>Body percussion patterns and problem solving.</td><td>Activity 3</td><td>Pattern cards using counters and sticks.</td></tr>
<tr><td>Day 4</td><td>Using big and small circles and objects to make simple patterns. Identify patterns in classroom.</td><td>Activity 4</td><td>Template with playdough – make 3.</td></tr>
<tr><td>Day 5</td><td>Problem solving 1–3. Making groups the same.</td><td></td><td></td></tr>
<tr><th colspan="5">Week 7</th></tr>
<tr><td colspan="5">CONTENT AREA: SPACE and SHAPE (GEOMETRY)</td></tr>
<tr><td colspan="5">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</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Introduce triangle and its properties.</td><td rowspan="5">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.</td><td>Activity 1</td><td>Triangle activity – cut and decorate four triangles.</td></tr>
<tr><td>Day 2</td><td>Identify triangle shapes in Poster Book, problem solving.</td><td>Activity 2</td><td>Butterfly prints – symmetry.</td></tr>
<tr><td>Day 3</td><td>In front of and behind; midline crossing.</td><td>Activity 3</td><td>Shape person – use pre-cut shapes.</td></tr>
<tr><td>Day 4</td><td>Compare biggest and smallest. Bigger and smaller.</td><td>Activity 4</td><td>Shape puzzles – (minimum six pieces).</td></tr>
<tr><td>Day 5</td><td>Symmetry.</td><td></td><td></td></tr>
</table>

XIENGETELWA XA A: NKOMISO WA VUNDZENI WA VHIKI NA VHIKI WA KOTARA YA 1 (MAVHIKI YA 6–9)

Kotara ya 1: Kungu ra Migingiriko

<table>
<tr><th colspan="4">Vhiki ra 6</th></tr>
<tr><td colspan="4">XIYENGE XA VUNDZENI: TIPATIRONI, TIFANKIXINI NA ALIJEBURA</td></tr>
<tr><td colspan="4">NHLOKOMHAKA: Tipatironi ta jometiri
TIVISA VUTIVI BYINTSHWA: Kuma tipatironi, kopunula tipatironi, hetisa tipatironi, tivisa nomboro ya 3, ku longoloxela tinomboro ta 1–3. Ku endla mitlawa yi fana.
TITOLOVETI: Ku hlayela ka swanomu 1–5, ku hlayela michumu 1–5, nongoti wa tinomboro ta 1 na 2, xirhendzevutana, xikwere, nkulu na ntsongo, kuya emahlweni na kuya endzhaku</td></tr>
<tr><th colspan="2">Migingiriko ya tlilasi hinkwayo</th><th>Nghingiriko lowu leteriwaka hi mudyondzisi</th><th colspan="2">Migingiriko ya le ka xitichi xo tirhela</th></tr>
<tr><td>Siku ra 1</td><td>Tivisa xitori xa xipendiwankhaviso xa nomboro ya 3.</td><td rowspan="5">Tlangani ntlangu wa mfambafambo hi ku tirhisa mifungho ya 1 na 2.
Pananisa na ku longoloxela swifaniso swa mathonsi/makhadi ya tinomboro 1–3.
Patironi yo olova hi ku tirhisa swihlayeri. Kanelani patironi leyi, tirhisani swihlayeri ku kopunula patironi leyi.
Ku ololoxa swiphiqo 1–3. Ku endla mitlawa yi fana.</td><td>Nghingiriko wa 1

Nghingiriko wa 2
Nghingiriko wa 3

Nghingiriko wa 4</td><td>Endla rimba ra xifaniso hi ku tirhisa patironi kutani u dirowa michumu yinharhu.
Nhlayelo wa migandlo ya tintiho.
Makhadi ya tipatironi hi ku tirhisa swihlayeri na swimhandzana)
Thempuleti hi vumba byo tlangisa – endla 3.</td></tr>
<tr><td>Siku ra 2</td><td>Tirhisa swirhendzevutana leswi nga na tisayizi to hambanahambana na mihlovo yo hambanahambana ku endla tipatironi to olova. Kanelani tipatironi (mbuyelelo, ku hambana, ku fanana).</td></tr>
<tr><td>Siku ra 3</td><td>Tipatironi ta mpfumawulo lowu humesiwaka hi swirho swa miri na ku ololoxa swiphiqo.</td></tr>
<tr><td>Siku ra 4</td><td>Ku tirhisa swirhendzevutana leswikulukumba na leswitsongo na michumu leyikulukumba na leyitsongo ku endla tipatironi to olova. Kuma tipatironi leti nga eka kamara ro dyondzela.</td></tr>
<tr><td>Siku ra 5</td><td>Ku ololoxa swiphiqo 1–3. Ku endla mitlawa yi fana.</td></tr>
<tr><th colspan="4">Vhiki ra 7</th></tr>
<tr><td colspan="4">XIYENGE XA VUNDZENI: NDHAWU NA XIVUMBEKO (JOMETIRI)</td></tr>
<tr><td colspan="4">NHLOKOMHAKA: Tiva, kuma na ku vula mavito ya swivumbeko swa 2-D: yinhlanharhu; hlamusela kutani u fananisa michumu ya 3-D na swivumbeko swa 2-D: tinhlanharhu; ava swivumbeko swa 2-D; swifaniso swa swivumbeko; ndzinganiso
TIVISA VUTIVI BYINTSHWA: Yinhlanharhu; swifaniso swa swifaniso; xiyimo (emahlweni na endzhaku ka); ku hlayela ka swanomu 1–10
TITLOVETI: Ku hlayela ka swanomu 1–10, ku longoloxela tinomboro 1–3, ku hlayela michumu 1–5, ku tiyisa nongoti wa tinomboro ta 1–3, xana i mani nomboro leyi nga emahlweni ka/endzhaku ka, xirhendzevutana, xikwere, ndzinganiso, nkulu na ntsongo</td></tr>
<tr><th colspan="2">Migingiriko ya tlilasi hinkwayo</th><th>Nghingiriko lowu leteriwaka hi mudyondzisi</th><th colspan="2">Migingiriko ya le ka xitichi xo tirhela</th></tr>
<tr><td>Siku ra 1</td><td>Tivisa yinhlanharhu na swihlawulekisi swa yona.</td><td rowspan="5">Ku hlayela ka swanomu.
Khumba kutani u hlayela hi ku tirhisa swihondzo swa tinomboro ta 1–3 (tibuloko ta Unifix).
Ku yelana ka xin’we-eka-xin’we.
Swihlawulekisi swa yinhlanharhu (2-D).
Ava na ku fananisa michumu ya 3-D na swivumbeko swa 2-D hi mitlawa yimbirhi, wun’we wa tinhlanharhu na wun’we lowu nga riki wa tinhlanharhu.</td><td>Nghingiriko wa 1

Nghingiriko wa 2
Nghingiriko wa 3

Nghingiriko wa 4</td><td>Nghingiriko wa tinhlanharhu – tsema kutani u khavisa mune wa tinhlanharhu.
Swikandziyisiwa swa maphaphatana – ndzinganiso.
Munhu wa xivumbeko – tirhisa swivumbeko leswi rhangeke swi tsemiwa.
Swiphazamiso swa xivumbeko – (mpimohansi wa tsevu wa swiphemu).</td></tr>
<tr><td>Siku ra 2</td><td>Kuma swivumbeko swa tinhlanharhu eka Buku ya Tiphositara, ku ololoxa swiphiqo.</td></tr>
<tr><td>Siku ra 3</td><td>Emahlweni ka na endzhaku ka; ku tirhisa swirho swa ximatsi na xinene.</td></tr>
<tr><td>Siku ra 4</td><td>Fananisa nkulukumba kutlula hinkwaswo na ntsongo kutlula hinkwaswo. Nkulukumbanyana, ntsongonyana</td></tr>
<tr><td>Siku ra 5</td><td>Ndzinganiso.</td></tr>
</table>

<table>
<tr><th colspan="5">Week 8</th></tr>
<tr><td colspan="5">CONTENT AREA: MEASUREMENT</td></tr>
<tr><td colspan="5">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</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Day and night; light and dark.</td><td rowspan="5">Routine introduction.
Day and night; dark and light activities:
- blanket
- activity cards.
Day and night story and sequencing.
Position (on, under, below, on top, next to, between).
Pattern (animals).
Height chart.</td><td>Activity 1</td><td>Day and night activity – cutting out pictures.</td></tr>
<tr><td>Day 2</td><td>Introduce height chart; position vocabulary.</td><td>Activity 2</td><td>Draw from shortest to tallest.</td></tr>
<tr><td>Day 3</td><td>Height chart. Sorting day and night everyday objects.</td><td>Activity 3</td><td>Paste shapes from biggest to smallest.</td></tr>
<tr><td>Day 4</td><td>Poster – Day and night. Positional vocabulary: on, under, below and on top.</td><td>Activity 4</td><td>Day/night matching cards.</td></tr>
<tr><td>Day 5</td><td>Compare heights.
Movement-positions.</td><td></td><td></td></tr>
<tr><th colspan="5">Week 9</th></tr>
<tr><td colspan="5">CONTENT AREA: NUMBERS, OPERATIONS and RELATIONSHIPS</td></tr>
<tr><td colspan="5">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.</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Describe and order numbers 1–3.</td><td rowspan="5">Oral counting.
One-to-one correspondence.
Describe and order numbers 1–3.
Estimation.
Shake and break.</td><td>Activity 1</td><td>Playdough making 1–3 objects.</td></tr>
<tr><td>Day 2</td><td>Matching number representations 1–3.
Estimation.</td><td>Activity 2</td><td>Draw pictures 1–3 in shapes.</td></tr>
<tr><td>Day 3</td><td>Counting – one more/one less.
Position: up and down.</td><td>Activity 3</td><td>Pasting. Picture with three stars, two trees, one moon.</td></tr>
<tr><td>Day 4</td><td>Problem solving (more/less). Poster 1.</td><td>Activity 4</td><td>Puzzles (minimum six piece).</td></tr>
<tr><td>Day 5</td><td>Using number in familiar context: How old are you?</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="4">Vhiki ra 8</th></tr>
<tr><td colspan="4">XIYENGE XA VUNDZENI: MPIMO</td></tr>
<tr><td colspan="4">NHLOKOMHAKA: Nkarhi: nhlekanhi na vusiku; Vulehi: fananisa na ku landzelelanisa michumu ku hlamusela vulehelahenhla
TIVISA VUTIVI BYINTSHWA: Ku longoloxela nhlekanhi na vusiku, ku vonakala na munyama; chati ya vulehelahenhla; xiyimo (ehenhla, ehenhla ka, ehansi ka, ekusuhi na, exikarhi ka); ku hlayela kuya endzhaku 5–1
TITOLOVETI: Ku hlayela ka swanomu 1–10, ku hlayela kuya endzhaku kusuka eka 5, ku longoloxela tinomboro ta 1–3, ku hlayela michumu 1–5, tiyisa nongoti wa tinomboro 1–3, tipatironi.</td></tr>
<tr><th colspan="2">Migingiriko ya tlilasi hinkwayo</th><th>Nghingiriko lowu leteriwaka hi mudyondzisi</th><th colspan="2">Migingiriko ya le ka xitichi xo tirhela</th></tr>
<tr><td>Siku ra 1</td><td>Nhlekanhi na vusiku; ku vonakala na munyama.</td><td rowspan="5">Manghenelo ya siku na siku.
Nhlekanhi na vusiku; migingiriko ya ku vonakala na munyama:
- nkumba
- makhadi ya migingiriko.
Xitori xa ninhlekanhi na xa nivusiku na ku longoloxela.
Xiyimo (ehenhla, ehansi, ehenhla ka, ehansi ka, ekusuhi na, exikarhi ka).
Patironi (swiharhi),
Chati ya vulehelahenhla.</td><td>Nghingiriko wa 1</td><td>Nghingiriko wa ninhlekanhi na wa nivusiku – ku tsema swifaniso.</td></tr>
<tr><td>Siku ra 2</td><td>Tivisa chati ya vulehelahenhla; ntivomarito wa xiyimo.</td><td>Nghingiriko wa 2</td><td>Dirowa kusuka eka lexo koma kutlula hinkwaswo kufika eka lexo leha kutlula hinkwaswo.</td></tr>
<tr><td>Siku ra 3</td><td>Chati ya vulehelahenhla. Ku ava michumu ya masiku hinkwawo ya ninhlekanhi na ya nivusiku.</td><td>Nghingiriko wa 3</td><td>Namarheta swifaniso kusuka eka lexikulukumba kutlula hinkwaswo kufika eka lexitsongo kutlula hinkwaswo.</td></tr>
<tr><td>Siku ra 4</td><td>Phositara – Nhlekanhi na vusiku. Ntivomarito wa xiyimo: ehenhla, ehansi, ehansi ka na ehenhla ka.</td><td>Nghingiriko wa 4</td><td>Makhadi lama pananaka ya ninhlekanhi/nivusiku.</td></tr>
<tr><td>Siku ra 5</td><td>Fananisa vulehelahenhla.
Swiyimo swa mfambafambo.</td><td></td><td></td></tr>
<tr><th colspan="4">Vhiki ra 9</th></tr>
<tr><td colspan="4">XIYENGE XA VUNDZENI: TINOMBORO, TIOPAREXINI NA VUXAKA</td></tr>
<tr><td colspan="4">NHLOKOMHAKA: Hlamusela, longoloxa na ku fananisa tinomboro; nkumbetelo; tithekiniki ta ku ololoxa swiphiqo; ku tirhisa tinomboro eka mivangu ya ntolovelo; xiyimo
TIVISA VUTIVI BYINTSHWA: Nkumbetelo, tinomboro eka mivangu ya ntolovelo, nkulu hi n’we/ntsongo hi n’we, xiyimo (ehenhla/ehansi)
TITOLOVETI: Ku hlayela ka swanomu 1–10, ku hlayela kuya endzhaku kusuka eka 5, ku longoloxela tinomboro ta 1–3, ku hlayela michumu 1–5, nongoti wa tinomboro 1–3, tithekiniki ta ku ololoxa swiphiqo. Xirhendzevutana, xikwere na yinhlanharhu</td></tr>
<tr><th colspan="2">Migingiriko ya tlilasi hinkwayo</th><th>Nghingiriko lowu leteriwaka hi mudyondzisi</th><th colspan="2">Migingiriko ya le ka xitichi xo tirhela</th></tr>
<tr><td>Siku ra 1</td><td>Hlamusela na ku longoloxa tinomboro 1–3.</td><td rowspan="5">Ku hlayela ka swanomu.
Ku yelana ka xin’we-eka-xin’we.
Hlamusela na ku longoloxa tinomboro 1–3.
Nkumbetelo.
Dludla kutani u hangalasa.</td><td>Nghingiriko wa 1
Nghingiriko wa 2
Nghingiriko wa 3
Nghingiriko wa 4</td><td>Vumba byo tlangisa ku endla michumu ya 1–3.
Dirowa swifaniso swa 1–3 hi swivumbeko.
Ku namarheta. Xifaniso hi tinyeleti tinharhu, misinya yimbirhi, n’weti wun’we.
Swiphazamiso (mpimohansi wa tsevu wa swiphemu).</td></tr>
<tr><td>Siku ra 2</td><td>Ku pananisa vuyimeri bya tinomboro ta 1–3. Nkumbetelo.</td></tr>
<tr><td>Siku ra 3</td><td>Ku hlayela - nkulu hi n’we/ ntsongo hi n’we
Xiyimo: ehenhla na ehansi</td></tr>
<tr><td>Siku ra 4</td><td>Ku ololoxa swiphiqo (tala/ntsongo). Phositara ya 1.</td></tr>
<tr><td>Siku ra 5</td><td>Ku tirhisa nomboro eka mbangu wa ntolovelo: Xana u na malembe mangani hi vukhale?</td></tr>
</table>

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 Nkambelo ya Ndzetelavutivi wa 3

1. Xana ndzetelavutivi lowu wu fikelerile swilanguteriwa swa wena?

_____
_____
_____
_____

2. Xana u dyondzile yini eka ndzetelavutivi lowu wu ku pfuneke swinene?

_____
_____
_____
_____

3. Xana a ku ri na xilo xihi kumbe xihi lexi u nga xi tsakelangiki kumbe u veke na ku tikeriwa hi ku xi twisisa?

_____
_____
_____
_____

4. Xana u ta swi tirhisa njhani leswi u swi dyondzeke ekamareni ra wena ro dyondzela ra Giredi ya V?

_____
_____
_____
_____

5. Xana u na swiringanyeto swihi kumbe swihi swa ku antswisa miletelavutivi yo yisa emahlweni?

_____
_____
_____
_____