GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GGT 2030
GROWING GAUTENG TOGETHER

Xitsonga/English

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

Workshop 11 ● Workshop 11
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**.

The development and production of the training and classroom resources for the Grade R Mathematics and Language Improvement Project were made possible by generous project funding from the **United States Agency for International Development** and the **Zenex Foundation**.

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.

ACKNOWLEDGEMENTS

Special thanks to:

- The Gauteng Department of Education Curriculum, Teacher Education and Special Education Directorate officials for their contribution to the adaptation of our materials.
- The Western Cape Education Department (WCED) officials and teachers for their contribution to the successful implementation of the Grade R Mathematics Programme (R-Maths) in the Western Cape between 2016 and 2019.
- The R-Maths writing team: SDU staff and consultants.

Programme conceptualisation and management: Cally Kuhne and Tholisa Matheza
Translation and publishing project management: Arabella Koopman
Translation: Maurice Hlangwani
Editing (Xitsonga): Gezani Chabalala
Illustrations: Jiggs Snaddon-Wood

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.

Ku vumbiwa ka nongoti na malawulelo ya nongonoko: Cally Kuhne na Tholisa Matheza
Vuhundzuluxeri na malawulelo ya phurojeke ya vukandziyisi: Arabella Koopman
Vuhundzuluxeri bya Xitsonga: Maurice Hlangwani
Vuhleri na vuhlayisisi bya Xitsonga: Gezani Chabalala
Swifaniso: Jiggs Snaddon-Wood

Contents

Overview

Workshop content

Leswi nga endzeni

Nkatsakanyo

Vundzeni bya ndzetelavutivi

Overview

Purpose

This is the eleventh of twelve Grade R Mathematics Improvement Programme (Maths 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 consolidate the understanding of the Maths content taught in Grade R and to continue assisting teachers to implement the Maths Programme in their classrooms. Participants will have the opportunity to reflect on their implementation of the Maths Programme and discuss their planning, teaching and assessment. They will also consider learner progress, and individual developmental and learning needs. Participants will reflect on appropriate assessment strategies for capturing learner progress. The workshop explores the content for Term 4 Weeks 4–6 and its classroom implementation.

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

Learning outcomes

- To deepen understanding of Grade R Mathematics content
- To reflect on classroom implementation of the Maths Programme
- To identify challenges and find solutions to implementing the Maths Programme
- To reflect on informal forms of assessment in Grade R
- To plan the Maths Programme content to be taught in Term 4 Weeks 4–6

Workshop content

- Opening and reflection (1 hour)
- Session 1: Review of the Maths Content Areas (1 hour)

TEA

- Session 2: Maths Content Area presentations (1 hour)
- Session 3: Maths Content Area presentations (continued) (1 hour)

LUNCH

- Session 4: Planning for teaching (1½ hours)
- Closing activities (30 minutes)

Nkatsakanyo

Xikongomelo

Lowu i wa vukhumen'we 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 tiyisa ntwisiso wa vundzeni bya Matematiki lebyi dyondzisiwaka eka Giredi ya V na ku yisa emahlweni ku pfuneta vadyondzisi ku tirhisa Nongonoko wa Matematiki etikamareni ta vona to dyondzela. Vatekaxiave va ta kuma xivandlanene xa ku ehleketisisa hi mayelana na ku tirhisiwa ka Nongonoko wa Matematiki kutani va kanela nkunguhato, madyondziselo na madyondzelo ya vona. Va ta tlhela va anakanya hi ku ya emahlweni ka mudyondzi, na swilaveko swa nhluvukiso na ku dyondza swa mudyondzi hi un'weun'we. Vatekaxiave va ta ehleketisisa hi mayelana na maqhinga ya makambelelo lama faneleke ya ku rhekoda ku ya emahlweni ka mudyondzi. Ndzetelavutivi lowu wu valanga vundzeni bya Mavhiki ya 4–6 ya Kotara ya 4 na ku tirhisiwa ka byona ekamareni ro dyondzela.

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 dvondzo

- Ku tiyisa ntwisiso wa Vundzeni bya Matematiki wa Giredi ya V
- Ku ehleketisisa hi mayelana na ku tirhisiwa ka Nongonoko wa Matematiki
- Ku kuma mitlhontlho na ku kuma switshunxo swa ku tirhisa Nongonoko wa Matematiki
- Ku ehleketisisa hi mayelana na mixaka ya nkamafundza ya makambelelo eka Giredi ya V
- Ku kunguhata vundzeni bya Nongonoko wa Matematiki lebyi faneleke ku dyondzisiwa eka Mavhiki ya 4–6 ya Kotara ya 4

Vundzeni bya ndzetelavutivi

- Ku pfula na ku ehleketisisa (1 ya awara)
- Sexini ya 1: Nkambisiso wa Swiyenge swa Vundzeni swa Matematiki (1 ya awara)

TIYA

- Sexini ya 2: Miandlalo ya Swiyenge swa Vundzeni swa Matematiki (1 ya awara)
- Sexini ya 3: Miandlalo ya Swiyenge swa Vundzeni swa Matematiki (yi yisiwa emahlweni) (1 ya awara)

LANCI

- Sexini ya 4: Nkunguhato wa ku dyondzisa (1½ wa tiawara)
- Migingiriko yo pfala (30 wa timinete)

Preparation

- PPT welcome and outcomes
- Familiarise yourself with all the PowerPoints and videos
- Read: *Activity Guide: Term 4*, pages 70–119
- Bring the post box
- Remind participants to bring their:
  Concept Guide
  Activity Guides (for Terms 1–4)
  Poster Book
- Prepare the topic sheets from Appendix B

Materials

- Flipchart paper, kokis
- Prestik
- A *Resource Kit* for each group (Groups will be working with all the apparatus in the *Resource Kit*.)
- Scissors and glue for each group

Malulamiselo

- PPT ku amukela na mivuyelo
- Titoloveti tiPowerPoint na tivhidiyo hinkwato
- Hlaya: *Xiletelo xa Migingiriko: Kotara ya 4,* tipheji ta 70–119
- Tana na bokisi ra poso
- Tsundzuxa vatekaxiave ku ta na:
  Xiletelo xa Minongoti
  Swiletelo swa Migingiriko (Tikotara ta 1–4)
  Buku ya Tiphositara
- Lulamisa swipandzu swa tinhlokomhaka kusuka eka Xiengetelwa xa B

Timatheriyali

- Maphepha ya chati yo pfula, tikhoki
- Prestik
- *Khiti ya Swipfun*o ya ntlawa wun'wana na wun'wana (Mitlawa yi ta tirha hi switirhisiwa leswaku nga eka *Khiti ya Swupfuno*.)
- Xikero na xinamarheti xa dlu xa ntlawa wun'wana na wun'wana

Opening and reflection **1 hour**

When we think about and discuss what worked and how we dealt with any challenges that arose during our teaching, it allows us to recognise our strengths and weaknesses. Reflection on our practice as teachers helps us gain new insights into ourselves and our teaching. Reflective practice allows us to learn from our experiences and encourages us to work with our colleagues to share ideas that improve our teaching.

Facilitator's notes

- PPT: Familiarise yourself with the slide pack for the workshop.
- Discuss the post box comments and feedback from the previous workshop. Remind participants to 'post' any new comments and feedback during the workshop.
- Lead a discussion on the importance of reflective practice as part of our teaching.

The process of self-reflection is a cycle that needs to be repeated.

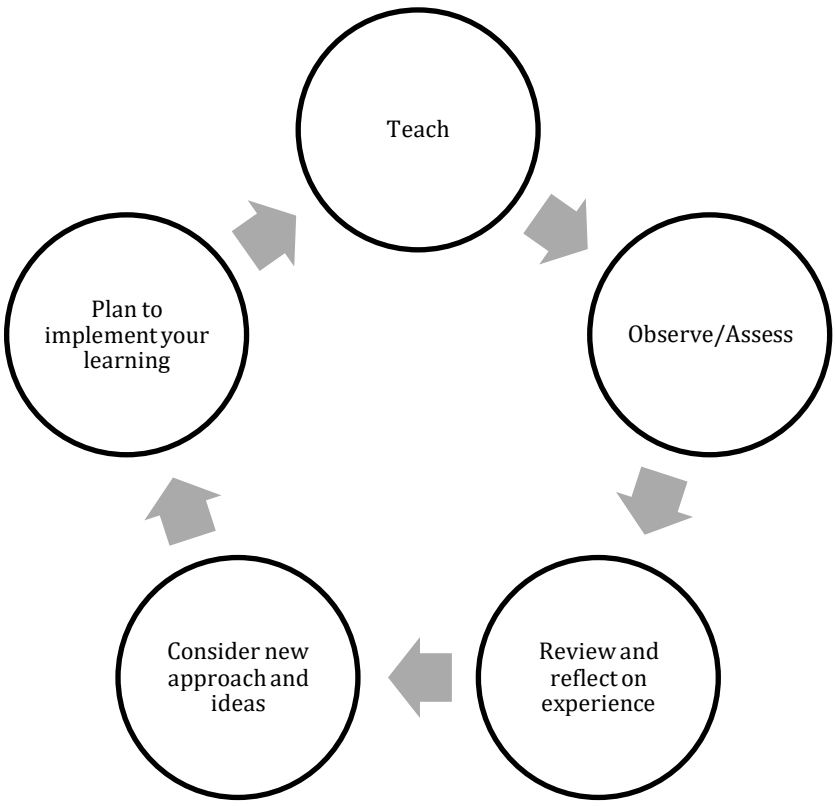


Figure 1: Stages of the reflection cycle

The process of self-reflection contains the following stages:

- Teach.
- Observe/assess.

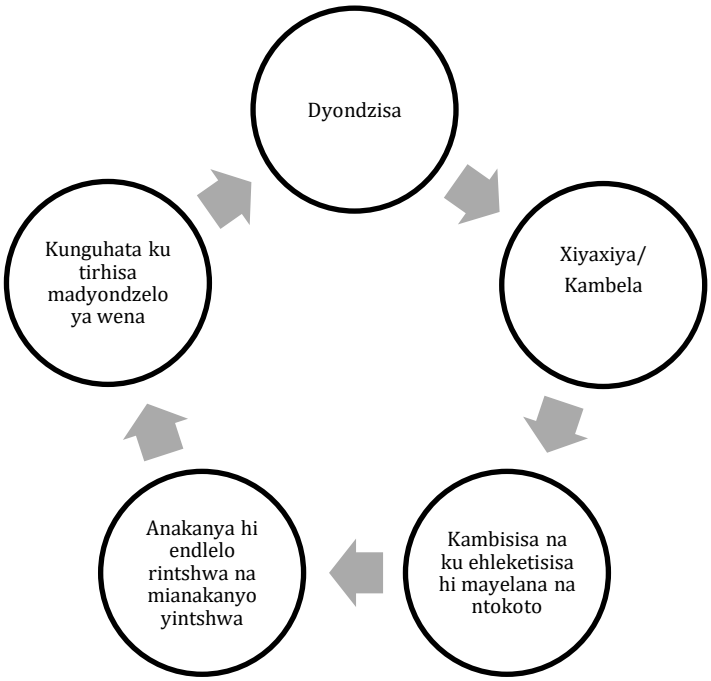
Ku pfula na ku ehleketisisa

1 ya awara

Loko hi ehleketa na ku kanela hi mayelana na leswi swi tirheke na hilaha hi tirhaneke hakona na mitlhontlho yihi kumbe yihi leyi yi tumbulukeke hi nkarhi wa ku dyondzisa ka hina, swi hi pfumelela ku lemuka matimba na ku tsana ka hina. Vuehleketisisi hi mayelana na ntirho wa hina tanihi vadyondzisi byi hi pfuna ku kuma mitwisiso yintshwa eka hina vini na madyondziselo ya hina. Maendlelo yo ehleketisisa ya hi pfumelela ku dyondza kusuka eka mitokoto ya hina na ku hi khutaza ku tirha na vatirhikulobye va hina ku avelana mianakanyo leyi yi antswisaka madyondziselo ya hina.

Tinotsi ta muhumelerisi
♦ PPT: Titoloveti hi ntlawa wa swilayidi swa ndzetelavutivi lowu. ♦ Kanelani swibumabumelo swa bokisi ra poso na mbiko kusuka eka ndzetelavutivi wa nkarhi lowu nga hundza. Tsundzuxa vatekaxiave ku 'posa' swibumabumelo swintshwa swihi kumbe swihi na mbiko hi nkarhi wa ndzetelavutivi lowu. ♦ Rhangela nkanelo hi mayelana na nkanelo wa maendlelo yo ehleketisisa tanihi xiphemu xa madyondziselo ya hina.

Maendlelo yo tiehleketisisa wena n'wini i ndzhendzeleko lowu faneleke ku vuyelerisiwa.



Xifaniso xa 1: Switeji swa ndzhendzeleko wa vuehleketisisi

Maendlelo ya vutiehleketisisi ya na switeji leswi landzelaka:

- Dyondzisa.
- Xiyaxiya/kambela.

- Review and reflect on how effective our teaching was, whether the lesson went well, what challenges emerged and whether the learners benefitted.
- Use the above information to consider new ways of teaching that could improve the quality of teaching and learning.
- Plan and implement new ideas and/or strategies in the classroom.

The cycle repeats after each teaching experience.

Reflection in implementation

Facilitator's notes
♦ Remind participants of the *Take back to school task* from the end of Workshop 10. ♦ Refer participants to **Activity 1** and read through the instructions aloud. ♦ Give each group a sheet of flipchart paper. ♦ Groups will present a summary of their discussion of the reflection cycle.

The *Take back to school task* from Workshop 10, required you to:

- Plan and implement Term 4 Weeks 1–3 of the Maths Programme.
- Write comments in the book that you use to keep track of each learner's progress (learner observation book), and to use the **'Check that learners are able to'** observation list during each of the teacher-guided activities to guide your observations and comments.
- Make notes of what worked well, what did not work well and how you resolved any challenges during your implementation of Term 4 Weeks 1–3.
- Bring your learner observation book and the notes you made when reflecting on each day's teaching to Workshop 11.

Activity 1

1. In your small group, consider each of the stages in the reflection cycle and discuss the *Take back to school task* from Workshop 10.
   - How successful was your planning and teaching in Term 4 Weeks 1–3?
   - Identify challenges and the strategies you used to resolve them.

_____
_____
_____
_____
_____
_____

- Kambisisa na ku ehleketisisa hi mayelana na hilaha madyondziselo ya hina ya tirheke kahle hakona, loko dyondzotsongo yi fambe kahle swinene, hi yihi mitlhontlho leyi tumbulukeke na loko vadyondzi va vuyeriwile.
- Tirhisa vuxokoxoko lebyi nga laha henhla ku anakanya hi tindlela tintshwa ta madyondziselo lama ma nga antswisaka risima ra madyondziselo na madyondzelo.
- Kunguhata kutani u tirhisa mianakanyo na/kumbe maqhinga mantshwa ekamareni ro dyondzela.

Ndzhendzeleko wa vuyelela endzhaku ka ntokoto wa ku dyondzisa wun'wana na wun'wana.

Ku ehleketisisa eka matirhiselo

Tinotsi ta muhumelerisi

- Tsundzuxa vatekaxiave hi *Xintirhwana xo tlhelela na xona exikolweni* kusuka emakumu ya Ndzetelavutivi wa 10.
- Kongomisa vatekaxiave eka **Nghingiriko wa 1** kutani u hlayela swileriso ehenhla.
- Nyika ntlawa wun'wana na wun'wana xipandzu xa phepha ra chati yo pfula.
- Mitlawa yi ta andlala nkomiso wa nkanelo wa yona wa ndzhendzeleko wa vuehleketisisi.

Xintirhwana xo tlhelela na xona exikolweni kusuka eka Ndzetelavutivi wa 10, a xi ku lava leswaku u:

- Kunguhata kutani u tirhisa Mavhiki ya 1–3 ya Kotara ya 4 ya Nongonoko wa Matematiki.
- Tsala swibumabumelo ebukwini leyi u tirhisaka ku landzelerisa ku ya emahlweni ka mudyondzi un'wana na un'wana (buku ya nxiyaxiyo wa vadyondzi), kutani u tirhisa nxaxamelo wa mixiyaxiyo ya '**Kamba leswaku vadyondzi va kota ku**' hi nkarhi wa wun'wana na wun'wana wa migingiriko leyi leteriwaka hi mudyondzisi ku letela mixiyaxiyo na swibumabumelo swa wena.
- Endla tinotsi ta leswi swi tirheke kahle swinene, leswi swi nga tirhangiki kahle swinene na hilaha u ololoxeke hakona mitlhontlho yihi kumbe yihi eka matirhiselo ya wena ya Mavhiki ya 1–3 ya Kotara ya 4.
- Tana na buku ya wena ya nxiyaxiyo wa vadyondzi na tinotsi leti u ti endleke loko u ri karhi u ehleketisisa hi mayelana na madyondziselo ya siku rin'wana na rin'wana eka ndzetelavutivi wa 11.

Nghingiriko wa 1

1. Entlaweni wa n'wina lowutsongo, anakanyani hi xin'wana na xin'wana xa switeji leswi nga eka ndzhendzeleko wa vuehleketisisi kutani mi kanela *Xintirhwana xo tlhelela na xona exikolweni* kusuka eka Ndzetelavutivi wa 10.
   - Xana nkunguhato na madyondziselo ya wena ya fambe njhani eka Mavhiki ya 1–3 ya Kotara ya 4?
   - Kumani mitlhontlho na maqhinga lama u ma tirhiseke ku swi ololoxa.

_____
_____
_____
_____
_____

- Have you been able to observe each learner and record his/her progress? Give reasons and examples to support your answer.

_____

_____

2. Imagine that you have been asked by your Department Head to talk to the Grade R teachers at a cluster meeting.
   - Refer to the reflection cycle in Figure 1.
   - Draw the cycle on flipchart paper and add notes next to each stage of the cycle.
   - Your group will present the main points of your discussion to the whole group.

Facilitator's notes

- Wrap up the discussion and address any questions raised.

Video 1

Watch the video of a group of teachers reflecting on their teaching and listen to their opinions about reflective practice.

1. Do you agree with their ideas about reflective practice? Explain your answer.

_____

_____

2. Does reflective practice increase your understanding of your teaching? Explain your answer.

_____

_____

3. Does reflective practice increase your understanding of learning in your class? Explain your answer.

_____

_____

4. Does reflective practice increase your engagement with colleagues? Explain your answer.

_____

_____

Facilitator's notes

- Invite comments and responses to the video.

- Xana u kotile ku xiyaxiya mudyondzi un'wana na un'wana na ku rhekoda ku ya ka yena emahlweni? Nyika swivangelo na swikombiso ku seketela nhlamulo ya wena.

_____

_____

2. Anakanya leswaku u komberiwile hi Nhloko ya Ndzawulo ya wena ku vulavula na vadyondzisi va Giredi ya V eka nhlengeletano ya tlilasitara.
   - Kongomisa eka ndzhendzeleko wa vuehleketisisi lowu nga eka Xifaniso xa 1.
   - Dirowa ndzhendzeleko ephepheni ra chati yo pfula kutani u engetela tinotsi ekusuhi na xiteji xin'wana na xin'wana xa ndzhendzeleko.
   - Ntlawa wa n'wina wu ta andlala timhakakulu ta nkanelo wa n'wina eka ntlawa hinkwawo.

Tinotsi ta muhumelerisi

- Songasonga nkanelo kutani u tirhana na swivutiso swihi kumbe swihi leswi boxiweke.

Vhidiyo ya 1

Hlalelani vhidiyo ya ntlawa wa vadyondzisi va ri karhi va ehleketisisa hi mayelana na madyondziselo ya vona kutani mi yingisela mavonelo ya vona hi mayelana na maendlelo yo ehleketisisa.

1. Xana wa pfumelelana na mianakanyo ya vona hi mayelana na maendlelo yo ehleketisisa? Hlamusela hi vutalo nhlamulo ya wena.

_____

_____

2. Xana maendlelo yo ehleketisisa ya engetela ntwisiso wa wena wa madyondziselo ya wena? Hlamusela hi vutalo nhlamulo ya wena.

_____

_____

3. Xana maendlelo yo ehleketisisa ya engetela ntwisiso wa wena wa madyondzelo etlilasini ya wena? Hlamusela hi vutalo nhlamulo ya wena.

_____

_____

4. Xana maendlelo yo ehleketisisa ya engetela mbulavurisano wa wena na vatirhikulobye va wena? Hlamusela hi vutalo nhlamulo ya wena.

_____

_____

Tinotsi ta muhumelerisi

- Rhamba swibumabumelo na tinhlamulo ta vhidiyo.

Session 1: Review of the Maths Content Areas

1 hour

Facilitator's notes

- Divide the participants into 9 small groups. Allocate a space for each group to set up a table and wall display.
- Give each group flipchart paper, kokis, scissors and glue.
- Give one topic from Appendix B to each small group.
- Participants complete **Activity 2** in their small groups. Assist groups to ensure that content is accurate and that core concepts and skills are included in their presentation.
- Each group does a presentation to the whole group.
- After each presentation, draw the participants' attention to the main content focus. Address any issues that were raised or misconceptions that arose in the presentation.

In Sessions 1, 2 and 3 we will review our understanding and knowledge of the five CAPS Grade R Mathematics Content Areas and related topics. We will also discuss the teaching and approaches that form part of the Maths Programme we have been implementing.

Activity 2

1. Your group will prepare a presentation on a topic that the facilitator gives you.
   - You will have access to flipchart paper, kokis, scissors, glue and items from the *Resource Kit*. You will also be allocated a space in which to set up your presentation.
   - You need to refer to the *Concept Guide* and *Activity Guides* in your presentation.

2. Your presentation needs to include:
   - an overview of the content and how this is developed in Grade R
   - resources used to model concepts and represent ideas
   - appropriate learner activities for consolidating and applying new knowledge
   - areas of concern when teaching the topic
   - a table and wall display
   - examples of how learners would solve problems.

3. Your group will facilitate the discussion and answer questions from the whole group.

Sexini ya 1: Nkambisiso wa Swiyenge swa Vundzeni swa Matematiki

1 ya awara

Tinotsi ta muhumelerisi

- Avanyisa vatekaxiave hi 9 wa mitlawa leyitsongo. Avela ntlawa wun'wana na wun'wana ndhawu ku lulamisa tafula na nkombiso wa le khumbini.
- Nyika ntlawa wun'wana na wun'wana phepha ra chati yo pfula, tikhoki, xikero na xinamarheti xa dlu.
- Nyika ntlawa wun'wana na wun'wana nhlokomhaka yin'we kusuka eka Xiengetelwa xa B.
- Vatekaxiave va hetisa **Nghingiriko wa 2** emitlaweni ya vona leyitsongo. Pfuneta mitlawa ku tiyisisa leswaku vundzeni i bya nkhaqato na leswaku minongotikulu na swikilikulu swa katsiwa eka andlalo wa vona.
- Ntlawa wun'wana na wun'wana wu nyika andlalo eka ntlawa hinkwawo.
- Endzhaku ka andlalo wun'wana na wun'wana, kongomisa miehleketo ya vatekaxiave eka nkongomokulu wa vundzeni. Lulamisa swiphiqo swihi kumbe swihi leswi swi boxiweke kumbe mitwisisohambuko leyi yi tumbulukeke eka andlalo.

Eka Tisexini ta 1, 2 na 3 hi ta kambisisa ntwisiso na vutivi bya hina bya ntlhanu wa Swiyenge swa Vundzeni swa Matematiki wa Giredi ya V wa XIPHOKHAMA na tinhlokomhaka leti yelanaka. Hi ta tlhela hi kanela madyondziselo na maendlelo lama ma vumbaka xiphemu xa Nongonoko wa Matematiki lama a hi ri eku ma tirhiseni.

Nghingiriko wa 2

1. Ntlawa wa n'wina wu ta lulamisa andlalo hi mayelana na nhlokomhaka leyi muhumelerisi a nga ta mi nyika.
   - Mi ta kuma phepha ra chati yo pfula, tikhoki, xikero, xinamarheti xa dlu na michumu yo huma eka *Khiti ya Swipfuno*. Mi ta tlhela mi averiwa ndhawu leyi mi nga ta lulamisela eka yona andlalo wa n'wina.
   - Mi ta fanela ku kongomisa eka *Xiletelo xa Minongoti* na *Swiletelo swa Migingiriko* eka andlalo wa n'wina.

2. Andlalo wa n'wina wu ta fanela ku katsa:
   - nkatsakanyo wa vundzeni na hilaha leswi swi hluvukisiwaka hakona eka Giredi ya V
   - swipfuno leswi tirhisiwa ku vumba minongoti na ku endla vuyimeri bya mianakanyo
   - migingiriko ya vadyondzi leyi faneleke ku tiyisa na ku tirhisa vutivi byintshwa
   - swiyenge leswi vilerisaka loko ku ri karhi ku dyondzisiwa nhlokomhaka
   - tafula na nkombiso wa le khumbini
   - swikombiso swa hilaha vadyondzi va nga ta ololoxa swiphiqo hakona.

3. Ntlawa wa n'wina wu ta humelerisa nkanelo kutani mi hlamula swivutiso kusuka eka ntlawa hinkwawo.

Notes:

Tinotsi:

Session 2: Maths Content Area presentations

1 hour

Facilitator's notes
♦ Each group makes its presentation to the whole group. ♦ After each group's presentation, draw participants' attention to the main content focus. Address any issues that were raised or misconceptions that arose in the presentation.

Each group will have 15 minutes to present their topic and respond to questions from the whole group.

Sexini ya 2: Miandlalo ya Swiyenge swa Vundzeni swa Matematiki

1 ya awara

Tinotsi ta muhumelerisi
♦ Ntlawa wun'wana na wun'wana wu nyika andlalo eka ntlawa hinkwawo. ♦ Endzhaku ka andlalo wa ntlawa wun'wana na wun'wana, kongomisa miehleketo ya vatekaxiave eka nkongomokulu wa vundzeni. Lulamisa swiphiqo swihi kumbe swihi leswi swi boxiweke kumbe mitwisisohambuko leyi yi tumbulukeke eka andlalo.

Ntlawa wun'wana na wun'wana wu ta va na 15 wa timinete ku andlala nhlokomhaka ya wona na ku hlamula swivutiso kusuka eka ntlawa hinkwawo.

Session 3: Maths Content Area presentations (continued)

1 hour

Facilitator's notes
♦ Each group makes its presentation to the whole group. ♦ After each group's presentation, draw participants' attention to the main content focus. Address any issues that were raised or misconceptions that arose in the presentation.

Each group will have 15 minutes to present their topic and respond to questions from the whole group.

Sexini ya 3: Miandlalo ya Swiyenge swa Vundzeni swa Matematiki (yi yisiwa emahlweni) **1 ya awara**

Tinotsi ta muhumelerisi
♦ Ntlawa wun'wana na wun'wana wu nyika andlalo eka ntlawa hinkwawo. ♦ Endzhaku ka andlalo wa ntlawa wun'wana na wun'wana, kongomisa miehleketo ya vatekaxiave eka nkongomokulu wa vundzeni. Lulamisa swiphiqo swihi kumbe swihi leswi swi boxiweke kumbe mitwisisohambuko leyi yi tumbulukeke eka andlalo.

Ntlawa wun'wana na wun'wana wu ta va na 15 wa timinete ku andlala nhlokomhaka ya wona na ku hlamula swivutiso kusuka eka ntlawa hinkwawo.

Session 4: Planning for teaching **1½ hours**

This workshop session prepares participants for implementing Term 4 Weeks 4–6 and provides an opportunity for small groups to plan ahead. It is important to:

- address differences in learners' levels of progress
- support those learners who need additional assistance
- provide enrichment activities for more advanced learners.

The goal is to ensure that all learners are competent in the Grade R Mathematics content and are well prepared for Grade 1.

Facilitator's notes

- Move between the small groups as participants discuss the planning and preparation for teaching Term 4 Weeks 4–6 in **Activity 3**. Assist by making suggestions on overcoming challenges.
- Each small group plans the three weeks and completes the templates in Appendix A.
- Lead a whole-group discussion on differentiation and how to manage learners at different levels of competence. Write these ideas on flipchart paper.

Activity 3

1. In your group, complete the planning templates for Term 4 Weeks 4–6 (Appendix A).
2. Discuss how you will plan for and manage learners who have different levels of competence.

_____
_____
_____
_____
_____
_____

Sexini ya 4: Nkunguhato wa ku dyondzisa

1½ ya tiawara

Ndzetelavutivi lowu wu lulamisela vatekaxiave eka ku tirhisa Mavhiki ya 4–6 ya Kotara ya 4 na ku nyika xivandlanene eka mitlawa leyitsongo ku kunguhata ku ya emahlweni. I swa nkoka ku:

- lulamisa ku hambana eka tilevhele ta vadyondzi ku ya emahlweni
- seketela vadyondzi lavaya va lavaka ku pfuneka ko engetela
- nyika migingiriko ya mfuwiso eka vadyondzi lava antsweke swinene.

Xikongomelokulu i ku tiyisisa leswaku vadyondzi hinkwavo va na vuswikoti eka vundzeni bya Matematiki wa Giredi ya V naswona va lulamerile kahle kuya eka Giredi ya 1.

Tinotsi ta muhumelerisi

- Fambafamba exikarhi ka mitlawa loko vatekaxiave va ri karhi va kanela nkunguhato na malulamiselo ya ku dyondzisa Mavhiki ya 4–6 ya Kotara ya 4 lama nga eka **Nghingiriko wa 3**. Pfuneta hi nyika swiringanyeto hi mayelana na ku hlula mitlhontlho.
- Ntlawa lowutsongo wun'wana na wun'wana wu kunguhata mavhiki manharhu naswona wu hetisa tithempuleti leti nga eka Xiengetelwa xa A.
- Rhangela nkanelo wa ntlawa hinkwawo hi mayelana na vuhambanisi na hilaha ku lawuriwaka hakona vadyondzi eka tilevhele to hambanahambana ta vuswikoti. Tsala mianakanyo leyi eka phepha ra chati yo pfula.

Nghingiriko wa 3

1. Entlaweni wa n'wina, hetisani tithempuleti ta nkunguhato ta Mavhiki ya 4–6 ya Kotara ya 4 (Xiengetelwa xa A).
2. Kanelani hilaha mi nga ta kunguhatela na ku lawula hakona vadyondzi lava va nga na tilevhele to hambanahambana ta vuswikoti.

_____
_____
_____
_____
_____
_____

Closing activities

30 minutes

Facilitator's notes

Workshop reflection:

- Ask participants to stand in two circles, one inside the other. Participants in the outer circle should stand facing inwards and participants in the inner circle should stand facing outwards.
- Participants take a few minutes to reflect on and discuss the workshop with the person opposite them. Invite them to mention highlights and also any questions they may have that have not yet been answered.
- Ask the inner circle to move one person to the right and to repeat the discussion. Repeat this a few times.
- Ask participants to volunteer something relevant that another participant mentioned to them.
- Encourage participants to add any comments and feedback not shared during the discussion to the post box.

Facilitator's notes

- **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.

Take back to school task

1. Invite other Grade R teachers at your school (or from another school) to join you in planning Term 4 Weeks 4–6 of the Maths Programme.
2. Implement these three weeks and use the reflection cycle (Figure 1) to review your experience. Write your reflections in a journal and bring it to the next workshop.

Evaluation

Complete the Evaluation Form.

Migingiriko yo pfala

30 wa timinete

Tinotsi ta muhumelerisi

Vuehleketisisi bya ndzetelavutivi:

- Kombela vatekaxiave ku yima hi swirhendzevutana swimbirhi, xin'we endzeni ka lexin'wana. Vatekaxiave lava nga eka xirhendzevutana xa le handle va fanele ku yima va languta endzeni kasi vatekaxiave lava nga eka xirhendzevutana xa le ndzeni va fanele ku yima va languta ehandle.
- Vatekaxiave va teka timinete tingaritingani ku ehleketisisa hi mayelana na ndzetelavutivi lowu na ku kanela ndzetelavutivi lowu na munhu loyi va nga langutana na yena. Va rhambi ku vula timhakakulu na swivutiso swihi kumbe swihi leswi va nga vaka na swona swo ka swi nga hlamuriwangi.
- Kombela xirhendzevutana xa le ndzeni ku fambisa munhu un'we ku ya exineneni na ku vuyelela nkanelo. Vuyelelani leswi kungarikangani.
- Kombela vatekaxiave ku tinyikela xin'wana lexi fambelanaka lexi mutekaxiave un'wana a xi vuleke eka vona.
- Khutaza vatekaxiave ku engetela swibumabumelo swihi kumbe swihi na mbiko wihi kumbe wihi lowu nga si avelaniwaka hi nkarhi wa nkanelo ebokisini ra poso.

Tinotsi ta muhumelerisi

- **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.

Xintirhwana xo tlhelela na xona exikolweni

1. Rhamba vadyondzisi va Giredi ya V van'wana exikolweni xa ka n'wina (kumbe kusuka exikolweni xin'wana) ku tikatsa na wena eka ku kunguhata Mavhiki ya 4–6 ya Kotara ya 4 ya Nongonoko wa Matematiki.
2. Tirhisa mavhiki lamanharhu naswona tirhisa ndzhendzeleko wa vuehleketisisi (Xifaniso xa 1) ku kambisisa ntokoto wa wena. Tsala vuehleketisisi bya wena eka jenali kutani u ta na yona eka ndzetelavutivi lowu landzelaka.

Nkambelo

Tatisa Fomo leya Nkambelo.

APPENDIX A: TERM 4 WEEKLY PLANNING TEMPLATE

Term 4: Activity Plan: Week ____

<table>
<tr><td colspan="5">CONTENT AREA:</td></tr>
<tr><td colspan="5">TOPIC:

INTRODUCE NEW KNOWLEDGE:

PRACTISE:</td></tr>
<tr><td colspan="2">Whole class activities</td><td>Teacher-guided activity</td><td colspan="2">Workstation activities (independent small group activities)</td></tr>
<tr><td>Day 1</td><td></td><td rowspan="5"></td><td>Activity 1</td><td rowspan="5"></td></tr>
<tr><td>Day 2</td><td></td><td>Activity 2</td></tr>
<tr><td>Day 3</td><td></td><td>Activity 3</td></tr>
<tr><td>Day 4</td><td></td><td>Activity 4</td></tr>
<tr><td>Day 5</td><td></td></tr>
</table>

XIENGETELWA XA A: THEMPULETI YA NKUNGUHATO WA VHIKI NA VHIKI WA KOTARA YA 4

Kotara ya 4: Kungu ra Migingiriko: Vhiki ra ____

<table>
<tr><td colspan="5">XIYENGE XA VUNDZENI:</td></tr>
<tr><td colspan="5">NHLOKOMHAKA:

TIVISA VUTIVI BYINTSHWA:

TITOLOVETI:</td></tr>
<tr><td colspan="2">Migingiriko ya tlilasi hinkwayo</td><td>Nghingiriko lowu leteriwaka hi mudyondzisi</td><td colspan="2">Migingiriko ya le ka xitichi xo tirhela (migingiriko ya mitlawa leyitsongo leyi tshunxekeke)</td></tr>
<tr><td>Siku ra 1</td><td></td><td rowspan="5"></td><td>Nghingiriko wa 1

Nghingiriko wa 2</td><td rowspan="5"></td></tr>
<tr><td>Siku ra 2</td><td></td><td>Nghingiriko wa 3</td></tr>
<tr><td>Siku ra 3</td><td></td><td>Nghingiriko wa 4</td></tr>
<tr><td>Siku ra 4</td><td></td></tr>
<tr><td>Siku ra 5</td><td></td></tr>
</table>

Term 4: Activity Plan: Week __

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

Kotara ya 4: Kungu ra Migingiriko: Vhiki ra ____

XIYENGE XA VUNDZENI:				
NHLOKOMHAKA: **TIVISA VUTIVI BYINTSHWA:** **TITOLOVETI:**				
Migingiriko ya tlilasi hinkwayo		**Nghingiriko lowu leteriwaka hi mudyondzisi**	**Migingiriko ya le ka xitichi xo tirhela (migingiriko ya mitlawa leyitsongo leyi tshunxekeke)**	
Siku ra 1			**Nghingiriko wa 1** **Nghingiriko wa 2** **Nghingiriko wa 3** **Nghingiriko wa 4**	
Siku ra 2				
Siku ra 3				
Siku ra 4				
Siku ra 5				

Term 4: Activity Plan: Week ____

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

Kotara ya 4: Kungu ra Migingiriko: Vhiki ra ____

<table>
<tr><td colspan="5">XIYENGE XA VUNDZENI:</td></tr>
<tr><td colspan="5">NHLOKOMHAKA:

TIVISA VUTIVI BYINTSHWA:

TITOLOVETI:</td></tr>
<tr><td colspan="2">Migingiriko ya tlilasi hinkwayo</td><td>Nghingiriko lowu leteriwaka hi mudyondzisi</td><td colspan="2">Migingiriko ya le ka xitichi xo tirhela (migingiriko ya mitlawa leyitsongo leyi tshunxekeke)</td></tr>
<tr><td>Siku ra 1</td><td></td><td rowspan="5"></td><td>Nghingiriko wa 1

Nghingiriko wa 2

Nghingiriko wa 3

Nghingiriko wa 4</td><td rowspan="5"></td></tr>
<tr><td>Siku ra 2</td><td></td></tr>
<tr><td>Siku ra 3</td><td></td></tr>
<tr><td>Siku ra 4</td><td></td></tr>
<tr><td>Siku ra 5</td><td></td></tr>
</table>

APPENDIX B: ACTIVITY 2 TOPICS

Topic 1: Number concept development and counting (Numbers, Operations and Relationships)

Prepare a presentation that includes:

- a mapping of the main concepts/skills on flipchart paper
- how this topic is taught in Grade R
- a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- What is number concept?
- How do children acquire number concept?
  What does counting involve? Refer to:
  - the difference between sequencing number names and counting objects
  - matching one-to-one
  - comparing groups in terms of 'more than', 'less than', 'fewer than' and 'the same number as'
  - cardinal and ordinal numbers from 1–10
  - introducing the concept of the empty set with the number word 'zero' and number symbol '0'.
- What is the value of representing number in multiple ways? Provide and explain concrete examples.
- Discuss estimation in relation to the development of number concept.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Topic 2: Calculations (Numbers, Operations and Relationships)

Prepare a presentation that includes:

- a mapping of the main concepts/skills on flipchart paper
- how this topic is taught in Grade R
- a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

XIENGETELWA XA B: TINHLOKOMHAKA TA NGHINGIRIKO WA 2

Nhlokomhaka ya 1: Nhluvukiso wa nongoti wa nomboro na ku hlayela (Tinomboro, Tioparexini na Vuxaka)

Lulamisa andlalo lowu wu katsaka:

- nkunguhato wa minongotikulu/swikilikulu eka phepha ra chati yo pfula
- hilaha nhlokomhaka leyi yi dyondzisiwaka hakona eka Giredi ya V
- nkombiso wa michumu yo khomeka, swifaniso na 'swikombiso' swa ntirho wa vadyondzi ku seketela nkanelo wa wena
- timhaka ta nkoka leti faneleke ku tekeriwa enhlokweni hi mayelana na nhlokomhaka leyi.

U ta fanela ku humelerisa nkanelo kutani u hlamula swivutiso kusuka eka ntlawa hinkwawo.

Timhaka leti faneleke ku tekeriwa enhlokweni eka andlalo wa wena:

- Xana nongoti wa nomboro i yini?
- Xana vana va wu kuma njhani nongoti wa nomboro?
  Xana ku hlayela swi khumba yini? Kongomisa eka:
  - ku hambana exikarhi ka ku longoloxela mavito ya tinomboro na ku hlayela michumu
  - ku pananisa n'we-eka-n'we
  - ku fananisa mitlawa hi ku ya hi 'tala kutlula', 'ntsongo kutlula', 'ntsongo eka' na 'nomboro yo fana tanihi'
  - tinomboro ta khadinali na tinomboro ta odinali kusuka eka 1–10
  - ku tivisa nongoti wa xikatsa xo va hava nchumu lexi nga na vito ra nomboro ra 'ziro' na mfungho wa nomboro wa '0'.
- Xana hi wihi nkoka wa ku endla vuyimeri bya nomboro hi tindlela to tala? Nyika na ku hlamusela hi swikombiso swo khomeka.
- Kanelani hi nkumbetelo ku xakelana na ku hluvukisa nongoti wa nomboro.

Kongomisa eka *Xiletelo xa Minongoti* na *Swiletelo swa Migingiriko* ku kuma swikombiso swa migingiriko, kutani mi kanela hilaha leswi swi tirhisiweke hakona ekamareni ro dyondzela.

Nhlokomhaka ya 2: Mikhakhuleto (Tinomboro, Tioparexini na Vuxaka)

Lulamisa andlalo lowu wu katsaka:

- nkunguhato wa minongotikulu/swikilikulu eka phepha ra chati yo pfula
- hilaha nhlokomhaka leyi yi dyondzisiwaka hakona eka Giredi ya V
- nkombiso wa michumu yo khomeka, swifaniso na 'swikombiso' swa ntirho wa vadyondzi ku seketela nkanelo wa wena
- timhaka ta nkoka leti faneleke ku tekeriwa enhlokweni hi mayelana na nhlokomhaka leyi.

U ta lava ku humelerisa nkanelo kutani u hlamula swivutiso kusuka eka ntlawa hinkwawo.

Points to consider in your presentation:

- Breaking down numbers and building up numbers.
- Representing partitioned groups of objects.
- Introducing the concept of addition as combining two collections.
- Introducing the concept of subtraction as taking away from a collection.
- Comparing two collections of objects by matching one-to-one to find the difference.
- Using the number washing line and a jumping track to solve addition problems – 'adding on' or 'counting on'.
- Using the number washing line and a jumping track to solve subtraction problems – 'counting back'.
- Introducing the concept of equal sharing and grouping.
- Promoting rapid recall and number facts.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Topic 3: Patterns, Functions and Algebra

Prepare a presentation that includes:

- a mapping of the main concepts/skills on flipchart paper
- how this topic is taught in Grade R
- a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- Introducing the idea of a repeated pattern.
- Identifying the pattern unit.
- Explaining the meaning of 'variable' and what is appropriate in Grade R.
- Making linear patterns with one variable.
- Discuss the process of introducing pattern in Grade R. Provide concrete and pictorial examples to support your discussion.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Timhaka leti faneleke ku tekeriwa enhlokweni eka andlalo wa wena:

- Ku tlhantlha na ku vumba tinomboro.
- Ku endla vuyimeri bya mitlawa leyi avanyisiweke ya michumu.
- Ku tivisa nongoti wa ku hlanganisa tanihi ku katsa mihlengelo yimbirhi.
- Ku tivisa nongoti wa ku susa tanihi ku humesa kusuka eka nhlengelo.
- Ku fananisa mihlengelo yimbirhi ya michumu hi ku pananisa wun'we-eka-wun'we ku kuma ku hambana.
- Ku tirhisa mugiva wa tinomboro na ndlela yo tlulela ku ololoxa swiphiqo swa ku hlanganisa – 'ku hlanganisa kuya emahlweni' kumbe 'ku hlayela kuya emahlweni'.
- Ku tirhisa mugiva wa tinomboro na ndlela yo tlulela ku ololoxa swiphiqo swa ku hlanganisa – 'ku hlayela kuya endzhaku'.
- Ku tivisa nongoti wa ku avelana ko ringana na ntlawahato.
- Ku kondletela ku tsundzuka ka xihatla na mitiyiso ya tinomboro.

Kongomisa eka *Xiletelo xa Minongoti* na *Swiletelo swa Migingiriko* ku kuma swikombiso swa migingiriko, kutani mi kanela hilaha leswi swi tirhisiwaka hakona ekamareni ro dyondzela.

Nhlokomhaka ya 3: Tipatironi, Tifankixini na Alijebura

Lulamisa andlalo lowu wu katsaka:

- nkunguhato wa minongotikulu/swikilikulu eka phepha ra chati yo pfula
- hilaha nhlokomhaka leyi yi dyondzisiwaka hakona eka Giredi ya V
- nkombiso wa michumu yo khomeka, swifaniso na 'swikombiso' swa ntirho wa vadyondzi ku seketela nkanelo wa wena
- timhaka ta nkoka leti faneleke ku tekeriwa enhlokweni hi mayelana na nhlokomhaka leyi.

U ta lava ku humelerisa nkanelo kutani u hlamula swivutiso kusuka eka ntlawa hinkwawo.

Timhaka leti faneleke ku tekeriwa enhlokweni eka andlalo wa wena:

- Ku tivisa muanakanyo wa patironi leyi vuyeleriweke.
- Ku kuma xiphemu xa patironi.
- Ku hlamusela leswi 'vhariyebulu' swi vulaka swona na leswi swi nga swona eka Giredi ya V.
- Ku endla patironi ya layini hi vhariyebulu yin'we.
- Kanelani phurosese ya ku tivisa patironi eka Giredi ya V. Nyikani swikombiso swo khomeka na swa swifaniso ku seketela nkanelo wa n'wina.

Kongomisa eka *Xiletelo xa Minongoti* na *Swiletelo swa Migingiriko* ku kuma swikombiso swa migingiriko, kutani mi kanela hilaha leswi swi tirhisiwaka hakona ekamareni ro dyondzela.

Topic 4: Space and Shape (Geometry)

Prepare a presentation that includes:

- a mapping of the main concepts/skills on flipchart paper
- how this topic is taught in Grade R
- a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- Discovering the general properties of 2-D shapes and 3-D objects.
- Collecting shapes and objects that have these shapes on their faces.
- Sorting shapes and objects and describing the 'rule' (criterion) for sorting.
- Introducing symmetry.
- Making symmetrical shapes with one or two lines of symmetry through drawing, folding and cutting.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Topic 5: Measurement

Prepare a presentation that includes:

- a mapping of the main concepts/skills on flipchart paper
- how this topic is taught in Grade R
- a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- Using vocabulary associated with time.
- Ordering (sequencing) events and activities according to the time at which they take place.
- Comparing objects according to their size.
- Identifying the attribute to be measured.

Nhlokomhaka ya 4: Ndhawu na Xivumbeko (Jometiri)

Lulamisa andlalo lowu wu katsaka:

- nkunguhato wa minongotikulu/swikilikulu eka phepha ra chati yo pfula
- hilaha nhlokomhaka leyi yi dyondzisiwaka hakona eka Giredi ya V
- nkombiso wa michumu yo khomeka, swifaniso na 'swikombiso' swa ntirho wa vadyondzi ku seketela nkanelo wa wena
- timhaka ta nkoka leti faneleke ku tekeriwa enhlokweni hi mayelana na nhlokomhaka leyi.

U ta lava ku humelerisa nkanelo kutani u hlamula swivutiso kusuka eka ntlawa hinkwawo.

Timhaka leti faneleke ku tekeriwa enhlokweni eka andlalo wa wena:

- Ku kuma swihlawulekisi swo angarhela swa swivumbeko swa 2-D na swa michumu ya 3-D
- Ku hlengeleta swivumbeko na michumu leyi yi nga na swivumbeko leswi eswikandzeni swa yona.
- Ku ava swivumbeko na michumu na ku hlamusela 'nawu' (xilanguteriwa) wa ku ava.
- Ku tivisa ndzinganiso.
- Ku endla swivumbeko swa ndzinganiso hi layini yin'we kumbe timbirhi ta ndzinganiso hi ku dirowa, ku petsa na ku tsema.

Kongomisa eka *Xiletelo xa Minongoti* na *Swiletelo swa Migingiriko* ku kuma swikombiso swa migingiriko, kutani mi kanela hilaha leswi swi tirhisiwaka hakona ekamareni ro dyondzela.

Nhlokomhaka ya 5: Mpimo

Lulamisa andlalo lowu wu katsaka:

- nkunguhato wa minongotikulu/swikilikulu eka phepha ra chati yo pfula
- hilaha nhlokomhaka leyi yi dyondzisiwaka hakona eka Giredi ya V
- nkombiso wa michumu yo khomeka, swifaniso na 'swikombiso' swa ntirho wa vadyondzi ku seketela nkanelo wa wena
- timhaka ta nkoka leti faneleke ku tekeriwa enhlokweni hi mayelana na nhlokomhaka leyi.

U ta lava ku humelerisa nkanelo kutani u hlamula swivutiso kusuka eka ntlawa hinkwawo.

Timhaka leti faneleke ku tekeriwa enhlokweni eka andlalo wa wena:

- Ku tirhisa ntivomarito lowu fambelanaka na nkarhi.
- Ku xaxameta (ku longoloxela) swiendleko na migingiriko hi ku ya hi nkarhi lowu yi humelelaka hawona.
- Ku fananisa michumu hi ku ya hi sayizi ya yona.
- Ku kuma xihlawulekisi lexi faneleke ku pimiwa.

- Using maths vocabulary to compare height, length and width.
- Using maths vocabulary to compare the mass of different objects.
- Using maths vocabulary to compare capacity and volume.
- Explain what non-standard measurement is and how it relates to each of the following Measurement topics:
  - time
  - length
  - mass
  - capacity/volume.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Topic 6: Data Handling

Prepare a presentation that includes:

- a mapping of the main concepts/skills on flipchart paper
- how this topic is taught in Grade R
- a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- Direct representation of situations using learners, objects and pictures.
- How does the idea of one-to-one matching relate to representing information/data in pictures or pictographs?
- What is the purpose of the pictures in the bottom row of the pictograph?
- What is the advantage of arranging the pictures in columns?
- Why do the pictures need to be the same size?
- Why do the pictures have to be evenly spaced?
- Discuss interpreting the information on a pictograph.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

- Ku tirhisa ntivomarito wa matematiki ku fananisa vulehelahenhla, vulehi na vuanami.
- Ku tirhisa ntivomarito wa matematiki ku fananisa ntiko wa michumu yo hambanahambana.
- Ku tirhisa ntivomarito wa matematiki ku fananisa vundzeni na vholumu.
- Hlamusela hi vutalo mpimo lowu nga riki wa ntolovelo leswaku i yini na hilaha wu xakelanaka hakona na yin'wana na yin'wana ya tinhlokomhaka leti ta Mpimo: landzelaka:
  - nkarhi
  - vulehi
  - ntiko
  - vundzeni/vholumu.

Kongomisa eka *Xiletelo xa Minongoti* na *Swiletelo swa Migingiriko* ku kuma swikombiso swa migingiriko, kutani mi kanela hilaha leswi swi tirhisiwaka hakona ekamaren ro dyondzela.

Nhlokomhaka ya 6: Matirhiselo ya Vuxokoxoko bya Tinhlayo

Lulamisa andlalo lowu wu katsaka:

- nkunguhato wa minongotikulu/swikilikulu eka phepha ra chati yo pfula
- hilaha nhlokomhaka leyi yi dyondzisiwaka hakona eka Giredi ya V
- nkombiso wa michumu yo khomeka, swifaniso na 'swikombiso' swa ntirho wa vadyondzi ku seketela nkanelo wa wena
- timhaka ta nkoka leti faneleke ku tekeriwa enhlokweni hi mayelana na nhlokomhaka leyi.

U ta lava ku humelerisa nkanelo kutani u hlamula swivutiso kusuka eka ntlawa hinkwawo.

Timhaka leti faneleke ku tekeriwa enhlokweni eka andlalo wa wena:

- Vuyimeri byo kongoma bya swiyimo hi ku tirhisa vadyondzi, michumu na swifaniso.
- Xana muanakanyo wa ku pananisa n'we-eka-n'we wu xakelana njhani na ku endla vuyimeri bya vuxokoxoko/vuxokoxoko bya tinhlayo hi swifaniso kumbe tiphikitogirafu?
- Xana hi xihi xikongomelo xa swifaniso leswi nga eka rixaxa ra le hansi ra phikitogirafu leyi?
- Xana hi kwihi ku pfuna ka ku veketela swifaniso hi tikholomu?
- Hikwalahokayini swifaniso swi lava ku va swa sayizi yin'we?
- Hikwalahokayini swifaniso swi fanele ku siya mavangwa hi ku ringana?
- Kanelani ku humesa nhlamuselo eka vuxokoxoko lebyi nga eka phikitogirafu.

Kongomisa eka *Xiletelo xa Minongoti na Swiletelo swa Migingiriko* ku kuma swikombiso swa migingiriko, kutani mi kanela hilaha leswi swi tirhisiwaka hakona ekamareni ro dyondzela.

Topic 7: Classroom management

Prepare a presentation that includes:

- a mapping of this topic on flipchart paper
- this topic in relation to Grade R
- a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- How do you create a stimulating learning environment? Refer to:
  - the classroom walls
  - the classroom floor space
  - the carpet area
  - the maths area.
- How do you manage and arrange resources (concrete apparatus) in the classroom?
- Describe how teaching in whole class and small groups is implemented.
- Outline the different types of planning that are required for successful teaching and learning.
- How are different levels of learner competence managed?

Refer to the *Concept Guide* and *Activity Guides* to support your discussion.

Topic 8: Assessment

Prepare a presentation that includes:

- a mapping of this topic on flipchart paper
- this topic in relation to Grade R
- a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- What forms of assessment are implemented in Grade R?
- Describe how these are used for tracking learner progress and for reporting purposes.

Nhlokomhaka ya 7: Malawulelo ya kamara ro dyondzela

Lulamisa andlalo lowu wu katsaka:

- nkunguhato wa nhlokomhaka leyi eka phepha ra chati yo pfula
- nhlokomhaka leyi hi mayelana na Giredi ya V
- nkombiso wa michumu yo khomeka, swifaniso na 'swikombiso' swa ntirho wa vadyondzi ku seketela nkanelo wa wena
- timhaka ta nkoka leti faneleke ku tekeriwa enhlokweni hi mayelana na nhlokomhaka leyi.

U ta lava ku humelerisa nkanelo kutani u hlamula swivutiso kusuka eka ntlawa hinkwawo.

Timhaka leti faneleke ku tekeriwa enhlokweni eka andlalo wa wena:

- Xana u tumbuluxa njhani mbangu wo dyondza wo nyanyula? Kongomisa eka:
  - makhumbi ya le kamareni ro dyondzela
  - ndhawu ya fuloro ya le kamareni ro dyondzela
  - ndhawu ya khapete
  - ndhawu ya matematiki.
- Xana u swi lawula na ku swi veketela njhani swipfuno (switirhisiwa swo khomeka) ekamareni ro dyondzela?
- Hlamusela hilaha madyondziselo eka tlilasi hinkwayo na le ka mitlawa leyitsongo ya tirhisiwaka hakona.
- Kombisa mixaka yo hambanahambana ya nkunguhato leyi yi lavekaka eka madyondziselo na madyondzelo lama fambaka kahle.
- Xana tilevhele to hambanahambana ta vuswikoti bya vadyondzi ti lawuriwa njhani?

Kongomisa eka *Xiletelo xa Minongoti* na *Swiletelo swa Migingiriko* ku seketela nkanelo wa wena.

Nhlokomhaka ya 8: Makambelelo

Lulamisa andlalo lowu wu katsaka:

- nkunguhato wa nhlokomhaka leyi eka phepha ra chati yo pfula
- nhlokomhaka leyi yi hi mayelana na Giredi ya V
- nkombiso wa michumu yo khomeka, swifaniso na 'swikombiso' swa ntirho wa vadyondzi ku seketela nkanelo wa wena
- timhaka ta nkoka leti faneleke ku tekeriwa enhlokweni hi mayelana na nhlokomhaka leyi.

U ta lava ku humelerisa nkanelo kutani u hlamula swivutiso kusuka eka ntlawa hinkwawo.

Timhaka leti faneleke ku tekeriwa enhlokweni eka andlalo wa wena:

- Xana i mixaka yihi ya makambelelo yi tirhisiwaka eka Giredi ya V?
- Hlamusela hilaha leswi swi tirhisiwaka hakona ku landzelerisa ku ya emahlweni ka mudyondzi na le ka swikongomelo swa ku nyika rhipoto.

- Provide examples and illustrations to support your presentation.
- Describe in detail one learner's solution to a word problem and describe how you would use a rubric to assess this learner.
- Clarify the use of checklists.
- How do the various forms of assessment, guide our reporting to parents?

Refer to the *Concept Guide* and *Activity Guides* to support your discussion.

Topic 9: Problem solving

Prepare a presentation that includes:

- a mapping of the main concepts/skills on flipchart paper
- how this topic is taught in Grade R
- a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- What does problem solving involve in Grade R?
- What are the language considerations involved in framing word problems?
- Why is problem solving included in Grade R?
- What skills do learners need to develop to become successful problem solvers?
- Give examples of different kinds of word problems that could be presented in Grade R.
- What strategies or techniques do Grade R learners use when solving word problems?
- What is the teacher's role?

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

- Nyika swikombiso na swidirowiwa ku seketela andlalo wa wena.
- Hlamusela hi vutalo xitshunxo xa mudyondzi un'we xa xiphiqo xa marito naswona hlamusela hilaha u nga tirhisaka hakona rhubiriki ku kambela mudyondzi loyi.
- Hlamusela swi va erivaleni ntirho wa mixaxamelo yo kambisisa.
- Xana mixaka yo hambanahambana ya makambelelo, yi letela njhani marhipotelo ya hina eka vatswari?

Kongomisa eka *Xiletelo xa Minongoti* na *Swiletelo swa Migingiriko* ku seketela nkanelo wa wena.

Nhlokomhaka ya 9: Ku ololoxa swiphiqo

Lulamisa andlalo lowu wu katsaka:

- nkunguhato wa minongotikulu/swikilikulu eka phepha ra chati yo pfula
- hilaha nhlokomhaka leyi yi dyondzisiwaka hakona eka Giredi ya V
- nkombiso wa michumu yo khomeka, swifaniso na 'swikombiso' swa ntirho wa vadyondzi ku seketela nkanelo wa wena
- timhaka ta nkoka leti faneleke ku tekeriwa enhlokweni hi mayelana na nhlokomhaka leyi.

U ta lava ku humelerisa nkanelo kutani u hlamula swivutiso kusuka eka ntlawa hinkwawo.

Timhaka leti faneleke ku tekeriwa enhlokweni eka andlalo wa wena:

- Xana ku ololoxa swiphiqo swi khumba yini eka Giredi ya V?
- Xana hi swihi swa ririmi leswi faneleke ku tekeriwa enhlokweni leswi khumbaka ku vumba swiphiqo swa marito?
- Hikwalahokayini ku ololoxa swiphiqo swi katsiwa eka Giredi ya V?
- Xana i swikili swihi leswi vadyondzi va fanelaka ku swi hluvukisa leswaku va va vaololoxi va swiphiqo lava humelelaka?
- Nyika swikombiso swa mixaka yo hambanahambana ya swiphiqo swa marito leswi swi nga andlariwaka eka Giredi ya V.
- Xana i maqhinga wahi kumbe tithekiniki tihi leti vadyondzi va Giredi ya V va ti tirhisaka loko va ri karhi va ololoxa swiphiqo swa marito?
- Xana hi xihi xiave xa mudyondzisi?

Kongomisa eka *Xiletelo xa Minongoti* na *Swiletelo swa Migingiriko* ku kuma swikombiso swa migingiriko, kutani mi kanela hilaha leswi swi tirhisiwaka hakona ekamareni ro dyondzela.

Workshop 11 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 11

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?

_____
_____
_____
_____