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GROWING GAUTENG TOGETHER

Xitsonga/English

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



**Ndzetelavutivi wa 5 • Workshop 5
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 mutirhisankulu 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 endlwile swi koteka hi timali ta tiphurojeke to hananiwa kusuka eka **United States Agency for International Development** na **Zenex Foundation**.

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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 fifth 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 continue to implement the Maths Programme in their classrooms, to strengthen their understanding of teaching and learning in the Content Areas covered in Term 2 Weeks 4–7 and to reflect on how they are putting the guiding principles of teaching maths into practice in their classrooms.

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 Week 10 and Term 2 Weeks 1–3
- ◆ To explore strategies to support teaching maths in Grade R
- ◆ To reflect on the Maths Programme’s guiding principles of teaching
- ◆ To engage with the Maths Programme content for Term 2 Weeks 4–7 (Space and Shape (Geometry); Numbers, Operations and Relationships; Patterns, Functions and Algebra; and Data Handling)
- ◆ To discuss appropriate observation and assessment in Grade R

Workshop content

- ◆ Opening and reflection (1 hour)
- ◆ Session 1: Space and Shape (Geometry) (1 hour)
- TEA
- ◆ Session 2: Numbers, Operations and Relationships (1 hour)
- ◆ Session 3: Patterns, Functions and Algebra (1 hour)
- LUNCH
- ◆ Session 4: Data Handling (1 hour)
- ◆ Closing activities (1 hour)

Nkatsakanyo

Xikongomelo

Lowu i wa vuntlhanu wa khumembirhi ya miletelavutivi ya Nongonoko wa Antswiso wa Matematiki wa Giredi ya V, 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, ku tiyisa ntwisiso wa vona wa madyondziselo na madyondzelo eka Swiyenge swa Vundzeni leswi angarheliwaka eka Mavhiki ya 4–7 ya Kotara ya 2 na ku ehleketisisa hi mayelana na hilaha va tirhisaka hakona milawu yo letela ya ku dyondzisa matematiki etikamareni ta vona to dyondzela.

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

Mivuyelo ya dyondzo

Ku ehleketisisa hi matirhelo ya Vhiki ra 10 ra Kotara ya 1 na Mavhiki ya 1–3 ya Kotara ya 2

- ◆ Ku valanga maqhinga yo seketela ku dyondzisa matematiki eka Giredi ya V
- ◆ Ku ehleketisisa hi milawu yo letela ya madyondziselo ya Nongonoko wa Matematiki
- ◆ Ku tirhana na vundzeni bya Nongonoko wa Matematiki Mavhiki ya 4–7 ya Kotara ya 2 (Ndhawu na Xivumbeko (Jometiri); Tinomboro, Tioparexini na Vuxaka, Tipatironi, Tifankixini na Alijebura; na Matirhiselo ya Vuxokoxoko bya Tinhlayo)
- ◆ Ku kana nxiyaxiyo na makambebelelo lama nga fanela eka Giredi ya V

Vundzeni bya ndzetelavutivi

- ◆ Ku pfula na ku ehleketisisa (1 ya awara)
- ◆ Sexini ya 1: Ndhawu na Xivumbeko (Jometiri) (1 ya awara)

TIYA

- ◆ Sexini ya 2: Tinomboro, Tioparexini na Vuxaka (1 ya awara)
- ◆ Sexini ya 3: Tipatironi, Tifankixini na Alijebura (1 ya awara)

LANCI

- ◆ Sexini ya 4: Matirhiselo ya Vuxokoxoko bya Tinhlayo (1 ya awara)
- ◆ Migingiriko yo pfala (1 ya awara)

Preparation

- ◆ PPT welcome and outcomes
- ◆ Read:
 - Concept Guide*, pages 114–131 and 136–137
 - Activity Guide: Term 2*, pages 18–21 and pages 70–137
 - Appendix A: Term 2 Weekly Content Summary (Weeks 4–7)
- ◆ Bring a large toy, e.g. a car, a doll.
- ◆ PPT: Data Handling cycle (from Workshop 4).
- ◆ For Session 4, prepare a pictograph chart, 'How did you travel to this workshop?' with picture cards for 'taxi', 'car', 'walk' and 'other' and 'smiley face' cards for each participant.

Materials

- ◆ Flipchart paper, kokis
- ◆ *Resource Kit* for each group
- ◆ *Concept Guide*
- ◆ Collection of 3-D objects for each group (Session 2)
- ◆ Washing line and pegs for each group (Session 2)

Malulamiselo

- ◆ PPT ku amukela na mivuyelo
- ◆ Hlaya:
 - Xiletelo xa Minongoti*, tipheji ta 114–131 na 136–137
 - Xiletelo xa Migingiriko: Kotara ya 2*, tipheji ta 18–21 na tipheji ta 70–137
- Xiengetelwa Xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 2 (Mavhiki ya 4–7)
- ◆ Tana na xitlangiso lexikulu, xik. movha, n'wampopi.
- ◆ PPT: Ndzhendzeleko wa Matirhiselo ya Vuxokoxoko bya Tinhlayo (kusuka eka Ndzetelavutivi wa 4).
- ◆ Eka Sexini ya 4, lulamisa chati ya tiphikitogirafu, 'Xana u fambe njhani ku ya eka ndzetelavutivi lowu?' hi makhadi ya swifaniso swa 'thekisi', 'movha', 'famba hi milenge' na 'swin'wana' na 'xikandza xo n'wayitela' ya mutekaxiave un'wana na un'wana.

Timatheriyali

- ◆ Maphepha ya chati yo pfula, tikhoki
- ◆ *Khiti ya Swipfuno* ya ntlawa wun'wana na wun'wana
- ◆ *Xiletelo xa Minongoti*
- ◆ Nhlengelo wa michumu ya 3-D ntlawa wun'wana na wun'wana (Sexini ya 2)
- ◆ Mugiva na tiphekisi ta ntlawa wun'wana na wun'wana (Sexini ya 2)

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 4.
- ◆ Ask participants to reflect on their observations and assessment of learners, and how they have been implementing the Maths Programme in their classrooms. Discuss what is working well and any concerns that participants may have.

The **inclusivity principle**: All learners should feel welcome, included and happy to participate. Remember to treat all learners fairly and with respect.

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



Activity 1

Discuss your progress in implementing the *Take back to school* task from Workshop 4.

1. What progress in maths did you observe in your learners after implementing Term 1?

2. How did the information in the 'Check that learners are able to' in *Activity Guide: Term 1* assist you in assessing each learner's progress in Term 1?

3. Did you successfully record each learner's progress using 'Term 1: Exemplar Record of Continuous Assessments' on pages 190–193 of *Activity Guide: Term 1*?

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 Ndzetelavutivi wa 4.
- ◆ Kombela vatekaxiave ku ehleketisisa hi mayelana na mixiyaxiyo na makambeleso ya vadyondzi, na hilaha a va ri eku tirhiseni hakona Nongonoko wa Matematiki etikamareni to dyondzela ta vona. Kanelani leswi swi tirhaka kahle swinene na swivilelo swihi kumbe swihi leswi vatekaxiave va nga ha vaka na swona.

Nawu wa nkatsahinkwavo: Vadyondzi hinkwavo va fanele ku titwa va amukelekile, va katsiwile na ku tsaka ku teka xiave. Tsundzuka ku khoma vadyondzi hinkwavo hi ndlela leyinene na hi nxiximo.

Ehleketisisani hi mayelana na matirhiselo ya Nongonoko wa Matematiki eka nongonoko wa wena wa siku na siku kutani u hetisa nghingiriko lowu landzelaka.



Nghingiriko wa 1

Kanelani ku ya emahlweni ka n'wana eka ku tirhisa *Xintirhwana xo tlhelela na xona exikolweni* kusuka eka Ndzetelavutivi wa 4.

1. Xana i ku ya emahlweni kwihi loku u ku xiyaxiyeke eka vadyondzi va wena endzhaku ka ku tirhisa Kotara ya 1?

2. Xana vuxokoxoko lebyi nga eka 'Kamba leswaku vadyondzi va kota ku' eka *Xiletelo xa Migingiriko: Kotara ya 1* ku ku pfuneta eka ku kambela ku ya emahlweni ka mudyondzi un'wana na un'wana eka Kotara ya 1?

3. Xana u rhekodile hi ndlele leyi humelelaka ku ya emahlweni ka mudyondzi un'wana na un'wana hi ku tirhisa 'Kotara ya 1: Rhekodo ya Xikombiso ya Makambeleso lama Yaka Emahlweni' eka tipheji ta 190–193 ta *Xiletelo xa Migingiriko: Kotara ya 1*?



Video 1

Watch the video of the teacher discussing observation and assessment in her Grade R classroom.

What do you think the intention of the activity is? Pay special attention to how the teacher prompts the learners with questions and how she observes each learner.

Facilitator's notes

- ◆ PPT: Summary of notes on rubrics, and Figure 39 and 40 of the *Concept Guide* (pages 106–109).
- ◆ Encourage participants to share their methods of assessment and how they use rubrics. Ask each group to write notes on flipchart paper and present these after **Activity 2**.
- ◆ Refer to the School Based Assessments (SBA) and SA-SAMS online systems to find out how participants engage with these.
- ◆ Remind participants of the **level principle** and discuss how they manage learners with different abilities.



Activity 2

In your small groups, discuss:

1. How you are managing assessment in your classroom.
2. How you use rubrics in your assessment process.
3. How you incorporate the School Based Assessments (SBA) and SA-SAMS online system as part of your assessment process.

Write down the main points of your discussion to share with the whole group. Consider what works well and where you have challenges with assessment.

The **level principle**: Some learners may need more practice and support than other learners. Be sure to allow learners enough time and support to complete activities, to think and to answer questions.



Vhidiyo ya 1

Hlalelani vhidiyo ya mudyondzisi loyi a kanelaka nxiyaxiyo na makambebelelo ekamareni ro dyondzela ra yena ra Giredi ya V.

Xana u ehleketa leswaku i yini xikongomelo xa nghingiriko lowu? Kongomisa miehleketo swinenenene eka hilaha mudyondzisi a seketelaka vadyondzi hi swivutiso na hilaha a xiyaxiyaka hakona mudyondzi un'wana na un'wana.

Tinotsi ta muhumerisi

- ◆ PPT: Nkomiso wa tinotsi hi mayelana na tirhubiriki, na Xifaniso xa 39 na 40 xa *Xiletelo xa Minongoti* (tipheji ta 106-109).
- ◆ Khutaza vatekaxiave ku avelana maendlelo ya makambebelelo na hilaha va tirhisaka tirhubiriki hakona. Kombela ntlawa wun'wana na wun'wana ku tsala tinotsi ephepheni ra chati yo pfula na ku andlala leswi endzhaku ka **Nghingiriko wa 2**.
- ◆ Kongomisa eka **School Based Assessments (SBA)** na tisisiteme ta le ka inthanete ta SA-SAMS ku kumisisa hilaha vatekaxiave va tirhanaka na leswi hakona.
- ◆ Tsundzuxa vatekaxiave hi **nawu wa levhele** kutani mi kana hilaha va lawulaka hakona vadyondzi lava nga na vuswikoti byo hambanahambana..



Nghingiriko wa 2

Emitlaweni ya n'wina leyitsongo, kanelani:

1. Hilaha u lawulaka hakona makambebelelo eka kamara ro dyondzela ra wena.
2. Hilaha u tirhisaka hakona tirhubiriki eka endlelo ra wena ra makambebelelo.
3. Hilaha u katsaka hakona School Based Assessments (SBA) na tisisiteme ta le ka inthanete ta SA-SAMS tanihi xiphemu xa endlelo ra wena ra makambebelelo.

Tsalani timhakakulu ta nkanelo wa n'wina ku avelana na ntlawa hinkwawo. Anakanya hi leswi swi tirhaka kahle swinene na laha u vaka na mitlhonthlo kona hi makambebelelo.

Nawu wa levhele: Vadyondzi van'wana va nga ha lava vutitoloveti byo tala na nseketelo wo tala kutlula van'wana. Tiyisisa leswaku u pfumelela vadyondzi nkarhi wo enela na nseketelo wo tala ku hetisa migingiriko, ku ehleketa na ku hlamula swivutiso.

Session 1: Space and Shape (Geometry)

1 hour

Facilitator's notes

- ◆ This workshop focuses on teaching the content of Term 2 Weeks 4–7. The Content Area Focus of Week 4 is Space and Shape (Geometry). Remind participants that this was also the focus of Term 2 Week 3 (covered in Workshop 4).
- ◆ Refer participants to pages 126–131 of the *Concept Guide*.
- ◆ Ask participants to work in groups to complete **Activity 3**.

Term 2 Content overview: Space and Shape (Geometry)

This session focuses on teaching the content of Term 2 Week 4 – Space and Shape (Geometry). Remember that Space and Shape (Geometry) was also the focus of Week 3 which we covered in Workshop 4.

Read the content overview for Space and Shape (Geometry) on pages 126–131 of the *Concept Guide* and complete Activity 3.



Activity 3

What Space and Shape concepts are presented in 3.1 and 3.2 of the content overview?

Facilitator's notes

- ◆ Ensure that participants identify the Space and Shape concepts in 3.1 and 3.2 and understand that the focus is on: position, orientation and views; describing 3-D objects in relation to themselves; following directions.
- ◆ In **Activity 4** the focus is on describing an object from different positions (views).
- ◆ In step 1 of **Activity 4**, show the participants the toy car or doll that you brought along (or a shoe or mug). Ask them to look at the object from different positions and to describe what they see. Ask them where they are in relation to the object e.g. *in front of, behind, next to, underneath, above*.

In Grade R learners describe, sort and compare 3-D objects and focus on the similarities and differences between them. In Term 2 Week 4 learners sort, compare and describe 3-D objects according to size, colour and shape. They also look at and describe objects in relation to themselves and each other and from different positions (orientation and views). Another focus in Week 4 is on following directions and using vocabulary associated with position.

Sexini ya 1: Ndhawu na Xivumbeko (Jometiri)

1 ya awara

Tinotsi ta muhumelerisi

- ◆ Ndzetelavutivi lowu wu kongomisa eka ku dyondzisa vundzeni bya Mavhiki ya 4–7 ya Kotara ya 2. Nkongomo wa Xiyenge xa Vundzeni wa Vhiki ra 4 i Ndhawu na Xivumbeko (Jometiri). Tsundzuxa vatekaxiave leswaku lowu a wu tlhela wu va wona nkongomo wa Vhiki ra 3 ra Kotara ya 2 (lowu angarheliweke eka Ndzetelavutivi wa 4).
- ◆ Kongomisa vatekaxiave eka tipheji ta 126–131 ta *Xiletelo xa Minongoti*.
- ◆ Kombela vatekaxiave va tirha hi mitlawa ku hetisa **Nghingiriko wa 3**.

Nkatsakanyo wa Vundzeni wa Kotara ya 2: Ndhawu na Xivumbeko (Jometiri)

Sexini leyi yi kongomisa eka ku dyondzisa vundzeni bya Vhiki ra 4 ra Kotara ya 2 – Ndhawu na Xivumbeko (Jometiri). Tsundzuka leswaku Ndhawu na Xivumbeko (Jometiri) swi tlhele swi va nkongomo wa Vhiki ra 3 lowu hi wu angarheleke eka Ndzetelavutivi wa 4.

Hlaya nkatsakanyo wa vundzeni wa Ndhawu na Xivumbeko (Jometiri) lowu nga eka tipheji ta 126–131 ta *Xiletelo xa Minongoti* kutani u hetisa Nghingiriko wa 3.



Nghingiriko wa 3

Xana i minongoti yihi ya Ndhawu na Xivumbeko yi nyikiweke eka 3.1 na 3.2 ya nkatsakanyo wa vundzeni?

Tinotsi ta muhumelerisi

- ◆ Tiyisisa leswaku vatekaxiave va kuma minongoti ya Ndhawu na Xivumbeko leyi nga eka 3.1 na 3.2 na ku twisisa leswaku nkongomo wu le ka: xiyimo, ndzetelo na matlhelo; ku hlamusela hi ku hlawulekisa michumu ya 3-D hi ku yi yelanisa na vona vini; ku landzelela matlhelo.
- ◆ Eka **Nghingiriko wa 4** nkongomo wu le ka ku hlamusela nchumu kusuka eka swiyimo (mavonelo) yo hambanahambana
- ◆ Eka goza ra 1 ra **Nghingiriko wa 4**, komba vatekaxiave movha wa xitlangiso kumbe n'wampopi loyi u teke na yena (kumbe ntangu kumbe maga). Va kombeli ku languta nchumu lowu kusuka eka swiyimo swo hambanahambana na ku hlamusela hi ku hlawulekisa leswi va swi vonaka. Va vutisi laha va nga kona hi ku yelana na nchumu lowu, xik. *emahlweni ka, endzhaku ka, ekusuhi na, ehansi ka, ehenhla ka*.

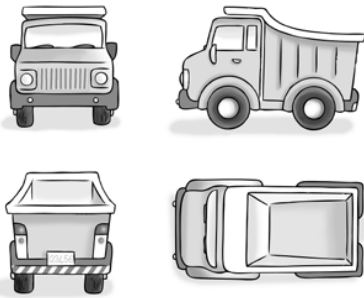
Eka Giredi ya V vadyondzi va hlamusela, va ava na ku fananisa michumu ya 3-D naswona va kongomisa eka ku fanana na ku hambana exikarhi ka yona. Eka Vhiki ra 4 ra Kotara ya 2 vadyondzi va ava, va fananisa na ku hlamusela michumu ya 3-D hi ku ya hi sayizi, muhlovo na xivumbeko. Va tlhela va languta na ku hlamusela michumu hi ku yelana na vona vini na kusuka eka swiyimo swo hambanahambana (vonakelo na mavonelo). Nkongomo wun'wana eka Vhiki ra 4 wu le ka matlhelo lama landzelaka na ku tirhisa ntivomarito lowu fambelanaka na xiyimo.



Activity 4

1. Discuss how you could use objects in your classroom to encourage learners to talk about their position in relation to the objects they are looking at.

2. Look at the pictures. Describe where you would stand in order to see each of the views of the truck.



In front of the truck, looking at the side of the truck, behind the truck, looking down on the truck (from above).

Term 2 Week 4

Refer to the teacher-guided activity on pages 80–83 of *Activity Guide: Term 2*.



Activity 5

1. Which Space and Shape concepts are presented?

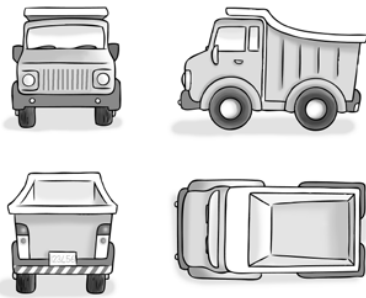
Position, orientation, views: objects look different when viewed from different positions.
Position vocabulary: *front, back, side, above, below, underneath*.
Sorting and identifying shapes.



Nghingiriko wa 4

1. Kanelani hilaha mi nga tirhisa hakona michumu leyi nga ekamareni ro dyondzela ra n'wina ku khutaza vadyondzi ku vulavula hi mayelana na xiyimo xa vona hi ku yelana na michumu leyi va nga yi languta.

2. Languta swifaniso leswi. Hlamusela laha u nga ta yima kona leswaku u kota ku vona rin'wana na rin'wana ra matlhelo ya tiraka.



Emahlweni ka tiraka, languta etlhelo ka tiraka, endzhaku ka tiraka, languta ehansi ka tiraka (kusuka ehenhla).

Vhiki ra 4 ra Kotara ya 2

Kongomisa eka nghingiriko lowu leteriwaka hi mudyondzisi lowu nga eka tipheji ta 80-83 ta *Xiletelo xa Migingiriko: Kotara ya 2*.



Nghingiriko wa 5

1. Xana i minongoti yihi ya Ndhawu na Xivumbeko yi andlariweke?

Xiyimo, nszetelo, matlhelo: michumu yi languteka ku hambana loko yi voniwa kusuka eka swiyimo swo hambanahambana.

Ntivomarito wa xiyimo: *mahlweni, ndzhaku, tlhelo, henhla, hansi, ehansi ka*.

Ku ava na ku kuma swivumbeko.

2. Give examples of guiding questions that are asked in the teacher-guided activities. Will these questions encourage learners to talk about the concepts in question 1?
-
-
-

Learners need many opportunities to play with and sort collections of 3-D objects. Teachers need to understand the underlying concepts in Space and Shape (Geometry) and communicate these using the correct maths language.

The following points should be remembered.

- ◆ An object is three-dimensional (3-D). You can look at it from the top, the bottom and the sides. 3-D objects have length, breadth (width) and height.
- ◆ A shape is two-dimensional (2-D). Shapes include circles, triangles, squares and rectangles. They have length and breadth (width).
- ◆ As learners explore the properties of 3-D objects they will identify objects that 'look like' 2-D shapes, e.g. the door looks like a rectangle, the road sign looks like a triangle, the plate looks like a circle. They will start to understand that the surfaces of 3-D objects look like 2-D shapes.

The **interaction principle**: Learning involves communication and the sharing of ideas. Responding in an appropriate way to something is a very important part of communication and of teaching and learning. Always listen to learners when they share their ideas or respond to your questions.

Term 2 Content Summary (Week 4)

Facilitator's notes

- ◆ By this stage, participants will have engaged with the Weekly Content Summaries in previous workshops. It is important that they make the connection between the CAPS content, planning for a week and the activities for the small group sessions.
- ◆ Remind participants that they also need to plan free choice activities that are linked to the concepts being taught in the week.

2. Nyika swikombiso swa swivutiso swo letela leswi swi vutisiwaka eka migingiriko leyi leteriwaka hi mudyondzisi. Xana swivutiso leswi swi ta khutaza vadyondzi ku vulavula hi mayelana na minongoti leyi nga eka xivutiso xa 1?
-
-
-

Vadyondzi va lava swivandlanene swo tala ku tlanga hi swona na ku ava mihlengelo ya michumu ya 3-D. Vadyondzisi va fanele ku twisisa minongoti ya masungulo leyi nga eka Ndhawu na Xivumbeko (Jometiri) kutani va yi tivisa hi ku tirhisa ririmi ra matematiki leri nga lulama.

Timhaka leti landzelaka ti fanele ku tsundzukiwa.

- ◆ Nchumu wu na matlhelo manharhu (3-D). U nga wu languta kusuka ehenhla, ehansi na le matlhelo. Michumu ya 3-D yi na vulehi, vuanami na vulehelahenhla. vulehi, vuanami (anama) na vulehelahenhla.
- ◆ Xivumbeko xi na matlhelo mambirhi (2-D). Swivumbeko swi katsa swirhendzevutana, tinhlanharhu, swikwere na tinhlamune. Swi na vulehi na vuanami. vulehi na vuanami (anama).
- ◆ Tanihiloko vadyondzi va ri karhi va valanga swihlawulekisi swa michumu ya 3-D va ta kuma michumu leyi yi 'langutekaka ku fana na' swivumbeko swa 2-D, xik. rivanti ri languteka ku fana na yinhlamune, mfungho wa le magondzweni wu langutekaka ku fana na yinhlamune, puleti yi languteka ku fana na xirhendzevutana. Va ta sungula ku twisisa leswaku tshaku ra michumu ya 3-D ri languteka ku fana na swivumbeko swa 2-D.

Nawu wa n'wagulano: Ku dyondza swi khumba mbulavurisano na ku avelana ka miehleketo. Ku angula hi ndlela leyi faneleke eka swin'wana i xiphemu xa nkoka swinene xa mbulavurisano na xa madyondziselo na madyondzelo. Mikarhi hinkwayo yingisela vadyondzi loko va avelana mianakanyo ya vona kumbe va hlamula swivutiso.

Nkatsakanyo wa Vundzeni wa Kotara ya 2 (Vhiki ra 4)

Tinotsi ta muhumelerisi

- ◆ Eka xiteji lexi, vatekaxiave va ta va va tirhanile na Mikomiso ya Vundzeni ya Vhiki na Vhiki ya miletelavutivi ya nkarhi lowu nga hundza. I swa nkoka leswaku va endla vuxakelanisi exikarhi ka vundzeni bya XIPHOKHAMA, nkunguhato wa vhiki na migingiriko ya tisexini ta mitlawa leyitsongo.
- ◆ Tsundzuxa vatekaxiave leswaku va tlhela va fanele ku kunguhata migingiriko ya hlawula u tshunxekile leyi yi xakelanisiweke na minongoti leyi nga eku dyondzisiweni evhikini.



Activity 6

Refer to Appendix A: Term 2 Weekly Content Summary (Weeks 4–7). Read the content overview for Week 4: Space and Shape (Geometry) on page 10 of *Activity Guide: Term 2*.

1. What are the topics for Week 4?

2. What new knowledge is introduced in this week?

3. What skills from previous weeks are practised?



Nghingiriko wa 6

Kongomisa eka Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 2 (Mavhiki ya 4–7). Hlaya nkatsakanyo wa vundzeni wa Vhiki ra 4: Ndhawu na Xivumbeko (Jometiri) leswi nga eka pheji ya 10 ya *Xiletelo xa Migingiriko: Kotara ya 2*.

1. Xana hi tihi tinhlokomhaka ta Vhiki ra 4?

2. Xana i vutivi byintshwa byihi lebyi byi tivisiwaka eka vhiki leri?

3. Xana i swikili swihi kusuka eka mavhiki lama nga hundza swi titolovetiwaka?

Session 2: Numbers, Operations and Relationships

1 hour

The focus of Term 2 Week 5 is Numbers, Operations and Relationships.

Facilitator's notes

- ◆ Explain that the focus in Term 2 Week 5 is on Numbers, Operations and Relationships again. Remind participants that this was also the focus of Term 2 Weeks 1 and 2 (covered in Workshop 4).
- ◆ Refer participants to pages 114–123 of the *Concept Guide*.
- ◆ Ask participants to work in groups to complete **Activity 7**.

Term 2 Content overview: Numbers, Operations and Relationships

Previous workshops have presented the Content Area Focus: Numbers, Operations and Relationships. In this session we look at the Term 1–4 content overview (*Concept Guide*, pages 114–123) again.



Activity 7

What new numbers are introduced in Term 2?

4 and 5

Term 2 Week 5: Teaching number

The number 'five' is introduced in Term 2 Week 5. The Maths Programme encourages the use of numbers in different situations and the use of multiple representations, e.g. a symbol, a word, a picture, dot cards, counters, claps. The routine used for introducing each number engages learners in a routine that is familiar, predictable, fun and presents the number in different ways.

Facilitator's notes

- ◆ Ask participants to think back to how they introduced numbers in previous weeks.
- ◆ Reflect on how the same routine is used to introduce each new number. Explain that the number 'five' is introduced in Term 2 Week 5 using the same routine as before. Discuss how this routine actively engages learners in learning about the concept of number.
- ◆ Refer participants to page 90 of *Activity Guide: Term 2*.
- ◆ Let them complete **Activity 8** in groups and then report back.

Sexini ya 2: Tinomboro, Tioparexini na Vuxaka

1 ya awara

Nkongomo wa Vhiki ra 5 ra Kotara ya 2 i Tinomboro, Tioparexini na Vuxaka.

Tinotsi ta muhumerisi

- ◆ Hlamusela leswaku nkongomo wa Vhiki ra 5 ra Kotara ya 2 wu le ka Tinomboro, Tioparexini na Vuxaka nakambe. Tsundzuxa vatekaxiave leswaku lowu wu tlhele wu va wona nkongomo wa Mavhiki ya 1 na 2 ya Kotara ya 2 (lowu angarheliweke eka Ndzetelavutivi wa 4).
- ◆ Kongomisa vatekaxiave eka tipheji ta 114–123 ta *Xiletelo xa Minongoti*.
- ◆ Kombela vatekaxiave ku tirha hi mitlawa ku hetisa **Nghingiriko wa 7**.

Nkatsakanyo wa Vundzeni wa Kotara ya 2: Tinomboro, Tioparexini na Vuxaka

Miletelavutivi ya nkarhi lowu nga hundza yi nyikile Nkongomo wa Xiyenge xa Vundzeni: Tinomboro, Tioparexini na Vuxaka. Eka sexini leyi hi languta eka nkatsakanyo wa vundzeni wa Kotara ya 1–4 (*Xiletelo xa Minongoti*, tipheji ta 114–123) nakambe.



Nghingiriko wa 7

Xana i vamani tinomboro tintshwa leti tivisiwaka eka Kotara ya 2?

4 na 5

Vhiki ra 5 ra Kotara ya 2: Ku dyondzisa nomboro

Nomboro ya 'ntlhanu' yi tivisiwa eka Vhiki ra 5 ra Kotara ya 2. Nongonoko wa Matematiki wu khutaza ku tirhisa tinomboro eka swiyimo swo hambanahambana na ku tirhisa vuyimerinyingi, xik. mfungho, rito, xifaniso, makhadi ya mathonsi, swihlayeri, miphokotelo. Migingiriko ya siku na siku leyi tirhisiwaka ku tivisa nomboro yin'wana na yin'wana yi katsa migiriko ya siku na siku ya vadyondzi leyi nga toloveleka, ya vhumbeka, ya tsakisa naswona yi andlala nomboro hi tindlela to hambanahambana.

Tinotsi ta muhumerisi

- ◆ Kombela vatekaxiave ku ehleketisisa hilaha va tiviseke tinomboro hakona eka mavhiki lama nga hundza.
- ◆ Ehleketisisa hi mayelana na hilaha nghingiriko wa siku na siku wo fana wu tirhisiwaka hakona ku tivisa nomboro yin'wana na yin'wana yintshwa. Hlamusela leswaku nomboro ya 'ntlhanu' ya tivisiwa eka Vhiki ra 5 ra Kotara ya 2 hi ku tirhisa nghingiriko wa siku na siku wo fana tanihi le kusunguleni. Kanelani hilaha nghingiriko lowa siku na siku wu khumbaka vadyondzi hakona hi ku gingirika eka ku dyondza hi mayelana na nongoti wa nomboro.
- ◆ Kongomisa vatekaxiave eka pheji ya 90 ya *Xiletelo xa Migingiriko: Kotara ya 2*.
- ◆ Endla leswaku va hetisa **Nghingiriko wa 8** hi mitlawa kutani endzhaku ka swona va nyika xiviko.

Make sure that the following points about the routine are mentioned:

- A story is told about an animal/s and used to build the number frieze.
- Objects are collected to represent the number and put on the table in the maths area.
- Learners match the number symbol and number word to dot cards, and also use a combination of dot cards to make the number.
- Learners use body movements to dramatise the story.
- The *Poster Book* provides opportunities to count and solve problems in context.
- ◆ The order of the items in the routine may change, but each week these aspects of introducing a number are included in the whole class activities.



Activity 8

Refer to the Week 5 whole class activities in *Activity Guide: Term 2* (pages 90–99).

Describe the routine that is used to teacher the number '5'.

Day 1

Day 2

Day 3

Day 4

Day 5

- ◆ Tiyisisa leswaku timhaka leti landzelaka hi mayelana na nghingiriko wa siku na siku ta vuriwa:
 - Xitori xa runguriwa hi mayelana na swi/xiharhi kutani xi tirhisiwa ku aka xipendiwankhavisio xa tinomboro.
 - Michumu ya hlengeletwa ku endla vuyimeri bya nomboro kutani yi vekiwa etafuleni endhawini ya matematiki.
 - Vadyondzi va pananisa mfungho wa tinomboro mfunho wa tinomboro na mavito ya tinomboro eka makhadi ya mathonsi na ku tlhela va tirhisa nkatsano wa makhadi ya mathonsi ku endla nomboro.
 - Vadyondzi va tirhisa mifambafambo ya miri ku endla ntlangu wa xitori lexi.
 - *Buku ya Tiphositara* yi nyika swivandlanene swa ku hlayela na ku ololoxa swiphiso leswi nga eka mbangu.
- ◆ Nandzelelano wa michumu leyi nga eka nghingiriko wa siku na siku wu nga ha cinca, kambe vhiki rin'wana na rin'wana swiphemu leswa ku tivisa nomboro swa katsiwa eka misingiriko ya tilasi hinkwayo.



Nghingiriko wa 8

Kongomisa eka Vhiki ra 5 leri nga eka *Xiletelo xa Misingiriko: Kotara ya 2* (tipheji ta 90–99).

Hlamusela nghingiriko wa siku na siku lowu tirhisiwaka ku dyondzisa nomboro ya '5'.

Siku ra 1

Siku ra 2

Siku ra 3

Siku ra 4

Siku ra 5

The number washing line

Facilitator's notes

- ◆ Find out if participants have set up number washing lines in their classrooms.
- ◆ Review the importance of the number washing line activities in helping learners to build an understanding of the sequence of counting words and the relationship between numbers.

The numbers 1 to 5 were pegged onto the number washing line in the maths area as they were introduced in Term 1. It is only in Week 5 that learners actively engage with the number washing line. Many teachers put up number lines from 0 to 10 or even to 20 in the classroom before learners are able to count or recognise these numbers.

Initially the Maths Programme's focus on the number washing line is incidental. From Week 5 it is used to focus on sequencing (ordering) numbers and talking about the relationship between numbers.

Use the number washing line to:

- ◆ order and compare numbers e.g.:
 - What number comes before 3?
 - What number is between 3 and 5?
 - What number comes after 4?
- ◆ explore how numbers increase from left to right, and decrease from right to left.
- ◆ use maths language such as *before*, *after*, *between*.

In the video the facilitator demonstrates a washing line activity that supports the teaching of number.

Facilitator's notes

- ◆ Demonstrate how to use the number washing line.
- ◆ Refer participants to the washing line activity on page 94 of *Activity Guide: Term 2*.

Read the activity that introduces the washing line to learners on page 94 of *Activity Guide: Term 2*.

Video 2

Activity Guide: Term 2, Week 5, Day 3 #4 (page 94)

Watch the video of the teacher using the number washing line to order the numbers 1 to 5. Notice how she scaffolds the activity and note the questions that she asks to prompt the learners.

Mugiva wa tinomboro

Tinotsi ta muhumelerisi

- ◆ Kumisisa loko vatekaxiave va lulamisile migiva ya tinomboro etikamareni to dyondzela ta vona.
- ◆ Kambisisa nkoka wa migingiriko ya mugiva wa tinomboro eka ku pfuna vadyondzi ku aka ntwisiso wa malongolokelo ya marito yo hlayela na vuxaka exikarhi ka tinomboro.

Tinomboro ta 1 kufika eka 5 a ti phekwisiwile emugiveni wa tinomboro eka ndhawu ya matematiki loko ti ri karhi ti tivisiwa eka Kotara ya 1. Ko va ntsena eka Vhiki ra 5 leri vadyondzi va tirhaneke hi ku gingirika na mugiva wa tinomboro. Vadyondzisi vo tala va veketela tilayini ta tinomboro kusuka eka 0 kufika eka 10 kumbe hambu kufika eka 20 ekamareni ro dyondzela vadyondzi va nga si kota ku hlayela tinomboro leti.

Ekusunguleni nkongomo wa Nongonoko wa Matematiki eka mugiva wa tinomboro wo va xiwelo. Kusuka eka Vhiki ra 5 wu tirhisiwa ku kongomisa eka ku longoloxela (landzelelanisa) tinomboro na ku vulavula hi mayelana na vuxaka exikarhi ka tinomboro.

Tirhisa mugiva wa tinomboro ku:

- ◆ landzelelanisa na ku fananisa tinomboro xik.:
 - Xana i mani nomboro leyi yi taka emahlweni ka 3?
 - Xana i mani nomboro leyi yi nga exikarhi ka 3 na 5?
 - Xana i mani nomboro leyi yi taka endzhaku ka 4?
- ◆ valanga hilaha tinomboro ti engetelaka hakona kusuka eximatsini kuya exineneni, na ku hunguteka kusuka exineneni kuya eximatsini.
- ◆ tirhisa ririmi ra matematiki ro tanihi *emahlweni ka, endzhaku ka, exikarhi ka*.

Eka vhidiyo muhumelerisi u kombisa nghingiriko wa mugiva wa tinomboro lowu wu seketelaka madyondziselo ya nomboro.

Tinotsi ta muhumelerisi

- ◆ Kombisa hilaha ku tirhisiwaka hakona mugiva wa tinomboro.
- ◆ Kongomisa vatekaxiave eka nghingiriko wa mugiva lowu nga eka pheji ya 94 ya *Xiletelo xa Migingiriko: Kotara ya 2*.

Hlaya nghingiriko lowu wu tivisaka mugiva eka vadyondzi lowu nga eka pheji ya 94 ya *Xiletelo xa Migingiriko: Kotara ya 2*.



Vhidiyo ya 2

Xiletelo xa Migingiriko: Kotara ya 2, Vhiki ra 5, Siku ra 3 #4 (pheji ya 95)

Hlalelani vhidiyo ya mudyondzisi loyi a tirhisaka mugiva wa tinomboro ku landzelelanisa tinomboro ta 1 kufika eka 5. Vonani hilaha a tirhisaka xikhafula hakona eka nghingiriko nakambe lemukani swivutiso leswi a swi vutisaka ku tlhonthla vadyondzi.

Discuss the value of using a number washing line in Grade R.

Sequencing numbers: Learners place the numbers in the correct counting order. Learners see the number line each day and during incidental discussions talk about each number.

Order: Learners discuss the numbers in relation to each other. The teachers asks which number comes before, after or between other numbers. Learners use correct maths language to describe the position of the numbers in relation to each other.

Structure beads

The structure beads in your *Resource Kit* come in lengths of 10 beads grouped in fives, according to colour (five red beads and five yellow beads).

Facilitator's notes

- ◆ Discuss the 10-bead structure (five beads, five fingers). Demonstrate the use of a string of beads.
- ◆ Ask participants to take a set of 10 structure beads from the table.
- ◆ Using the information below, discuss the purpose of structure beads.

Structure beads help learners to:

- ◆ automatically recognise the number of beads in a group without counting, e.g. '4'.
- ◆ understand that one number may be a combination of two or more other numbers, e.g. '4' is made up of 2 and 2 or 1 and 3.
- ◆ develop skills in counting on from a given number, e.g. start at 3 and count on to 5.
- ◆ begin to work with addition and subtraction.
- ◆ begin to work with bonds of ten.

In this next activity, use your 10 structure beads to explore different number combinations. Follow your facilitator's lead and respond to the questions as set out in Activity 9.

Kanelani hi nkoka wa ku tirhisa mugiva wa tinomboro eka Giredi ya V.

Ku longoloxela tinomboro: Vadyondzi va veketela tinomboro hi nandzelelano wo hlayela lowu nga lulama. Vadyondzi va vona layini ya tinomboro siku rin'wana na rin'wana na hi nkarhi wa mbulavulo wa mikanelo ya xiwelo hi mayelana na nomboro yin'wana na yin'wana.

Nandzelelano: Vadyondzi va kanela tinomboro ku ya hi ku yelana ka tona. Mudyondzisi u vutisa leswaku i nomboro yihi leyi yi taka emahlweni ka, endzhaku ka kumbe exikarhi ka tinomboro tin'wana. Vadyondzi va tirhisa ririmi ra matematiki leri nga lulama ku hlamusela xiyimo xa tinomboro hi ku yelana ka tona..

Vuhlalu bya swivumbeko

Vuhlalu bya swivumbeko lebyi nga eka *Khiti ya Swipfuno* ya wena byi ta hi vulehi bya 10 ra vuhlalu lebyi ntlawahatiweke hi vantlhanu, hi ku ya hi muhlovo (nthanu wa vuhlalu byo tshwuka na ntlhanu wa vuhlalu bya xitshopana).

Tinotsi ta muhumelerisi

- ◆ Kanelani xivumbeko xa vuhlalu bya 10 (ntlhanu wa vuhlalu, ntlhanu wa tintiho). Kombisa matirhiselo ya ngoti ya vuhlalu.
- ◆ Kombela vatekaxiave ku teka xikatsa xa 10 ra vuhlalu bya swivumbeko etafuleni.
- ◆ Hi ku tirhisa vuxokoxoko lebyi nga laha hansi, kanelani xikongomelo xa vuhlalu bya swivumbeko.

Vuhlalu bya swivumbeko byi pfuna vadyondzi ku:

- ◆ lemuka xikan'wekan'we nhlayo ya vuhlalu lebyi nga entlaweni handle ko hlayela, xik. '4'.
- ◆ twisisa leswaku nomboro yin'we yi nga ha va nkatsano wa tinomboro tin'wana timbirhi kumbe kutlula, xik. '4' yi vumbiwa hi 2 na 2 kumbe 1 na 3.
- ◆ hlulukisa swikili eka ku hlayela kuya emahlweni kusuka eka nomboro leyi nyikiweke, xik. sungula eka 3 kutani u hlayela kuya emahlweni kufika eka 5.
- ◆ sungula ku tirha hi ku hlanganisa na ku susa.
- ◆ sungula ku tirha hi tibondo ta khume.

Eka nghingiriko lowu landzelaka, tirhisa vuhlalu bya swivumbeko bya 10 bya wena ku valanga eka mikatsano ya tinomboro to hambanahambana. Landzelela vurhangeri bya muhumelerisi wa wena kutani u hlamula swivutiso tanihilaha swi lulamisiweke hakona eka Nghingiriko wa 9.



Activity 9

1. Show me two beads.
2. Show me one more bead.
3. Show me one fewer than four beads.
4. Show me four beads. Now show me one more than four. How many do you have?
5. What did you do to make it one more?
6. Show me one fewer than five. How many do you have?
7. What did you do to make it one less?
8. Now take one away. How many do you have?
9. Add one. How many do you have?

Read the activity that introduces the structure beads to learners on page 100 of *Activity Guide: Term 2*, step 3. In groups, discuss this activity.

Facilitator's notes

- ◆ Explain that participants will now work with their beads and that they should follow your directions and write down their responses.
- ◆ Ask them to work in groups to complete **Activity 10**.



Activity 10

How does this structure bead activity help to develop the learners' number sense?

Learners begin to show a total number of beads (e.g. 3) without having to count in ones.

They are able to show 'one more' or 'one fewer' than a stated amount without counting.

Learners recognise that one number is made up of different combinations of numbers (e.g. 5 consists of 2 and 3, or 1 and 2 and 2).

They begin to use the language of addition and subtraction and apply the concepts to combine/separate groups without counting.

The structure beads provide a physical experience of the total number of beads.

Facilitator's notes

- ◆ Discuss the importance of planning in order to allow learners enough time to practise their new skills and knowledge (the **practice principle**).

The **practice principle**: Learners should have plenty of time to practise new skills and knowledge. When learners get regular practice in what they have already learnt, they get better at it and become more confident. They enjoy repetition and practice.

Term 2 Content Summary (Week 5)

Facilitator's notes

- ◆ Remind participants that they also need to plan free choice activities that are linked to the concepts being taught in the week.



Activity 11

Refer to Appendix A: Term 2 Weekly Content Summary (Weeks 4–7). Read the content overview for Week 5: Numbers, Operations and Relationships on page 18 of *Activity Guide: Term 2*.

1. What are the topics for Week 5?

2. What new knowledge is introduced in this week?

3. What skills from previous weeks are practised?

4. Match the activities in Appendix A: Term 2 Weekly Content Summary (Weeks 4–7) with the lessons in each week.

Tinotsi ta muhumelerisi

- ◆ Kanelani nkoka wa nkunguhato hi xikongomelo xa ku pfumelela vadyondzi nkarhi wo enela ku titoloveta swikili na vutivi bya vona byintshwa (**nawu wa vutitshwa**).

Nawu wa vutitshwa: Vadyondzi va fanele ku va na nkarhi wo tala wa ku titoloveta swikili na vutivi byintshwa. Loko vadyondzi va kuma vutitshwa bya nkarhi na nkarhi eka leswi se va swi dyondzeke, va antswa eka swona na ku va na vutitshwa swinene. Va tiphina hi mbuyelelo na vutitshwa.

Nkatsakanyo wa Vundzeni wa Kotara ya 2 (Vhiki ra 5)

Tinotsi ta muhumelerisi

- ◆ Tsundzuxa vatekaxiave leswaku va tlhela va fanela ku kunguhata migingiriko ya hlawula u tshunxekile leyi yi xakelanisiweke na minongoti leyi nga eku dyondzisiweni evhikini.



Nghingiriko wa 11

Kongomisa eka Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 2 (Mavhiki ya 4–7). Hlaya nkatsakanyo wa vundzeni wa Vhiki ra 5: Tinomboro, Tioparexini na Vuxaka leswi nga eka pheji ya 18 ya *Xiletelo xa Migingiriko: Kotara ya 2*.

1. Xana hi tihlokomhaka ta Vhiki ra 5?

2. Xana i vutivi byintshwa byihle byi tivisiwaka eka vhiki leri?

3. Xana i swikili swihle kusuka eka mavhiki lama nga hundza swi titolovetiwaka?

4. Pananisa migingiriko leyi nga eka Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 2 (Mavhiki ya 4–7) lowu nga na tidyondzotsongo eka vhiki rin'wana na rin'wana.

Session 3: Patterns, Functions and Algebra 1 hour

The focus of Term 2 Week 6 is Patterns, Functions and Algebra.

Facilitator's notes

- ◆ Explain that the focus in Term 2 Week 6 is on Patterns, Functions and Algebra. Remind participants that this was also the focus of Term 1 Week 6 (covered in Workshop 3).
- ◆ Refer participants to page 124 of the *Concept Guide*.
- ◆ Ask participants to work in groups to complete **Activity 12**.

Term 2 Content overview: Patterns, Functions and Algebra

Refer to Patterns, Functions and Algebra in the content overview (*Concept Guide*, page 124).



Activity 12

1. What concepts are covered in Term 2?

2. What are the differences between the Maths Programme content and the CAPS content?

Term 2 Week 6: Describe, copy and extend patterns

In Workshop 3, the focus of Patterns, Functions and Algebra was on recognising/identifying the repeat in a pattern. We also discussed the difference between a sequence and a pattern. Term 2 Week 6 builds on the content introduced in Term 1 Week 6.

In Term 2 Week 6 learners:

- ◆ describe the repeat in patterns using objects, pictures and sounds.
- ◆ copy patterns that others have made with objects, pictures and sounds.
- ◆ extend patterns that others have made.
- ◆ create their own patterns at various levels of difficulty such as:

Sexini ya 3: Tipatironi, Tifankixini na Alijebura

1 ya wara

Nkongomo wa Vhiki ra 6 ra Kotara ya 2 i Tipatironi, Tifankixini na Alijebura.

Tinotsi ta muhumelerisi

- ◆ Hlamusela leswaku nkongomo wa Vhiki ra 6 ra Kotara ya 2 wu le ka Tipatironi, Tifankixini na Alijebura. Tsundzuxa vatekaxiave leswaku lowu a wu tlhela wu va wona nkongomo wa Vhiki ra 6 ra Kotara ya 1 (lowu angarheliweke eka Ndzetelavutivi wa 3).
- ◆ Kongomisa vatekaxiave eka pheji ya 124 ya *Xiletelo xa Minongoti*.
- ◆ Kombela vatekaxiave ku tirha hi mitlawa ku hetisa **Nghingiriko wa 12**.

Nkatsakanyo wa Vundzeni wa Kotara ya 2: Tipatironi, Tifankixini na Alijebura

Kongomisa eka Tipatironi, Tifankixini na Alijebura leswi nga eka nkatsakanyo wa vundzeni (*Xiletelo xa Minongoti*, pheji ya 125).



Nghingiriko wa 12

1. Xana i minongoti yihi leyi angarheliwaka eka Kotara ya 2?

2. Xana hi kwihi ku hambana exikarhi ka vundzeni bya Nongonoko wa Matematiki na vundzeni bya XIPHOKHAMA?

Vhiki ra 6 ra Kotara ya 2: Hlamusela, kopunula na ku ndlandlamukisa tipatironi

Eka Ndzetelavutivi wa 3, nkongomo wa Tipatironi, Tifankixini na Alijebura a wu ri eka ku lemuka/ku kuma mbuyelelo lowu nga eka patironi. Hi tlhele hi kana ku hambana exikarhi ka malongolokelo na patironi. Vhiki ra 6 ra Kotara ya 2 ri aka ehenhla ka vundzeni lebyi tivisiweke eka Vhiki ra 6 Kotara ya 1.

Eka Vhiki ra 6 Kotara ya 2 vadyondzi va:

- ◆ hlamusela mbuyelelo lowu nga eka tipatironi hi ku tirhisa michumu, swifaniso na mipfumawulo.
- ◆ kopunula tipatironi leti van'wana va ti endleke hi michumu, swifaniso na mipfumawulo.
- ◆ ndlandlamukisa tipatironi leti van'wana va ti endleke.
- ◆ tumbuluxa tipatironi ta vona vini eka tilevhele to hambanahambana ta matikelo to tanihi:

- circle, square; circle, square
 - circle, square, triangle; circle, square, triangle
 - circle, circle, square; circle, circle, square
 - red circle, blue circle, yellow square; red circle, blue circle, yellow square.
- ◆ tell what is missing when part of a pattern is hidden.

Facilitator's notes

- ◆ Think back to Workshop 3: Identifying patterns. Use the attribute blocks and the *Poster Book*. Discuss the difference between a sequence of objects, pictures or events, and what makes a pattern. Remind participants that a pattern requires the repeating of a sequence. Demonstrate this aspect.
- ◆ Have participants work in groups to complete **Activity 13**.



Activity 13

Refer to Week 6 in *Activity Guide: Term 2* (pages 104–119).

1. Discuss how the whole class activities present lessons on pattern.

Identifying patterns, using whole body, identifying patterns in the *Poster Book* picture.
Copy and extend own and others' patterns.
Explain why it is a pattern or not a pattern.

2. Read steps 5 and 6 of the teacher-guided activity on page 116. How does the teacher scaffold the activities and guide the learners with questions?

Term 2 Content Summary (Week 6)

Facilitator's notes

- ◆ Ensure that participants make the connection between CAPS and the weekly planning for Week 6, e.g. the Topic and Term 2 content are from CAPS, with some additional content added for the Maths Programme.
- ◆ Discuss why number is also included in a week where the focus is Patterns, Functions and Algebra. Explain that although the content focus is on pattern, we need to practise number every day through whole class and teacher-guided activities.
- ◆ Remind participants to include all concepts incidentally during the daily programme, e.g. the sequence of activities in the daily programme and days of the week are measurement concepts (time), while lining up – first, second, third – are number concepts (ordinal numbers).

- xirhendzevutana, xikwere; xirhendzevutana, xikwere
- xirhendzevutana, xikwere, yinhlharhu; xirhendzevutana, xikwere, yinhlharhu
- xirhendzevutana, xirhendzevutana, xikwere; xirhendzevutana, xirhendzevutana, xikwere
- xirhendzevutana xo tshwuka, xirhendzevutana xa wasi, xikwere xa xitshopana; xirhendzevutana xo tshwuka, xirhendzevutana xa wasi, xikwere xa xitshopana.
- ◆ vula leswaku xana i yini xi kayivelaka loko xiphemu xa patironi xi tumbetiwiwe.

Tinotsi ta muhumerisi

- ◆ Ehleketa swa le ndzhaku hi Ndzetelavutivi wa 3: Ku kuma tipatironi. Tirhisa tibuloko ta swihlawulekisi na *Buku ya Tiphositara*. Kanelani ku hambana exikarhi ka malongolokelo ya michumu, swifaniso kumbe swiendleko, na leswi swi vumbaka patironi. Tsundzuxa vatekaxiawe leswaku patironi yi lava mbuyelelo wa malongolokelo. Kombisa xiphemu lexi.
- ◆ Endla leswaku vatekaxiawe va tirha hi mitlawa ku hetisa **Nghingiriko wa 13**.



Nghingiriko wa 13

Kongomisa eka Vhiki ra 6 eka *Xiletelo xa Migingiriko: Kotara ya 2* (tipheji ta 104–119).

1. Kanelani hilaha migingiriko ya tllasi hinkwayo yi nyikaka hakona tidyondzotsongo leti nga eka patironi.

Ku kuma tipatironi, hi ku tirhisa miri hinkwawo, ku kuma tipatironi leti nga eka xifaniso eka *Buku ya Tiphositara*.

Kopunula kutani u ndlandlamukisa tipatironi ta wena n'wini na ta van'wana.

Hlamusela hi vutalo leswaku hikwalahokayini lexi xi ri patironi kumbe xi nga ri patironi.

2. Hlaya magoza ya 5 na 6 ya nghingiriko lowu leteriwaka hi mudyondzisi eka pheji ya 116. Xana mudyondzisi u tirhisa njhani xikhafula eka migingiriko ku letela vadyondzi hi swivutiso?

Nkatsakanyo wa Vundzeni wa Kotara ya 2 (Vhiki ra 6)

Tinotsi ta muhumerisi

- ◆ Tiyisisa leswaku vatekaxiawe va endla vuxakelanisi exikarhi ka XIPHOKHAMA na nkunguhato wa vhiki na vhiki eka Vhiki ra 6, xik. Nhlokohaka na vundzeni bya Kotara ya 2 swi huma eka XIPHOKHAMA, na vundzeni byo engetela byin'wana lebyi engeteriweke bya Nongonoko wa Matematiki.
- ◆ Kanelani leswaku hikwalahokayini nomboro yi tlhela yi katsiwa evhikini laha nkongomo wu nga Tipatironi, Tifankixini na Alijebura. Hlamusela leswaku hambiloko nkongomo wa vundzeni wu ri eka patironi, hi fanele ku titoloveta nomboro siku rin'wana na rin'wana hi ku tirhisa migingiriko ya tllasi hinkwayo na migingiriko leyi leteriwaka hi mudyondzisi.
- ◆ Tsundzuxa vatekaxiawe ku katsa minongoti hinkwayo hi xiwelo hi nkarhi na nongonoko wa siku na siku, xik. malongolokelo ya migingiriko leyi nga eka nongonoko wa siku na siku naswona masiku ya vhiki i minongoti ya mpimo (nkarhi) loko va rikarhi va fola layini – vun'we, vumbirhi, vunharhu – i minongoti ya tinomboro (tinomboro ta odinali).



Activity 14

Refer to Appendix A: Term 2 Weekly Content Summary (Weeks 4–7). Read the content overview for Week 6: Patterns, Functions and Algebra on page 20 of *Activity Guide: Term 2*.

1. What are the topics for Week 6?

2. What new knowledge is introduced in this week?

3. What skills from previous weeks are practised?

4. Match the activities in Appendix A: Term 2 Weekly Content Summary (Weeks 4–7) with the lessons in each week.



Nghingiriko wa 14

Kongomisa eka Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 2 (Mavhiki ya 4–7). Hlaya nkatsakanyo wa vundzeni wa Vhiki ra 6: Tipatironi, Tifankixini na Alijebura eka pheji ya 21 ya *Xiletelo xa Migingiriko: Kotara ya 2*.

1. Xana hi tihi tinhlokomhaka ta Vhiki ra 6?

2. Xana i vutivi byintshwa byihi lebyi byi tivisiwaka eka vhiki leri?

3. Xana i swikili swihi kusuka eka mavhiki lama nga hundza swi titolovetiwaka?

4. Pananisa migingiriko leyi nga eka Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 2 (Mavhiki ya 4–7) na tidyondzotsongo eka vhiki rin'wana na rin'wana.

Session 4: Data Handling

1 hour

The focus of Term 2 Week 7 is Data Handling.

Facilitator's notes

- ◆ Explain that the focus in Term 2 Week 7 is on Data Handling. Remind participants that this was also the focus of Term 1 Week 10 (covered in Workshop 4).
- ◆ Refer participants to page 136 of the *Concept Guide*.
- ◆ Ask participants to work in groups to complete **Activity 15**.

Term 2 Content overview: Data Handling

Refer to Data Handling in the content overview (*Concept Guide*, page 136).



Activity 15

1. What concepts are covered in Term 2?

2. What are the differences between the Maths Programme content and the CAPS content?

Facilitator's notes

- ◆ Explain to participants that the Data Handling Content Area for Grade R focuses on the purpose and process of data handling. It involves solving a problem or answering a question by collecting, sorting, representing and interpreting data.
- ◆ Collecting and sorting (classifying) data is only part of the data handling process. If teachers do not keep the focus on answering the question, the activity is simply about sorting.
- ◆ Direct participants to follow the data handling process and name the different steps in the process:
 1. Pose a question.
 2. Collect the data (discuss the best way of doing this).
 3. Sort the data.
 4. Represent that data.
 5. Analyse the data.
 6. Report on the data (answer the question).
- ◆ Let participants to work in groups to complete **Activity 16**.
- ◆ Ask one group to present their activity.

Sexini ya 4: Matirhiselo ya Vuxokoxoko bya Tinhlayo

1 ya awara

Nkongomo wa Vhiki ra 7 ra Kotara ya 2 i Matirhiselo ya Vuxokoxoko bya Tinhlayo.

Tinotsi ta muhumerisi

- ◆ Hlamusela leswaku nkongomo wa Vhiki ra 7 ra Kotara ya 2 wu hi mayelana na Matirhiselo ya Vuxokoxoko bya Tinhlayo. Tsundzuxa vatekaxiave leswaku lowu wu tlhele wu va wona nkongomo wa Vhiki ra 10 ra Kotara ya 1 (lowu angarheliweke eka Ndzetelavutivi wa 4).
- ◆ Kongomisa eka pheji ya 136 ya *Xiletelo xa Minongoti*.
- ◆ Kombela vatekaxiave ku tirha hi mitlawa ku hetisa **Nghingiriko wa 15**.

Nkatsakanyo wa Vundzeni wa Kotara ya 2: Matirhiselo ya Vuxokoxoko bya Tinhlayo

Kongomisa eka Matirhiselo ya Vuxokoxoko bya Tinhlayo lama nga eka nkatsakanyo wa vundzeni (*Xiletelo xa Minongoti*, pheji ya 136).



Nghingiriko wa 15

1. Xana i minongoti yihi leyi angarheliwaka eka Kotara ya 2?

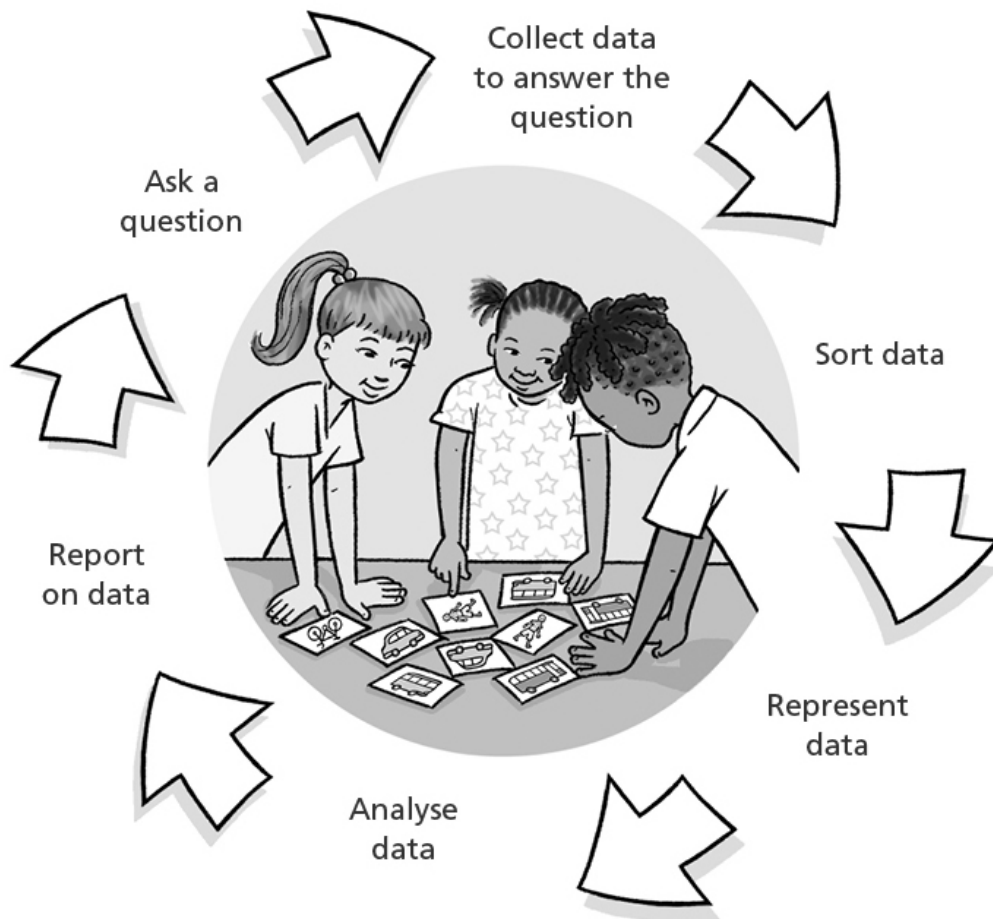
2. Xana hi kwihi ku hambana exikarhi ka vundzeni bya Nongonoko wa Matematiki na vundzeni bya XIPHOKHAMA?

Tinotsi ta muhumerisi

- ◆ Hlamusela vatekaxiave leswaku Xiyenge xa Vundzeni xa Matirhiselo ya Vuxokoxoko bya Tinhlayo xa Giredi ya V xi kongomisa eka xikongomelo na endlelo ra matirhiselo ya vuxokoxoko bya tinhlayo. Xi khumba ku ololoxa xiphiko kumbe ku hlamula xivutiso hi ku hlengeleta, ku ava, ku endla vuyimeri na ku humesa nhlamuselo ta vuxokoxoko bya tinhlayo.
- ◆ Ku hlengeleta na ku ava (ku ntlawahata) vuxokoxoko bya tinhlayo ko va ntsena xiphemu xa endlelo ra matirhiselo ya vuxokoxoko bya tinhlayo. Loko vadyondzisi va nga veki nkongomo eka ku hlamula xivutiso, nghingiriko wu hi mayelana na ku ava ntsena.
- ◆ Kongomisa vatekaxiave ku landzelala endlelo ra matirhiselo ya vuxokoxoko bya tinhlayo na ku vula mavito ya magoza yo hambanahambana eka endlelo leri:
 1. Vutisa xivutiso.
 2. Hlengeleta vuxokoxoko bya tinhlayo (kanela ndlela ya kahle swinene ya ku endla leswi).
 3. Ava vuxokoxoko bya tinhlayo.
 4. Endla vuyimeri bya vuxokoxoko bya tinhlayo.
 5. Xopaxopa vuxokoxoko bya tinhlayo.
 6. Vika hi mayelana na vuxokoxoko bya tinhlayo (hlamula xivutiso).
- ◆ Endla leswaku vatekaxiave va tirha hi mitlawa ku hetisa **Nghingiriko wa 16**.
- ◆ Kombela ntlawa wun'we ku andlala nghingiriko wa wona.

Data Handling

The Data Handling Content Area focuses on the purpose and process of handling data. It involves solving a problem or answering a question by collecting, sorting, representing and interpreting data.



In Grade R learners should have many opportunities to sort objects according to one or more attributes, such as colour, size or shape. Sorting is part of Data Handling, but it is not the only focus. It is important to always bring the learners back to the question that has been posed and the reason why they are collecting, sorting and thinking of ways to represent the data.

Questions are key to Data Handling, e.g.:

- ◆ I wonder which coldrink most learners like?
- ◆ How should we collect our data?

Matirhiselo ya Vuxokoxoko bya Tinhlayo

Xiyenge xa Vundzeni xa Matirhiselo ya Vuxokoxoko bya Tinhlayo xi kongomisa eka xikongomelo na endlelo ra matirhiselo ya vuxokoxoko bya tinhlayo. Xi khumba ku ololoxa xiphiso kumbe ku hlamula xivutiso hi ku hlengeleta, ku ava, ku endla vuyimeri na ku humesa nhlamuselo ya vuxokoxoko bya tinhlayo.



Eka Giredi ya V vadyondzi va fanele ku va na swivandlanene swo tala swa ku ava michumu hi ku ya hi xihlawulekisi xin'we kumbe swo tala, swo tanihi muhlovo, sayizi kumbe xivumbeko. Ku ava i xiphemu xa Matirhiselo ya Vuxokoxoko bya Tinhlayo, kambe a hi wona nkongomo wu ri woxe. I swa nkoka mikarhi hinkwayo ku vuyisela vadyondzi eka xivutiso lexi xi vutisiweke na xivangelo xa leswaku hikwalahokayini va ri eku hlengeleteni, eku aveni na le ku ehleketeni hi tindlela ta ku endla vuyimeri bya vuxokoxoko bya tinhlayo.

Swivutiso i mhakakulu eka Matirhiselo ya Vuxokoxoko bya Tinhlayo, xik.:

- ◆ A ndzi tivi leswaku i namuneti yihi leyi vadyondzi vanyingi va yi tsakelaka?
- ◆ Xana hi fanele ku byi hlengeleta njhani vuxokoxoko bya hina bya tinhlayo?

- ◆ How should we sort the data?
- ◆ How should we represent the data?



Activity 16

Discuss how you could plan and implement a Data Handling activity based on the above questions. Record your ideas on flipchart paper.

Representing data

Grade R learners explore different ways of showing or displaying the information they have collected. A **pictograph** is a way of representing data using pictures. In the whole class activity on Day 3 of Week 7, learners discuss how they come to school. Each learner is given a smiley face on **exactly the same size piece of paper**. They display the data by putting their picture in a column to represent four different means of transport. It is important to place the data in the columns, **without spaces** between the pieces of paper. The data is clearly represented and easy to interpret in order to answer the question: 'How do most learners come to school?'

Term 2 Content Summary (Week 7)



Activity 17

Refer to Appendix A: Term 2 Weekly Content Summary (Weeks 4–7). Read the content overview for Week 7: Data Handling on page 20 of *Activity Guide: Term 2*.

1. What are the topics for Week 7?

2. What new knowledge is introduced in this week?

3. What skills from previous weeks are practised?

- ◆ Xana hi fanele ku byi ava njhani vuxokoxoko bya hina bya tinhlayo?
- ◆ Xana hi fanele ku byi endla njhani vuyimeri vuxokoxoko lebya tinhlayo?



Nghingiriko wa 16

Kanelani hilaha mi nga kunguhataka hakona na ku tirhisa hakona nghingiriko wa Matirhiselo ya Vuxokoxoko bya Tinhlayo hi ku ya hi swivutiso leswi nga laha henhla. Rhekoda mianakanyo ya wena eka phepha ra chati yo pfula.

Ku endla vuyimeri bya vuxokoxoko bya tinhlayo

Vadyondzi va le ka Giredi ya V va valanga tindlela to hambanahambana ta ku kombisa vuxokoxoko lebyi va byi hlengeleteke. **Phikitogiramu** i ndlela ya ku endla vuyimeri bya vuxokoxoko bya tinhlayo hi ku tirhisa swifaniso. Eka nghingiriko wa tilasi hinkwayo eka Siku ra 3 ra Vhiki ra 7, vadyondzi va kanela hilaha va taka hakona exikolweni.

Mudyondzi un'wana na un'wana u nyikiwa xikandza xo n'wayitela eka **xiphemu xa phepha xa sayizi yo fana kwatsa**. Va kombisa vuxokoxoko bya tinhlayo hi ku vekela xifaniso xa vona eka kholomu ku endla vuyimeri bya mune wa tindlela to hambana ta swifambo. I swa nkoka ku vekela vuxokoxoko bya tinhlayo eka tikholomu leti, **ku ri hava swivandla** exikarhi ka swiphemu swa phepha. Vuxokoxoko bya tinhlayo byi endliwa vuyimeri hi ndlela leyi nga erivaleni na ku va byi olova ku humesa nhlamuselo hi xikongomelo xa ku hlamula xivutiso lexi: 'Xana vadyondzi vanyingi va ta njhani exikolweni?'

Nkatsakanyo wa Vundzeni wa Kotara ya 2 (Vhiki ra 7)



Nghingiriko wa 17

Kongomisa eka Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 2 (Mavhiki ya 4–7). Hlaya nkatsakanyo wa vundzeni wa Vhiki ra 7: Matirhiselo ya Vuxokoxoko bya Tinhlayo lama nga eka pheji ya 21 ya *Xiletelo xa Migingiriko: Kotara ya 2*.

1. Xana hi tihi tinhlokomhaka ta Vhiki ra 7?

2. Xana i vutivi byintshwa byihi byi tivisiwaka eka vhiki leri?

3. Xana i swikili swihi kusuka eka mavhiki lama nga hundza swi titolovetiwaka?

4. Match the activities in Appendix A: Term 2 Weekly Content Summary (Weeks 4–7) with the lessons in each week.
5. Refer to the teacher-guided activity in Week 7 (*Activity Guide: Term 2*, page 132). Discuss how the teacher guides the learners to sort the animals and then represent the data on a grid.

4. Pananisa migingiriko leyi nga eka Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 2 (Mavhiki ya 4–7) na tidyondzotsongo eka vhiki rin'wana na rin'wana
5. Kongomisa eka nghingiriko lowu leteriwaka hi mudyondzisi eka Vhiki ra 7 (*Xiletelo xa Migingiriko: Kotara ya 2, pheji ya 132*). Kanelani hilaha mudyondzisi a letelaka hakona vadyondzi ku ava swiharhi kutani endzhaku ka swona va endla vuyimeri bya vuxokoxoko bya tinhlayo eka giridi.

Closing activities

1 hour

Facilitator's notes

- ◆ **Lessons learnt:** Ask participants to think about what they have learnt during the workshop and to complete **Activity 18** 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.



Activity 18

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. Continue to use the Record of Continuous Assessments in *Activity Guide: Term 2* to assess your learners. Make use of your ongoing observation notes to build up evidence of what learners understand and can do.
2. Identify any concerns you have about individual learner's emerging grasp of maths concepts.
3. Bring copies of rubrics that you have used for maths assessment to the next workshop.
4. Bring a completed assessment record for one learner to the next workshop.

Tinotsi ta muhumerisi

- ◆ **Tidyondzotsongo leti dyondziweke:** Kombela vatekaxiave ku ehleketa hi mayelana na leswi va swi dyondzeke hi nkarhi wa ndzetelavutivi na ku hetisa **Nghingiriko wa 18** hi un'weun'we.
- ◆ **Xintirhwana xo tthelela na xona exikolweni:** Hlaya xintirhwana lexi. Vutisa loko ku ri na xihhi kumbe xihhi lexi xi nga riki erivaleni naswona xi lava 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..



Nghingiriko wa 18

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 tthelela na xona exikolweni

1. Yana emahlweni u tirhisa rhekodo ya Makambeleso lama Yaka Emahlweni lama nga eka *Xiletelo xa Migingiriko: Kotara ya 2* ku kambela vadyondzi va wena. Tirhisa tinotsi ta nxiyaxiyo lowu yaka emahlweni ku aka vumbhoni bya leswi vadyondzi va swi twisisaka naswona va nga kota ku swi endla.
2. Kuma swivilelo swihi kumbe swihi leswi u nga na swona hi mayelana na ntwisiso lowu tumbulukaka wa mudyondzi hi un'weun'we wa minongoti ya matematiki.
3. Tana na tikopi ta tirhubiriki leti u ti tirhiseke eka makambeleso ya matematiki eka ndzetelavutivi lowu landzeleka.
4. Tana na rhekodo ya makambeleso lama hetisiweke ya mudyondzi un'we eka ndzetelavutivi lowu landzelaka.

5. Use *Activity Guide: Term 2* to plan and implement Weeks 4–7 of the Maths Programme, including creating a maths area with a focus on the concept for each week.
6. Make notes on what worked well, what did not work so well and what you could do differently to improve teaching and learning.

Evaluation

Complete the Evaluation Form.

5. Tirhisa *Xiletelo xa Migingiriko: Kotara ya 2* ku kunguhata na ku tirhisa Mavhiki ya 4–7 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.
6. Endla tinotsi hi mayelana na leswi swi tirheke kahle swinene, leswi swi nga tirhangiki kahle swinene na leswi a wu ta swi endla hi ku hambana ku antswisa madyondziselo na madyondzelo.

Nkambelo

Tatisa Fomo leya Nkambelo.

APPENDIX A: TERM 2 WEEKLY CONTENT SUMMARY (WEEKS 4-7)

Term 2: Activity Plan

Week 4				
CONTENT AREA: SPACE AND SHAPE (GEOMETRY)				
TOPIC: Position, orientation and views; describes, sorts and compares 3-D objects				
INTRODUCE NEW KNOWLEDGE: Sort 3-D objects according to similarities and differences, one more, one less				
PRACTISE: Oral counting 1-15 and 5-1, counting objects 1-7, number concept 1-4, reinforce all shapes				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Reinforce all shapes/shape hunt.	Practise 1-4.	Activity 1	A circle/square/triangle can also be a ... (create a picture).
Day 2	Feely bag – feel different shapes and describe them.	Describing an object from different positions.	Activity 2	Make shapes using cookie cutters and playdough.
Day 3	Find shapes in class using position words.	Practising shapes and positions.	Activity 3	Block construction – use blocks/Unifix blocks.
Day 4	Shape detectives. One more, one less.		Activity 4	Puzzles (minimum of 12 pieces).
Day 5	Direction and position. Obstacle course.			
Week 5				
CONTENT AREA: NUMBERS, OPERATIONS AND RELATIONSHIPS				
TOPIC: Recognise number symbols and number words; describes, orders and compares numbers				
INTRODUCE NEW KNOWLEDGE: Introduce number 5				
PRACTISE: Oral counting 1-15, counting objects 1-7, count backwards from 5 (rhymes), reinforce number concept 1-4, sequencing numbers 1-4, more/fewer				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Introduce 5 (5 monkeys in the fifth house).	Match number symbols, number words and dot cards (4 and 5).	Activity 1	Playdough mat 5.
Day 2	Reinforce 4 and 5 (number symbols and number words).	Counting 1-7.	Activity 2	Ladybird numbers (roll correct number of paper balls).
Day 3	Counting forward and backwards. Number line.	Estimate and count. Structure beads.	Activity 3	Number matching – pegs.
Day 4	Reinforce 4 and 5.	Different configurations of the same number.	Activity 4	Number puzzles to 5 (using number words).
Day 5	Reinforce numbers 1-5 (dot cards, number symbols, number words to recognise).			

XIENGETELWA XA A: NKOMISO WA VUNDZENI WA VHIKI NA VHIKI WA KOTARA YA 1 (MAVHIKI YA 4-7)

Kotara ya 2: Kungu ra Migingiriko

Vhiki ra 4				
XIYENGE XA VUNDZENI: NDHAWU NA XIVUMBeko (JOMETIRI)				
NHLOKOMHAKA: Xiyimo, ndzetelo na matlhelo; hlamusela, ava na ku fananisa swivumbeko swa 3-D				
TIVISA VUTIVI BYINTSHWA: Ava michumu ya 3-D hi ku ya hi ku fanana na ku hambana, nkulu hi n'we, ntsongo n'we				
TITOLOVETI: Ku hlayela ka swanomu 1-15 na 5-1, ku hlayela michumu 1-7, nongoti wa tinomboro 1-4, tiyisisa swivumbeko hinkwaswo				
Migingiriko ya tilasi hinkwayo		Nghingiriko lowu leteriwaka hi mudyondzisi	Migingiriko ya le ka xitichi xo tirhela	
Siku ra 1	Tiyisisa swivumbeko hinkwaswo/nhloto wa swivumbeko.	Titoloveti 1-4. Hlamusela nchumu kusuka eka swiyimo swo hambanahambana. Ku titoloveti swivumbeko na swiyimo.	Nghingiriko wa 1	Xirhendzevutana/xikwere/yinhlhanharhu na yona yi nga va ... (tumbuluxa xifaniso).
Siku ra 2	Bege yo twa - twana swivumbeko swo hambanahambana kutani u swi hlamusela.		Nghingiriko wa 2	Endla swivumbeko hi ku tirhisa xitsemahekhe na vumba byo tlangisa.
Siku ra 3	Kuma swivumbeko etlilasini hi ku tirhisa marito ya xiyimo.		Nghingiriko wa 3	Ku aka hi tibuloko - tirhisa tibuloko/tibuloko ta Unifix.
Siku ra 4	Valavisisi va swivumbeko. nkulu hi n'we/ntsongo hi n'we.		Nghingiriko wa 4	Swiphazamiso (mpimohansi wa 12 wa swiphemu).
Siku ra 5	Tlhelo na xiyimo. Xihingakanyo			
Vhiki ra 5				
XIYENGE XA VUNDZENI: TINOMBORO, TIOPAREXINI NA VUXAKA				
NHLOKOMHAKA: Lemuka mifungo ya tinomboro na mavito ya tinomboro; hlamusela, longoloxa na ku fananisa tinomboro				
TIVISA VUTIVI BYINTSHWA: Tivisa nomboro ya 5				
TITOLOVETI: Ku hlayela ka swanomu 1-15, ku hlayela michumu 1-7, hlayela kuya endzhaku kusuka eka 5 (tirhayimi), tiyisisa nongoti wa tinomboro 1-4, ku longoloxela tinomboro 1-4, nkulu/ntsongo				
Migingiriko ya tilasi hinkwayo		Nghingiriko lowu leteriwaka hi mudyondzisi	Migingiriko ya le ka xitichi xo tirhela	
Siku ra 1	Tivisa 5 (5 wa tintohe endlwini ya vuntlhanu).	Pananisa makhadi ya mifungo ya tinomboro, makhadi ya mavito ya tinomboro na makhadi ya mathonsi ya tinomboro (4 na 5). Ku hlayela 1-7. Kumbetela kutani u hlayela. Vuhlalu bya swivumbeko. Maveketelelo yo hambanahambana y nomboro yin'we.	Nghingiriko wa 1	Mete wa vumba byo tlangisa wa 5.
Siku ra 2	Tiyisisa 4 na 5 (mifungo ya tinomboro na marito ya tinomboro).		Nghingiriko wa 2	Tinomboro ta vukohani (khunguluxa nhlayo leyi nga lulama ya tibolo ta phepha).
Siku ra 3	Ku hlayela kuya emahlweni na kuya endzhaku. Layini ya tinomboro.		Nghingiriko wa 3	Ku pananisa tinomboro - tiphekisi.
Siku ra 4	Tiyisisa 4 na 5.		Nghingiriko wa 4	Swiphazamiso swa tinomboro kufika eka 5 (hi ku tirhisa marito ya tinomboro).
Siku ra 5	Tiyisisa tinomboro ta 1-5 (makhadi ya mathonsi, mifungo ya tinomboro na marito ya tinomboro ku ma lemuka).			
Week 6				

CONTENT AREA: PATTERNS, FUNCTIONS AND ALGEBRA				
TOPIC: Copies and extends simple repeating patterns; creates own patterns; describes the repeat in patterns				
INTRODUCE NEW KNOWLEDGE: Copy and extend simple patterns, create and explain own pattern, oral counting 1–20, count backwards from 7				
PRACTISE: Sequencing numbers 1–5, counting objects 1–7, making groups the same				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Physical patterns.	Focus on number concept 1–5. Shake and break. Make equal groups. Patterns with a partner. Unifix blocks.	Activity 1 Activity 2 Activity 3 Activity 4	Extension of a pattern – drawing and colouring in. Snake patterns – using shapes. Pattern cards – using Unifix blocks. Threading patterns with beads.
Day 2	Identifying patterns in everyday objects.			
Day 3	Problem solving using patterns.			
Day 4	Making patterns using everyday objects.			
Day 5	Sound patterns.			
Week 7				
CONTENT AREA: DATA HANDLING				
TOPIC: Collects and sort objects; represents sorted collections of objects; discusses and reports on sorted collections of objects				
INTRODUCE NEW KNOWLEDGE: Draw a picture of collected objects, answer questions on own picture				
PRACTISE: Oral counting 1–20 and backwards from 7, counting objects 1–7, more than/less than/equal to, number concept 1–5, sorting and classifying				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Collects and sort objects (round or square).	Estimating. Counting. Sorting collections of animals. Pictograph: more/less. Questioning.	Activity 1 Activity 2 Activity 3 Activity 4	Cutting and sorting transport pictures. Sorting waste objects. Shape graph (use cut out shapes). Sorting by colour.
Day 2	Sorting game. Poster 8.			
Day 3	Pictograph: How do you get to school?			
Day 4	Discuss Day 3 results (asking questions).			
Day 5	Collect and sort classroom objects.			

Vhiki ra 6				
XIYENGE XA VUNDZENI: TIPATIRONI, TIFANKIXINI NA ALIJEBURA				
NHLOKOMHAKA: Kopunula kutani u ndlandlamuxa tipatironi to vuyeleda to olova; tumbuluxa tipatironi ta wena n'wini; hlamusela mbuyelelo eka tipatironi				
TIVISA VVUTIVI BYINTSHWA: Kopunula na ku ndlandlamukisa tipatironi to vuyeleda to olova, tumbuluxa na ku hlamusela patironi ya wena n'wini, ku hlayela kaswanomu 1–20, hlayela kuya endzhaku kusuka eka 7				
TITOLOVETI: Ku longoloxela tinomboro ta 1–5, ku hlayela michumu 1–7, ku endla mitlawa yi fana				
Migingiriko ya tilasi hinkwayo		Nghingiriko lowu leteriwaka hi mudyondzisi	Migingiriko ya le ka xitichi xo tirhela	
Siku ra 1	Tipatironi to khomeka.	Kongomisa eka nongoti wa tinomboro ta 1–5. Dlundla kutani u tlhantlha. Ku endla mitlawa yo ringana. Tipatironi na mutirhisani. Tibuloko ta Unifix.	Nghingiriko wa 1	Ndlandlamukiso wa patironi – ku dirowa na ku penda endzeni. Tipatironi ta tinyoka – hi ku tirhisa swivumbeko. Makhadi ya tipatironi – hi ku tirhisa tibuloko ta Unifix. Ku hulela tipatironi hi vuhlalu.
Siku ra 2	Ku kuma tipatironi eka michumu ya masiku hinkwawo.		Nghingiriko wa 2	
Siku ra 3	Ku ololoxa swiphiko hi ku tirhisa tipatironi.		Nghingiriko wa 3	
Siku ra 4	Ku endla tipatironi hi ku tirhisa michumu ya masiku hinkwawo.		Nghingiriko wa 4	
Siku ra 5	Tipatironi ta mipfumawulo.			
Vhiki ra 7				
XIYENGE XA VUNDZENI: MATIRHISELO YA VUXOKOXOKO BYA TINHLAYO				
NHLOKOMHAKA: Hlengeleta kutani u ava michumu; endla vuyimeri bya mihlengelo leyi aviweke ya michumu; kanelani na ku vika hi mihlengelo leyi aviweke ya michumu				
TIVISA VVUTIVI BYINTSHWA: Dirowa xifaniso xa michumu leyi hlengetiweke, hlamula swivutiso hi mayelana na xifaniso xa wena n'wini				
TITOLOVETI: Ku hlayela ka swanomomu 1–20 na kuya endzhaku kusuka eka 7, ku hlayela michumu 1–7, tala kutlula/ntsongo kutlula/ringana na, nongoti wa tinomboro 1–5, ku ava na ku ntlawahata				
Migingiriko ya tilasi hinkwayo		Nghingiriko lowu leteriwaka hi mudyondzisi	Migingiriko ya le ka xitichi xo tirhela	
Siku ra 1	Hlengeleta kutani u ava michumu (ya xirhendzevutana kumbe xikwere).	Ku kumbetela. Ku hlayela. Ku ava mihlengelo ya swiharhi. Phikitogirafu: tala/ntsongo. Ku vutisa.	Nghingiriko wa 1	Ku tsema na ku ava swifaniso swa swifambo. Ku ava michumu ya thyaka. Girafu ya xivumbeko (tirhisa swivumbeko leswi tsemiweke). Ku ava hi muhlovo.
Siku ra 2	Ntlangu wo ava. Phositara ya 8.		Nghingiriko wa 2	
Siku ra 3	Phikitogirafu: Xana u famba njhani ku ya exikolweni?		Nghingiriko wa 3	
Siku ra 4	Kanelani mivuyelo ya Siku ra 3 (u ri karhi u vutisa swivutiso).		Nghingiriko wa 4	
Siku ra 5	Hlengeleta kutani u ava michumu ya le kamareni ro dyondzela.			

Workshop 5 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 5

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 xihhi kumbe xihhi 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 swihhi kumbe swihhi swa ku antswisa miletelavutivi yo yisa emahlweni?
