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

Ndzetelavutivi wa 2 ● Workshop 2
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 second of twelve Grade R Mathematics Improvement Programme workshops, which form part of the Gauteng Department of Education (GDE) Grade R Mathematics and Language Improvement Project.

The purpose of this workshop is to assist teachers to implement the Maths Programme in their classrooms. The focus of this workshop is Space and Shape (Geometry). Participants will strengthen their knowledge and understanding of teaching and learning in this Content Area, prepare for teaching Space and Shape (Geometry) activities in their classrooms and reflect on the guiding principles that inform teaching.

Learning outcomes

- To reflect on the implementation of Term 1 Weeks 1–2
- To explore strategies to support teaching maths in Grade R (e.g. problem solving, investigation, exploration, questioning, critical thinking, active listening, observation)
- To engage with the Maths Programme content of Term 1 Weeks 3–5 (Space and Shape (Geometry))
- To apply the Maths Programme principles in weekly planning

Workshop content

- Opening and reflection (1 hour)
- Session 1: Content overview (1 hour)

TEA

- Session 2: Space and Shape (Geometry) (2 hours)

LUNCH

- Session 3: Planning for teaching (2 hours)

Preparation

- PPT welcome and outcomes
- Copy and cut out the Appendix B strips and place them into one envelope per group.
- Set up a simple obstacle course in an open space.
- Prepare the tables with materials before each session.

Nkatsakanyo

Xikongomelo

Lowu i wa vumbirhi 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. Nkongomo wa ndzetelavutivi lowu i Ndhawu na Xivumbeko (Jometiri). Vatekaxiave va ta tiyisa vutivi na ntwisiso wa vona wa madyondziselo na madyondzelo eka Xiyenge xa Vundzeni, va lulamisela ku dyondzisa migingiriko ya Ndhawu na Xivumbeko (Jometiri) etikamareni to dyondzela ta vona na ku ehleketisisa hi mayelana na milawu yo letela leyi yi letelaka madyondziselo.

Mivuyelo ya dyondzo

- Ku ehleketisisa hi matirhelo ya Mavhiki ya 1–2 ya Kotara ya 1
- Ku valanga maqhinga yo seketela ku dyondzisa matematiki eka Giredi ya V (xik. ku ololoxa swiphiqo, vulavisisi, mbalango, ku vutisa, maehleketelelo ya vukhensivusoli, ku yingela ko gingirika, nxiyaxiyo)
- Ku tirhana na vundzeni bya Nongonoko wa Matematiki wa Mavhiki ya 3–5 ya Kotara ya 1 (Ndhawu na Xivumbeko (Jometiri))
- Ku tirhisa milawu ya Nongonoko wa Matematiki eka nkunguhato wa vhiki na vhiki

Vundzeni bya ndzetelavutivi

- Ku pfula na ku ehleketisisa (1 ya awara)
- Sexini ya 1: Nkatsakanyo wa vundzeni (1 ya awara)

TIYA

- Sexini ya 2: Ndhawu na Xivumbeko (Jometiri) (2 wa tiawara)

LANCI

- Sexini ya 3: Nkunguhato wa ku dyondzisa (2 wa tiawara)

Malulamiselo

- PPT ku amukela na mivuyelo
- Kopunula kutani u tsema switiripi swa Xiengetelwa xa B kutani u swi chela endzeni ka mvhilopo yin'we hi ntlawa.
- Lulamisa ndlela ya xihingakanyo yo olova endhawini yo pfuleka.
- Lulamisa matafula hi timatheriyali sexini yin'wana na yin'wana yi nga si sungula.

Materials

- Flipchart paper, kokis
- Props for obstacle course
- *Concept Guide Poster Book*
- *Activity Guide: Term 1*
- Boxes, balls and ramps for each table
- Large sheet of newsprint (for tracing around a person)
- Newsprint and crayons for each table
- Attribute blocks for each table

Timatheriyali

- Maphepha ya chati yo pfula, tikhoki
- Swiseketelo swa ndlela ya xihingakanyo
- *Xiletelo xa Minongoti*
- *Buku ya Tiphositara*
- *Xiletelo xa Migingiriko: Kotara ya 1*
- Mabokisi, tibolo na tirhempe swiporo eka tafula rin'wana na rin'wana
- Xipandzu lexikulu xa phephahungu (ku landzelerisa ku rhendzeleka na munhu loyi)
- Phephahungu na tikhirayoni eka tafula rin'wana na rin'wana
- Tibuloko ta swihlawulekisi eka tafula rin'wana na rin'wana

Opening and reflection **1 hour**

Facilitator's notes

- PPT: Open the session, welcome participants and read through the outcomes for the workshop.
- Remind participants of the *Take back to school* task from the end of Workshop 1. Ask participants to work in groups to reflect on this task and to complete **Activity 1**.
- Groups share key points with the large group.
- List examples of good practice on newsprint and encourage participants to write these down or take a photograph of the newsprint as a record.
- On the ground, place a piece of string the length of the classroom. Mark one end of the string: 1 = the Maths Programme has made a big difference to my teaching. Mark the other end of the string: 10 = the Maths Programme has made no difference to my teaching.
- Invite a few participants at a time to stand on the string indicating where they fit on the scale and to explain why they chose to stand there.

In your Workshop 1 *Take back to school* task you were asked to complete several activities. We would like you to spend a few minutes reflecting on your progress so far.

In your groups, think about your maths teaching over the past two weeks and how successfully you have implemented Term 1 Weeks 1–2.

Activity 1

In your group, discuss your successes and challenges with implementing Term 1 Weeks 1–2 of the Maths Programme. Allow each person to have a turn to present their reflections.

1. Briefly describe how you organised your classroom and how you prepared for teaching these two weeks.

_____
_____
_____

2. Discuss what worked well and what you found difficult to implement. Does anyone have any helpful suggestions?

_____
_____
_____

Ku pfula na ku ehleketisisa

1 ya awara

Tinotsi ta muhumelerisi
♦ PPT: Pfula sexini, amukela vatekaxiave kutani u hlaya mivuyelo ya ndzetelavutivi. ♦ Tsundzuxa vatekaxiave hi *Xintirhwana xo tlhelela na xona exikolweni* kusuka eka mahetelelo ya Ndzetelavutivi wa 1. Kombela vatekaxiave ku tirha hi mitlawa ku ehleketisisa hi xintirhwana lexi na ku hetisa **Nghingiriko wa 1**. ♦ Mitlawa yi avelana mianakanyokulu na ntlawa lowukulu. ♦ Xaxameta swikombiso swa matirhelo lamanene eka phephahungu kutani u khutaza vatekaxiave ku tsala na ku teka xinepe xa phepha ro tsalela mahungu tanihi rhekodo. ♦ Ehansi, vekela xiphemu xa njara xi fambisana na vulehi bya kamara ro dyondzela. Fungha makumu man'we ma njara leyi: 1 = Nongonoko wa Matematiki wu endlile ku hambana lokukulu eka madyondziselo ya mina. Fungha makumu laman'wana ma njara leyi: 10 = Nongonoko wa Matematiki a wu endlangi ku hambana lokukulu eka madyondziselo ya mina. ♦ Rhamba vatekaxiave vangarivangani hi nkarhi ku yima enjareni va komba laha va ringanelaka kona exikalwini na ku hlamusela hi vutalo leswaku hikwalahokayini va hlawule ku yima kwalaho.

Eka *Xintirhwana xo tlhelela na xona exikolweni* xa Ndzetelavutivi wa 1 u komberiwile ku hetisa migingiriko yo talanyana. Hi tsakela ku teka timinete tingaritingani ku ehleketisisa hi ndzima ya wena leyi khatsiweke kufika sweswi.

Emitlaweni ya n'wina, ehleketani hi mayelana na madyondziselo ya n'wina ya matematiki eka mavhiki mambirhi lama nga hundza na hilaha mi humeleleke hakona ku tirhana na Mavhiki ya 1–2 ya Kotara ya 1.

Nghingiriko wa 1

Entlaweni wa n'wina, kanelani ku humelela na mitlhontlho ya n'wina hi ku tirhisa Mavhiki ya 1–2 ya Kotara ya 1 ya Nongonoko wa Matematiki. Pfumelela munhu un'wana na un'wana ku va na nkarhi wa ku andlala ku ehleketisisa ka yena.

1. Hlamusela hi ku komisa hilaha u lulamiseke hakona kamara ro dyondzela ra wena na hilaha u lulamiseke madyondziselo ya wena eka mavhiki lamambirhi.

_____

_____

_____

2. Kanelani hi leswi swi tirheke kahle na leswi mi swi kumeke swi tika ku swi tirhisa. Xana ku na munhu wihi kumbe wihi a nga na swiringanyeto swo pfuna?

_____

_____

_____

3. Share how and when you applied the guiding principles of teaching in your daily programme Mathematics focus time?

_____

_____

_____

Facilitator's notes

- Wrap us this session with feedback from each group. Refer to specific activities in *Activity Guide: Term 1* to support what participants share.
- Discuss the video with a focus on how participants managed the teacher-guided activity in Week 2.

Video 1

Activity Guide: Term 1, Week 2, Teacher-guided activity #3 (page 46)

Watch the video of the teacher-guided activity which involves a small group of learners.

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.

_____

_____

_____

In Workshop 1 we discussed the eight guiding principles of teaching maths in Grade R. Activity 2 requires that you to match each of the eight principles with two statements that best describe it.

Facilitator's notes

- Hand out one envelope containing the eight guiding principles of teaching and matching statements to each group.
- Explain that the participants need to match the principles with the statements to complete **Activity 2**.

Activity 2

1. Each group has been given an envelope containing a number of strips. Find the eight guiding principles of teaching and place them in a row on your table.
2. Discuss each of the statements and decide with which principle it fits best. Place the statement under this principle.

3. Avelanani hilaha u tirhiseke hakona na nkarhi lowu u tirhiseke hawona milawu yo letela madyondziselo eka nkarhi wa wena wa nkongomo wa Matematiki wa nongonoko wa siku na siku?

_____

_____

_____

Tinotsi ta muhumelerisi

- Songasonga sexini leyi hi mbiko kusuka eka ntlawa wun'wana na wun'wana. Kongomisa eka migingiriko yo karhi leyi nga eka *Xiletelo xa Migingiriko: Kotara ya 1* ku seketela leswi vatekaxiave va avelanaka swona.
- Kanelani vhidiyo hi nkongomo wa hilaha vatekaxiave va lawuleke hakona nghingiriko lowu leteriwaka hi mudyondzisi eka Vhiki ra 2.

Vhidiyo ya 1

Xiletelo xa Migingiriko: Kotara ya 1, Vhiki ra 2, Nghingiriko lowu leteriwaka hi mudyondzisi #3 (pheji ya 46)

Hlalelani vhidiyo ya nghingiriko lowu leteriweke hi mudyondzisi lowu wu khumbaka ntlawa lowutsongo wa vadyondzi.

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.

_____

_____

_____

Eka Ndzetelavutivi wa 1 hi kanele hi nhungu wa milawu yo letela ya ku dyondzisa matematiki eka Giredi ya V. Nghingiriko wa 2 wu lava leswaku u pananisa wun'wana na wun'wana wa milawu leya nhungu na switatimente swimbirhi leswi swi wu hlamuselaka kahle.

Tinotsi ta muhumelerisi

- Phakela mvhilopo yin'we leyi nga na nhungu wa milawu yo letela ya madyondziselo na switatimente swo pananisa eka ntlawa wun'wana na wun'wana.
- Hlamusela hi vutalo leswaku vatekaxiave va fanele ku pananisa milawu na switatimente ku hetisa **Nghingiriko wa 2**.

Nghingiriko wa 2

1. Ntlawa wun'wana na wun'wana wu nyikiwile mvhilopo leyi nga na nhlayo yo karhi ya switiripi. Kumani milawu yo letela leya nhungu ya madyondziselo kutani mi yi veketela hi ku landzelela etafuleni ra n'wina.
2. Kanelani hi xin'wana na xin'wana xa switatimente leswi kutani mi teka xiboho leswaku xana i nawu wihi xi fambelanaka na wona swinene. Vekelani xitatimente lexi ehansi ka nawu lowu.

Session 1: Content overview **1 hour**

Facilitator's notes

- Refer participants to pages 126–131 of the *Concept Guide*. Remind participants that this table provides the framework for all maths planning and will be used and referenced throughout the training.
- Ask participants to work in groups to complete **Activity 3**. Ask one person from each group to share their ideas.

Term 1 Content overview: Space and Shape (Geometry)

The content for teaching and learning in Weeks 3–5 focuses mainly on the CAPS Content Area, Space and Shape (Geometry). This content involves more than teaching learners to identify geometric shapes. Their understanding of space and shape depends to a large extent on whether they understand and can use position vocabulary to describe the location of an object (e.g. on, in, next to, behind, in front of). Learners also need to be able to see objects from different positions or views (e.g. from the top, from the bottom, turned sideways, flipped upside down).

Facilitator's notes

- Ask the participants: If I say 'space and shape' what words come to mind?
- List the words that they share on flipchart paper.

Read the content overview for Space and Shape (Geometry) on pages 126–131 of the *Concept Guide*. It provides an overview of the Maths Programme content to be taught in each term of Grade R.

- The text in blue is the content from the Grade R CAPS for Mathematics.
- The text descriptions and content in black have been added to extend and build on CAPS.
- The topics are sequenced to show a developmental progression from one topic to another.

Activity 3

Look at 3.1–3.4 of the content overview for Space and Shape (Geometry) on pages 126–131 of the *Concept Guide*. In your group, do the following:

Sexini ya 1: Nkatsakanyo wa vundzeni **1 ya awara**

Tinotsi ta muhumelerisi

- Kongomisa vatekaxiave eka tipheji ta 126–131 ta *Xiletelo xa Minongoti*. Tsundzuxa vatekaxiave leswaku tafula leri ri nyika rimba ra nkunguhato wa matematiki hinkwawo naswona ri ta tirhisiwa na ku kongomisiwa eka rona eka vuleteri hinkwabyo.
- Kombela vatekaxiave va tirha hi mitlawa ku hetisa **Nghingiriko wa 3**. Kombela munhu un'we kusuka eka ntlawa wun'wana na wun'wana ku avelana mianakanyo ya vona.

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

Vundzeni bya madyondziselo na madyondzelo eka Mavhiki ya 3–5 byi kongomisa ngopfungopfu eka Xiyenge xa Vundzeni xa XIPHOKHAMA, Ndhawu na Xivumbeko (Jometiri). Vundzeni lebyi byi khumba swo tlula ku dyondzisa vadyondzi ku kuma swivumbeko swa jometiri. Ntwisiso wa vona wa ndhawu na xivumbeko wu leteriwa hi mpimo lowukulu hi loko va twisisa na ku kota ku tirhisa ntivomarito wa xiyimo ku hlamusela hi ku hlawulekisa ndhawu ya nchumu (xik. ehenhla, endzeni, ekusuhi na, endzhaku ka, emahlweni ka). Vadyondzi va tlhela va fanele ku vona michumu kusuka eka swiyimo swo hambanahambana kumbe mavonelo (xik. kusuka ehenhla, kusuka ehansi, leyi hundzuluxeriweke ematlhelo, leyi yimisiweke hi nhloko).

Tinotsi ta muhumelerisi

- Vutisa vatekaxiave: Loko ndzi ku 'ndhawu na xivumbeko' xana i marito wahi ya taka emiehleketweni?
- Xaxameta marito lama va ma avelanaka eka phepha ra chati yo pfula.

Hlaya nkatsakanyo wa vundzeni wa Ndhawu na Xivumbeko (Jometiri) eka tipheji ta 126–131 ta *Xiletelo xa Minongoti*. Wu nyika nkatsakanyo wa vundzeni bya Nongonoko wa Matematiki lebyi faneleke ku dyondzisiwa eka kotara yin'wana na yin'wana eka Giredi ya V.

- Xitsariwa lexi nga hi muhlovo wa wasi i vundzeni kusuka eka XIPHOKHAMA xa Matematiki wa Giredi ya V.
- Tinhlamuselo ta xitsariwa na vundzeni leswi nga hi muhlovo wa ntima ti engeteriwile ku ndlandlamukisa na ku aka ehenhla ka XIPHOKHAMA.
- Tinhlokomhaka ti longoloxiwile ku komba ku ya emahlweni ka nhluvukiso kusuka eka nhlokomhaka yin'we kuya eka yinwana.

Nghingiriko wa 3

Languta 3.1–3.4 ta nkatsakanyo wa vundzeni wa Ndhawu na Xivumbeko (Jometiri) eka tipheji ta 126–131 ta *Xiletelo xa Minongoti*. Entlaweni wa n'wina, endlani leswi landzelaka:

1. Look at each topic and discuss the content and developmental progression across the four terms.

_____
_____
_____
_____

2. Look at the text in black and discuss what the Maths Programme adds to the content from CAPS.

_____
_____
_____
_____

Refer to the black text. Main additions to CAPS are:
- position of child in relation to their surroundings
- exploring 3-D objects: flat, round, square or rectangular shape
- rectangle (referred to incidentally in Term 1 and taught in Term 3)
- recognise, identify and name 2-D shapes
- comparing rectangles and squares
- curved and straight lines.

3. Why do you think that the weighting of Space and Shape (Geometry) is the second highest of the Content Areas in Grade R?

_____
_____
_____
_____

Understanding more about their world – everything around us has a shape. Learning the correct language enables learners to talk about and describe shapes.
Many of the terms also apply to understanding the position of number in the counting sequence or the sequence of items in a pattern. Many life skills depend on spatial awareness and skills, e.g. following directions or reading a map, packing things into a container, etc.

4. How have you approached teaching Space and Shape (Geometry) in your classroom? Give examples of lessons and activities that you have used in the past.

_____
_____
_____
_____

1. Langutani eka nhlokomhaka yin'wana na yin'wana kutani mi kanela vundzeni na ku ya emahlweni ka nhluvukiso eka tikotara leta mune hinkwato.

_____
_____
_____
_____

2. Langutani eka xitsariwa lexi nga hi muhlovo wa ntima kutani mi kanela leswi Nongonoko wa Matematiki wu swi engetelaka eka vundzeni byo huma eka XIPHOKHAMA.

_____
_____
_____
_____

Kongomisa eka xitsariwa xa muhlovo wa ntima. Swiengeteriwakulu eka XIPHOKHAMA hi leswi:
- xiyimo xa n'wana hi ku yelanisiwa na swivandla swa le kusuhi
- ku valanga michumu ya 3-D: xivumbeko xo patlama, xirhendzevutana, xikwere kumbe yinhlamune
- yinhlamune (swi kongomisiwile hi xiwelo eka Kotara ya 1 kutani swi dyondzisiwa eka Kotara ya 3)
- lemuka, kuma na ku vula mavito ya swivumbeko swa 2-D
- ku fananisa tinhlamune na swikwere
- tilayini to gombonyoka na to thwixama

3. Hikwalahokayini u ehleketa leswaku ku pima ntikelo wa Ndhawu na Xivumbeko (Jometiri) i xavumbirhi hi vulehelahenhla eka Swiyenge swa Vundzeni eka Giredi ya V?

_____
_____
_____
_____

Ku twisisa swo tala hi mayelana na misava ya vona – hinkwaswo leswi nga ekusuhi na hina swi na xivumbeko. Ku dyondza ririmi leri nga lulama swi kotisa vadyondzi ku vulavula hi mayelana na swivumbeko na ku swi hlamusela.
Yo tala ya matheme lama ya tlhela ya tirha eka ntwisiso wa xiyimo xa nomboro eka malongolokelo yo hlayela kumbe malongolokelo ya michumu eka patironi. Swikili swa vutomi swo tala swi leteriwa hi vulemuki bya ndhawu na swikili, xik. ku landzelela matlhelo kumbe ku hlaya mepe, ku paka swilo endzeni ka khontheni, sw.sw.

4. Xana u endle njhani eka madyondziselo ya Ndhawu na Xivumbeko (Jometiri) ekamareni ro dyondzela ra wena? Nyika swikombiso swa tidyondzotsongo na migingiriko leyi u yi tirhiseke eka nkarhi lowu nga hundza.

_____
_____
_____
_____

Session 2: Space and Shape (Geometry) 2 hours

Spatial concepts (30 minutes)

Learners start to learn about spatial concepts such as position, direction, orientation (different views) and perspective as they use their own bodies to explore the relationship between themselves, other people and objects.

Facilitator's notes

- Set up an obstacle course using chairs, hula hoops, planks, tables and a box.
- Examples of instructions to use:
  - Take two steps forward.
  - Jump into the hula hoop.
  - Jump out of the hula hoop.
  - Stand with one leg in the hula hoop.
  - Crawl forwards through the legs of the table.
  - Stand up and turn around.
  - Take three steps backwards.
  - Put one leg inside the hula hoop.
  - Jump over the box.
  - Walk between the chairs.
  - Stand in the box.

 **Activity 4**

The facilitator has set up a simple obstacle course. With a partner take turns to guide each other through the obstacle course. Use positional and directional language to give clear instructions.

Using the *Poster Book* to talk about position and direction

Facilitator's notes

PPT: Poster 9: Ask questions that require answers that use position and direction words.

The Maths Programme's *Poster Book* provides opportunities to use real-life contexts to explore concepts. On Poster 9 of the *Poster Book* you can see where Malusi lives in relation to other people and places in his neighbourhood. This poster can be used to stimulate discussion about the position of people and objects in relation to one another and to encourage learners to use and become familiar with the language that describes space, position and direction. Learners link maths to their everyday lives as they discuss and solve problems.

Sexini ya 2: Ndhawu na Xivumbeko (Jometiri)

2 wa tiawara

Minongoti ya ndhawu

(30 wa timinete)

Vadyondzi va sungula ku dyondza hi mayelana na minongoti ya ndhawu yo tanihi xiyimo, tlhelo, vonakelo (mavonakelo yo hambanahambana) na mavonelo loko va ri karhi va tirhisa miri ya vona ku valanga vuxaka exikarhi ka vona vini, vanhu van'wana na michumu.

Tinotsi ta muhumelerisi
♦ Lulamisa ndlela ya xihingakanyo hi ku tirhisa switulu, tihulahupu, mapulanga, matafula na bokisi. ♦ Swikombiso swa swileriso swo swi tirhisa: - Teka magoza mambirhi kuya emahlweni. - Tlulela endzeni ka hulahupu. - Tlulela ehandle ka hulahupu. - Yima hi nenge wun'we endzeni ka hulahupu. - Kasa u ya emahlweni hi le xikarhi ka milenge ya tafula. - Yima kutani u hundzuluka. - Teka magoza manharhu kuya endzhaku. - Nghenisa nenge wun'we endzeni ka hulahupu. - Tlula hi le henhla ka bokisi. - Famba exikarhi ka switulu. - Yima endzeni ka bokisi.

Nghingiriko wa 4

Muhumelerisi u lulamisela ndlela ya xihingakanyo yo olova. Swin'we na mutirhisani cincanani ku letelana ku famba hi ndlela ya xihingakanyo. Tirhisani ririmi ra swiyimo na matlhelo ku nyika swileriso leswi nga erivaleni.

Ku tirhisa *Buku ya Tiphositara* ku vulavula hi mayelana na xiyimo na tlhelo

Tinotsi ta muhumelerisi
PPT: Phositara ya 9: Vutisa swivutiso leswi swi lavaka tinhlamulo leti tirhisaka marito ya swiyimo na matlhelo.

Buku ya Tiphositara ya Nongonoko wa Matematiki yi nyika swivandlanene swa ku tirhisa mivangu ya swiyimo swa xiviri ku valanga minongoti. Eka Phositara ya 9 ya *Buku ya Tiphositara* u nga kota ku vona laha Malusi a tshamaka kona hi ku yelanisiwa na vanhu van'wana na tindhawu leti nga emugangeni wa ka vona. Phositara leyi yi nga tirhisiwa ku nyanyula nkanelo hi mayelana na xiyimo xa vanhu na michumu hi ku yelanisiwa na yin'wana na ku khutaza vadyondzi ku tirhisa na ku titoloveta ririmi leri ri hlamuselaka hi ku hlawulekisa ndhawu, xiyimo, ndhawu na tlhelo. Vadyondzi va xakelanisa matematiki eka vutomi bya vona bya masiku hinkwawo loko va ri karhi va kanela na ku ololoxa swiphiqo.

Facilitator's notes

- Ask participants to complete **Activity 5** in their small groups. Have each group report back on the activity.
- Remind participants that position and direction questions and vocabulary are introduced not only during Mathematics focus times, but are also woven into the daily programme throughout the school day. Also remind them that the teacher plays an important role in modelling appropriate vocabulary.

Activity 5

In your group, look at Poster 9 and discuss the following:

1. What position and direction words could you introduce to learners and encourage them to use?

_____

_____

_____

Position: on top of, behind, in front of, in, on, under, next to.
Direction: turn, straight, forwards, towards, away from, left, right, to, from, around, along, through.

2. What other questions could you ask learners that would help them to learn about position, direction, orientation (views) and perspective?

_____

_____

_____

Examples:
- Where is …?
- What is in front/behind/under/next to the …?
- How will Malusi get to …?

Facilitator's notes

- Draw attention to Malusi waving goodbye to Granny. Ask the participants:
  - What do you see in the picture?
  - Where do you think Malusi is going?
  - How do you think he will get there?
- List the direction words as they are called out, e.g. turn, straight, forwards, towards, away from, left, right, to, from, around, along, through.
- Ask the participants: Where in the playground could Malusi hide from the other learners?
- List the position words, e.g. top of, behind, in, on, under, bottom, next to, upside down.
- PPT: Briefly define the spatial concepts of position, direction, orientation (views) and perspective. Discuss how learners first use their own bodies to explore spatial concepts.
- Ask participants what kinds of activities in their daily programmes will help learners develop the understanding of these spatial concepts.

Refer to pages 172–177 of the *Concept Guide* to read more about space.

Tinotsi ta muhumelerisi

- Kombela vatekaxiave ku hetisa **Nghingiriko wa 5** eka mitlawa leyitsongo ya vona. Endla leswaku ntlawa wun'wana na wun'wana wu nyika xiviko hi mayelana na nghingiriko lowu.
- Tsundzuxa vatekaxiave leswaku swivutiso swa swiyimo na matlhelo na ntivomarito wa kona swa tivisiwa hambi ku nga ri hi nkarhi wa mikarhi ya nkongomo wa Matematiki ntsena, kambe swi tlhela swi nghenisiwa eka nongonoko wa siku na siku esikwini ra xikolo hinkwaro. Tlhela u va tsundzuxa leswaku mudyondzisi u tlanga xiave xa nkoka eka ku modlola ntivomarito lowu faneleke.

Nghingiriko wa 5

Entlaweni wa n'wina, langutani Phositara ya 9 kutani mi kanela leswi landzelaka:

1. Xana i marito wahi ya swiyimo na matlhelo lama u nga ma tirhisaka eka vadyondzi na ku va khutaza ku ma tirhisa?

_____
_____
_____

Xiyimo: ehenhla ka, endzhaku, emahlweni ka, endzeni, ehenhla, ehansi ka, ekusuhi na.
Tlhelo: jika, thwixama, kuya emahlweni, kuya eka, ekule na, ximatsi, xinene, kusuka eka, ku rhendzeleka na, ku fambisana na, hi le xikarhi ka.

2. Xana i swivutiso swihi swin'wan leswi u nga swi vutisaka vadyondzi leswi swi nga ta va pfuna ku dyondza hi mayelana na xiyimo, tlhelo, vonakelo (mavonakelo) na mavonelo?

_____
_____
_____

Swikombiso:
- Xana ... xi le kwihi?
- Xana i yini lexi xi nga emahlweni/endzhaku/ehansi/ekusuhi na ...?
- Xana Malusi u ta fika njhani eka …?

Tinotsi ta muhumelerisi

- Kongomisa miehleketo eka Malusi a ri karhi a thathayisa Kokwana wa xisati. Vutisa vatekaxiave:
  - Xana u vona yini exifanisweni lexi?
  - Xana u ehleketa leswaku hi kwihi laha Malusi a yaka kona?
  - Xana u ehleketa leswaku u ta fika njhani kona?
- Xaxameta marito ya matlhelo loko ya ri karhi ya vitaniwa, xik. jika, thwixama, kuya emahlweni, kuya eka, ekule na, ximatsi, xinene, kusuka eka, ku rhendzeleka na, ku fambisana na, hi le xikarhi ka.
- Vutisa vatekaxiave: Xana hi kwihi eka rivala ra mitlangu laha Malusi a nga kota ku tumbelela vadyondzi lava n'wana kona?
- Xaxameta marito ya xiyimo, xik. ehenhla ka, endzhaku ka, endzeni, ehenhla, ehansi ka, ehansi, ekusuhi na, ku yima hi nhloko.
- PPT: Hlamusela hi ku komisa leswi yi vulaka swona minongoti ya xiyimo, tlhelo, vonakelo (mavonakelo) na mavonelo. Kanela hilaha vadyondzi va tirhisaka rosungula miri ya vona ku valanga minongoti ya ndhawu.
- Vutisa vatekaxiave leswaku i mixaka yihi ya migingiriko leyi nga eka minongonoko ya vona ya siku na siku yi nga pfunaka vadyondzi ku hluvukisa antswiso wa vona wa minongoti leya ndhawu.

Kongomisa eka tipheji ta 172–177 ta *Xiletelo xa Minongoti* ku hlaya swo tala hi mayelana na ndhawu.

Introducing shapes (1 hour)

Facilitator's notes

- In Grade R learners recognise, identify and name three-dimensional (3-D) objects and two-dimensional (2-D) shapes.
- Refer to pages 178–189 of the *Concept Guide*.
- Discuss the terms '2-D shapes' and '3-D objects'.
- Use real objects to demonstrate as you explain the difference between these terms.

In Grade R learners focus on recognising, identifying and naming three-dimensional (3-D) objects and two-dimensional (2-D) shapes.

- 3-D means that an object has three dimensions: length, breadth (width) and height.
- 2-D means that a shape has two dimensions: length and breadth (width).

Recognising, identifying and comparing three-dimensional objects

Facilitator's notes

- Discuss how learners engage with the properties of 3-D objects as they explore everyday materials such as boxes, cans, toilet roll inners, balls and so on.
- Ask participants what they provide in their classrooms that helps learners to discuss, compare and sort objects. Explain that the next activity will demonstrate how to help learners recognise the properties of objects.
- Show the video and ask participants to complete the activity in their groups.

In Grade R learners explore the properties of everyday objects. They build constructions using recycled household materials such as boxes, cans, tubs, toilet roll inners, balls and so on. They investigate and describe box- and ball-shaped objects. They compare and sort objects and talk about similarities and differences.

 **Video 2**

Activity Guide: Term 1, Week 3, Day 1 #4 (page 54)

Watch the video of a teacher talking to learners who are sorting a collection of objects. Listen to how she prompts the learners to explain how they are sorting the objects and how to use the correct terms to describe each object.

1. List the words that are used to describe the objects in the video.

_____

_____

_____

Ku tivisa swivumbeko (1 ya awara)

Tinotsi ta muhumelerisi

- Eka Giredi ya V vadyondzi va kongomisa eka ku lemuka, ku kuma na ku vula mavito ya michumu ya matlhelo manharhu (3-D) na swivumbeko swa matlhelo mambirhi (2-D).
- Kongomisa eka tipheji ta 178–189 ta *Xiletelo xa Minongoti*.
- Kanelani matheme ya 'swivumbeko swa 2-D' na swa 'michumu ya 3-D'.
- Tirhisa michumu ya xiviri ku kombisa loko u ri karhi u hlamusela hi vutalo ku hambana exikarhi ka matheme lama.

Eka Giredi ya V vadyondzi va kongomisa eka ku lemuka, ku kuma na ku vula mavito ya michumu ya matlhelo manharhu (3-D) na swivumbeko swa matlhelo mambirhi (2-D).

- 3-D swi vula leswaku nchumu wu na matlhelo manharhu: vulehi, vuanami (anama) na vulehelahenhla.
- 2-D swi vula leswaku xivumbeko xi na matlhelo mambirhi: vulehi na vuanami (anama).

Ku lemuka, kuma kutani u fananisa michumu ya matlhelo manharhu

Tinotsi ta muhumelerisi

- Kanela hilaha vadyondzi va nga ta tirhana hakona na swihlawulekisi swa michumu ya 3-D loko va ri karhi va valanga timatheriyali ta masiku hinkwawo to tanihi mabokisi, swikotela, switsondzelelo swa phepha ra le xihambukelweni, tibolo na swo kota sweswo.
- Vutisa vatekaxiave leswi va swi nyikaka etikamareni to dyondzela ta vona `leswi swi pfunaka vadyondzi ku kanela, ku fananisa na ku ava michumu. Hlamusela hi vutalo leswaku nghingiriko lowu landzelaka wu ta kombisa hilaha ku pfuniwaka vadyondzi hakona ku lemuka swihlawulekisi swa michumu.
- Komba vhidiyo kutani u kombela vatekaxiave ku hetisa nghingiriko lowu emitlaweni ya vona.

Eka Giredi ya V vadyondzi va valanga swihlawulekisi swa michumu ya masiku hinkwawo. Va aka swimakiwa hi ku tirhisa timatheriyali leti vuyelerisiweke ta le kaya to tanihi mabokisi, swikotela, swibavhana, switsondzelelo swa phepha ra le xihambukelweni, tibolo na sweswo sweswo. Va lavisisa na ku hlamusela hi ku hlawulekisa michumu leyi nga na xivumbeko xa bokisi na leyi nga na xivumbeko xa bolo. Va fananisa na ku ava michumu kutani va vulavula hi mayelana na ku fanana na ku hambana.

Vhidiyo ya 2

Xiletelo xa Migingiriko: Kotara ya 1, Vhiki ra 3, Siku ra 1 #4 *(*pheji ya *55)*

Hlalelani vhidiyo ya mudyondzisi a ri karhi a vulavula na vadyondzi lava va nga eku aveni ka nhlengelo wa michumu. Yingisela hilaha a tsundzuxaka vadyondzi hakona ku hlamusela hi vutalo hilaha va avaka hakona michumu na hilaha va tirhisaka matheme lama nga lulama ku hlamusela hi ku hlawulekisa nchumu wun'wana na wun'wana.

1. Xaxameta marito lama ya tirhisiwaka ku hlamusela hi ku hlawulekisa michumu leyi nga eka vhidiyo.

_____

_____

_____

2. What questions does the teacher ask to prompt the learners to describe the objects?

_____

_____

_____

How many sides does it have?
How many corners does it have?
How many edges does it have?
Are all the sides the same length?
Which ones are longer?
Which ones are shorter?
Are the sides straight or curved?
Does the ball have corners?
How does the ball move? Why do you think it moves in that way?
How does the box move? Why do you think it moves in that way?

Refer to pages 178–181 of the *Concept Guide* to read more about 3-D objects.

Moving from 3-D objects to 2-D shapes

Facilitator's notes

- Ask a volunteer to join you. Ask participants to look at this person from the front, the top and the side, and to describe what they see. Explain that we can view this person from many different positions if we move or if we turn them.
- Ask the volunteer to lie flat on his/her back on a large sheet of paper and trace around him/her with a koki. Once the outline has been drawn, have the participant stand up.
- Ask participants what they see on the paper.
- Ask questions that focus on the person and on the shape or outline of the person, for example: Can you look at the drawing from different positions?
- Place a number of boxes, a large piece of paper and crayons on each group's table. Explain that the participants will explore the boxes in **Activity 6**.
- After the activity discuss what participants observed. Point out that this activity helps learners create shapes by tracing around the base of objects.

In Grade R, the focus is on the properties of objects and shapes. Learners learn to identify and describe the properties of both objects and shapes.

Activity 6

Explore and describe the properties of a box.

- Place a box on a piece of paper.
- Trace around the base of the box.
- Describe the lines of your drawing.
  Straight, four, two long and two short/all the same

2. Xana i swivutiso swihi leswi mudyondzisi a vutisaka ku tsundzuxa vadyondzi ku hlamusela hi ku hlawulekisa michumu leyi?

_____

_____

_____

Xana wu na matlhelo mangani?
Xana wu na tikhona tingani?
Xana wu na makumu mangani?
Xana matlhelo hinkwawo ma na vulehi byo fana?
Xana hi wahi lama ya nga lehanyana?
Xana hi wahi lama ya nga komanyana?
Xana matlhelo lama ya thwixamile kumbe ya gombonyokile?
Xana bolo yi na tikhona?
Xana bolo yi famba njhani? Hikwalahokayini u ehleketa leswaku yi famba hi ndlela yaleyo?
Xana bokisi ri famba njhani? Hikwalahokayini u ehleketa leswaku ri famba hi ndlela yaleyo?

Kongomisa eka tipheji ta 178–181 ta *Xiletelo xa Minongoti* ku hlaya swo tala hi mayelana na michumu ya 3-D.

Ku famba kusuka eka michumu ya 3-D kufika eka swivumbeko swa 2-D

Tinotsi ta muhumelerisi
♦ Kombela mutinyiketeli ku tikatsa na wena. Kombela vatekaxiave ku languta eka munhu loyi kusuka emahlweni, ehenhla na le tlhelo, kutani va hlamusela hi ku hlawulekisa leswi va swi vonaka. Hlamusela hi vutalo leswaku hi nga vona munhu kusuka eka swiyimo swo hambanahambana loko hi fambafamba kumbe hi swi hundzuluxa.
♦ Kombela mutinyiketeli ku ganama ehenhla ka xipandzu lexikulu xa phepha kutani u landzelerisa ku rhendzeleka na yena hi khoki. Xikan'wekan'we loko rimba leri ri dirowiwile, endla leswaku mutekaxiave a yima.
♦ Vutisa vatekaxiave leswi va swi vonaka ephepheni.
♦ Vutisa swivutiso leswi swi kongomisaka eka munhu loyi na xivumbeko kumbe rimba ra munhu loyi, tanihi xikombiso: Xana u nga languta xidirowiwa kusuka eka swiyimo swo hambanahambana?
♦ Vekela mabokisi yo hlayanyana, xiphemu lexikulu xa phepha na tikhirayoni etafuleni ra ntlawa wun'wana na wun'wana. Hlamusela hi vutalo leswaku vatekaxiave va ta valanga mabokisi eka **Nghingiriko wa 6**.
♦ Endzhaku ka nghingiriko lowu kanelani leswi vatekaxiave va swi xiyeke. Kombeta leswaku nghingiriko lowu wu pfuna vadyondzi ku tumbuluxa swivumbeko hi ku landzelerisa ku rhendzeleka na tshaku ra nchumu.

Eka Giredi ya V, nkongomo wu le ka swihlawulekisi swa michumu na swivumbeko. Vadyondzi va dyondza ku kuma na ku hlawulekisa swihlawulekisi swa havumbirhi bya michumu na swivumbeko.

Nghingiriko wa 6

Valanga na ku hlamusela hi ku hlawulekisa swihlawulekisi swa bokisi.

- Vekela bokisi ehenhla ka xiphemu xa phepha.
- Landzelerisa ku rhendzeleka na tshaku ra bokisi.
- Hlamusela hi ku hlawulekisa tilayini ta xidirowiwa xa wena.
  Thwixama, mune, timbirhi to leha na timbirhi to koma/hinkwato ta fana

- Name the shape you have drawn.
- How do you know it's a square/rectangle?
- How many sides does it have?
- How many corners does it have?
- What is the difference between the box and the square/rectangle?

Recognising, describing and comparing two-dimensional shapes

Facilitator's notes

- Explain that learners also need opportunities to explore a variety of shapes to find out what the common properties of a particular shape are. Refer participants to **Activity 7** and ask them to use their attribute blocks and to follow the instructions.
- Point out that the attribute block is an object. (It has length, width and height.) If you focus on the surface of the attribute block by running your finger along the edges, you will follow the lines and trace the length and width of the shape, e.g. a square, rectangle, triangle or circle (the edge of the circle is curved).
- Ensure that participants understand the difference between 3-D and 2-D and can explain this to learners.
- Emphasise that in Grade R learners do not learn the terms 3-D and 2-D. They only talk about 'objects' and 'shapes', but they should use the correct vocabulary to describe the properties.
- Link **Activity 7** to Poster 8 and briefly discuss the shapes.
- Explain the term 'orientation'.

Learners need to observe and discuss a variety of 2-D shapes to find out what the common properties of a particular shape are, e.g. even though all triangles may not look exactly the same, they all have three sides and three corners; all rectangles have four sides regardless of the orientation.

Use the attribute blocks on your table to explore 2-D shapes.

Activity 7

In your group, talk about the shape of the surface of each attribute block.

- Look for a shape that has four corners.
- Use your finger to trace around the shape. What is the shape called?
- Look for a shape that has no straight sides.
- Use your finger to trace around the shape. What is the shape called?
- Think of a question that would encourage learners to think and reason.

Refer to pages 182–189 of the *Concept Guide* to read more about 2-D shapes.

- Vula vito ra xivumbeko lexi u xi diroweke.
- Xana u swi tiva njhani leswaku i xikwere/yinhlamune?
- Xana xi na matlhelo mangani?
- Xana xi na tikhona tingani?
- Xana hi kwihi ku hambana exikarhi ka bokisi na xikwere/yinhlamune?

Lemuka, kuma kutani u fananisa swivumbeko swa matlhelo mambirhi

Tinotsi ta muhumelerisi

- Hlamusela hi vutalo leswaku vadyondzi va lava nkarhi ku valanga swivumbeko swo hambanahambana ku kumisisa leswaku i swihlawulekisi swa ntolovelo swihi swa xivumbeko xo karhi. Kongomisa vatekaxiave eka **Nghingiriko wa 7** kutani u va kombela ku tirhisa tibuloko ta vona ta swihlawulekisi na ku landzelela swileriso.
- Kombisa leswaku buloko ya swihlawulekisi i nchumu. (Yi na vulehi, ku anama na vulehelahenhla.) Loko u kongomisa eka vuhenhla bya buloko ya swihlawulekisi hi ku tsutsumisa ritiho ra wena ku fambisana na makumu, u ta landzelela tilayini na ku landzelerisa vulehi na ku anama ka xivumbeko, xik. xikwere, yinhlamune, yinhlanharhu kumbe xirhendzevutana (makumu ya xirhendzevutana ya gombonyokile).
- Tiyisisa leswaku vatekaxiave va twisisa ku hambana exikarhi ka 3-D na 2-D naswona va kota ku swi hlamusela hi vutalo eka vadyondzi.
- Tshikelela leswaku eka Giredi ya V vadyondzi a va dyondzi matheme ya 3-D na 2-D. Va vulavula ntsena 'michumu' na 'swivumbeko', kambe va fanele ku tirhisa ntivomarito lowu nga lulama ku hlamusela hi ku hlawulekisa swihlawulekisi.
- Xakelanisa **Nghingiriko wa 7** eka Phositara ya 8 kutani mi kanela swivumbeko.
- Hlamusela theme ra 'vonakelo'.

Vadyondzi va fanele ku xiyaxiya na ku kanela swivumbeko swa 2-D swo hambanahambana ku kumisisa leswaku hi swihi swihlawulekisi swa ntolovelo eka xivumbeko xo karhi, xik. hambiloko tinhlanharhu hinkwato ti nga ha languteka ti fana kwatsa, hinkwato ti na matlhelo manharhu na tikhona tinharhu; tinhlamune hinkwato ti na mune wa matlhelo swi nga ri na mhaka eka vonakelo.
Tirhisa tibuloko ta swihlawulekisi etafuleni ra wena ku valanga swivumbeko swa 2-D.

Nghingiriko wa 7

Entlaweni wa n'wina, vulavulani hi mayelana na xivumbeko xa vuhenhla bya buloko ya swihlawulekisi yin'wana na yin'wana.

- Lavani xivumbeko lexi xi nga na matlhelo ya mune.
- Tirhisa ritiho ra wena ku landzelerisa ku rhendzeleka na xivumbeko lexi. Xana xivumbeko lexi xi vitaniwa yini?
- Lavani xivumbeko lexi xi nga riki na matlhelo yo thwixama.
- Tirhisa ritiho ra wena ku landzelerisa ku rhendzeleka na xivumbeko lexi. Xana xivumbeko lexi xi vitaniwa yini?
- Lavani xivumbeko lexi xi nga na matlhelo manharhu lama ma fanaka kwatsa.

Kongomisa eka tipheji ta 182–189 ta *Xiletelo xa Minongoti* ku hlaya swo tala hi mayelana na swivumbeko swa 2-D.

Symmetry (30 minutes)

Facilitator's notes

- PPT: Symmetrical and non-symmetrical shapes and objects. Refer to pages 188–191 of the *Concept Guide*.
- Remind participants about the **practice principle** and that learners need many opportunities to practise new skills and apply them in different contexts.

An object or shape has symmetry when it can be divided into two equal halves along a central line. Symmetrical patterns can be found on our bodies, in nature, in the built environment and in pictures. Line symmetry divides the shape into two identical parts. The line can be horizontal or vertical.

Refer to pages 188–191 of the *Concept Guide* to read more about symmetry.

The **practice principle:** Learners should have plenty of time to practise new skills and knowledge. When learners have regular practice in what they have already learnt, they become more competent and more confident. Learners enjoy repetition and practice. The Grade R teacher should provide repeated opportunities for learners to practise and improve new skills.

Ndzinganiso (30 wa timinete)

Tinotsi ta muhumelerisi

- PPT: Swivumbeko swa michumu ya ndzinganiso na ya nkandzinganiso. Kongomisa eka tipheji ta 188–191 ta *Xiletelo xa Minongoti*.
- Tsundzuxa vatekaxiave hi mayelana na **nawu wa vutitoloveti** na leswaku vadyondzi va lava swivandlanene swo tala ku titoloveta swikili na ku swi tirhisa eka mivangu yo hambanahambana.

Nchumu kumbe xivumbeko xi na ndzinganiso loko xi nga kota ku avanyisiwa hi tihafu to ringana timbirhi hi le ka ntila wa le xikarhi. Tipatironi ta ndzinganiso ti nga kumeka emirini ya hina, eka ntumbuluko, eka mbangu lowu makiweke na le swifanisweni. Ndzinganiso wa ntila wu avanyisa xivumbeko hi swiphemu swo fana swimbirhi. Ntila lowu wu nga hingakanya kumbe wu thwixamela ehenhla.

Kongomisa eka tipheji ta 181–191 ta *Xiletelo xa Minongoti* ku hlaya hi mayelana na ndzinganiso.

Nawu wa vutitoloveti: Vadyondzi va fanele ku va na nkarhi wo tala wa ku titoloveta swikili na vutivi byintshwa. Loko vadyondzi va kuma vutitoloveti bya nkarhi na nkarhi eka leswi se va swi dyondzeke, va antswa swinene eka swona na ku va na vutitshembi swinene. Vadyondzi va tiphina hi mbuyelelo na vutitoloveti. Mudyondzisi wa Giredi ya V u fanele ku nyika swivandlanene leswi vuyeleriwaka swa vadyondzi ku titoloveta na ku antswisa swikili swintshwa.

Session 3: Planning for teaching **2 hours**

Facilitator's notes

- Refer participants to Appendix A: Term 1 Weekly Content Summary (Weeks 3–5).
- Read the whole class, teacher-guided and workstation activities sections.
- Have participants work in groups to complete **Activity 8**.

Term 1 Content Summary (Weeks 3–5) **(40 minutes)**

Appendix A: Term 1 Weekly Content Summary (Weeks 3–5) outlines the main Content Area Focus for each week, the topics to be covered, the new knowledge and practise focus for each week, and suggested activities for whole class, teacher-guided and independent group work for the week.

Read the whole class, teacher-guided and workstation activities sections and complete Activity 8.

 **Activity 8**

Look at Appendix A: Term 1 Weekly Content Summary (Weeks 3–5). Answer the questions.

Questions	Week 3	Week 4	Week 5
What is the Content Area Focus for the week?	Space and Shape (Geometry)	Space and Shape (Geometry)	Space and Shape (Geometry)
What are the key concepts that learners will be learning?	Properties of 3-D objects Spatial concepts: in and out Big and small	Properties of 2-D shapes (circle) Symmetry	Properties of 2-D shapes (square) Backwards, forwards inside, outside
What new knowledge is introduced?	Counting objects 1–5 Properties of boxes and balls Objects that roll or slide Position: in and out Big and small Biggest and smallest	Circle Symmetry Number 2	2-D shape: square Direction: forwards and backwards Position: inside and outside
What skills are being practised?	Oral counting 1–5 Reinforce number 1 Sorting	Oral counting 1–5 Number 1 Counting objects 1–5	Circle Number concept 1 and 2 Oral counting 1–5 Counting objects 1–5

Sexini ya 3: Nkunguhato wa ku dyondzisa 2 wa tiawara

Tinotsi ta muhumelerisi

- Kongomisa vatekaxiave eka Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 1 (Mavhiki ya 3–5)
- Hlaya swiyenge swa migingiriko ya tlilasi hinkwayo, swa migingiriko leyi leteriwaka hi mudyondzisi na swa migingiriko ya le ka switichi swo tirhela.
- Endla leswaku vatekaxiave va tirha hi mitlawa ku hetisa **Nghingiriko wa 8**.

Nkomiso wa Vundzeni wa Kotara ya 1 (Mavhiki ya 3–5) (40 wa timinete)

Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 1 (Mavhiki ya 3–5) wu katsakanya Nkongomokulu wa Xiyenge xa Vundzeni wa vhiki rin'wana na rin'wana, tinhlokomhaka leti angarheliwaka, vutivi byintshwa na nkongomo wa vutitoloveti wa vhiki rin'wana na rin'wana, na ku ringanyeta migingiriko ya vhiki ya tlilasi hinkwayo, leyi leteriwaka hi mudyondzisi na ntirho wa ntlawa lowu tshunxekeke.

Hlaya swiyenge swa migingiriko ya tlilasi hinkwayo, migingiriko leyi leteriwaka hi mudyondzisi na swa migingiriko ya le ka xitichi xo tirhela. kutani u hetisa Nghingiriko wa 8.

Nghingiriko wa 8

Languta Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 1 (Mavhiki ya 3–5). Hlamula swivutiso leswi.

Swivutiso	Vhiki ra 3	Vhiki ra 4	Vhiki ra 5
Xana hi wihi Nkongomo wa Xiyenge xa Vundzeni wa vhiki leri?	Ndhawu na Xivumbeko (Jometiri)	Ndhawu na Xivumbeko (Jometiri)	Ndhawu na Xivumbeko (Jometiri)
Xana hi yihi minongotikulu leyi vadyondzi va nga ta va va ri eku yi dyondzeni?	Swihlawulekisi swa michumu ya 3-D Minongoti ya ndhawu: endzeni na ehandle Nkulu na ntsongo	Swihlawulekisi swa swivumbeko swa 2-D (xirhendzevutana) Ndzinganiso	Swihlawulekisi swa swivumbeko swa 2-D (xikwere) Kuya endzhaku na kuya emahlweni endzeni, ehandle
Xana i vutivi byintshwa muni byi tivisiwaka?	Ku hlayela michumu 1–5 Swihlawulekisi swa mabokisi na tibolo. Michumu leyi khungulukaka kumbe yi rhetaka Xiyimo: endzeni na ehandle Nkulu na ntsongo Nkulu kutlula hinkwaswo na ntsongo kutlula hinkwaswo	Xirhendzevutana Ndzinganiso Nomboro ya 2	Xivumbeko xa 2-D: xikwere Matlhelo: emahlweni na endzhaku Xiyimo: endzeni na ehandle
Xana i swikili swihi swi vaka swi titolovetiwa?	Ku hlayela ka swanomu: 1–5 Tiyisisa nomboro ya 1 Ku ava	Ku hlayela ka swanomu: 1–5 Nomboro ya 1 Ku hlayela michumu 1–5	Xirhendzevutana Minongoti ya tinomboro ta 1 na 2 Ku hlayela ka swanomu: 1–5 Ku hlayela michumu 1–5

Activity Guide: Term 1: Weeks 3, 4 and 5 (60 minutes)

Video 3

Activity Guide: Term 1, Week 5, Day 3 #4 (page 90)

Watch the video of learners discussing a poster.

1. Make a note of the questions and maths problems that the teacher presents to the learners during the poster discussion.

_____
_____
_____

2. Write down other questions that the teacher could have asked.

_____
_____
_____

Refer to Weeks 3, 4 and 5 in *Activity Guide: Term 1*. Complete Activity 9 in your group.

Activity 9

1. Find Weeks 3, 4 and 5 in *Activity Guide: Term 1*. Answer the questions.
- What is the Content Area Focus for each week?
- What topics and new knowledge are taught in each week?
- How does the 'Practise' content link to the previous week?
- What do you need to get ready before teaching each week?
- Read the whole class activities and small group activities.
- Discuss in your small group how you will plan and organise your class for these three weeks of teaching.

2. Refer to Appendix A: Term 1 Weekly Content Summary (Weeks 3–5). Match the whole class and small group activities in Weeks 3, 4 and 5 of the *Activity Guide: Term 1* to the Content Summary for each week.

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

Xiletelo xa Migingiriko: Kotara ya 1: Mavhiki ya 3, 4 na 5

(60 wa timinete)

Vhidiyo ya 3

Xiletelo xa Migingiriko: Kotara ya 1, Vhiki ra 5, Siku ra 3 #4 (pheji ya 91)

Hlalelani vhidiyo ya vadyondzi va ri karhi va kanela phositara.

1. Endla noti ya swivutiso na swiphiqo swa matematiki leswi mudyondzisi a swi nyikaka vadyondzi hi nkarhi wa nkanelo wa phositara.

_____
_____
_____

2. Tsala swivutiso swin'wana leswi mudyondzisi a nga vaka a swi vutisile.

_____
_____
_____

Kongomisa eka Mavhiki ya 3, 4 na 5 eka *Xiletelo xa Migingiriko: Kotara ya 1*. Hetisa Nghingiriko wa 9 eka ntlawa wa wena.

Nghingiriko wa 9

1. Kongomisa eka Mavhiki ya 3, 4 na 5 eka *Xiletelo xa Migingiriko: Kotara ya 1*. Hlamula swivutiso leswi.

- Xana hi wihi Nkongomo wa Xiyenge xa Vundzeni wa vhiki rin'wana na rin'wana?
- Xana i tinhlokomhaka tihi na vutivi byintshwa byihi byi dyondzisiwaka eka vhiki rin'wana na rin'wana?
- Xana vundzeni bya 'Titoloveti' byi xakelanisa njhani na bya vhiki leri nga hundza?
- Xana hi swihi leswi u faneleke ku swi lulamisa u nga si dyondzisa vhiki rin'wana na rin'wana?
- Hlaya migingiriko ya tlilasi hinkwayo na migingiriko ya mitlawa leyitsongo.
- Kanelani entlaweni wa n'wina lowutsongo hilaha mi nga ta kunguhata na ku lulamisa tlilasi ya n'wina hakona eka mavhiki lamanharhu ya ku dyondzisa.

2. Kongomisa eka Xiengetelwa xa A: Nkomiso wa Vundzeni wa Vhiki na Vhiki wa Kotara ya 1 (Mavhiki ya 3–5) Pananisa migingiriko ya tlilasi hinkwayo na migingiriko ya mitlawa leyitsongo eka Mavhiki ya 3, 4 na 5 ya *Xiletelo xa Migingiriko: Kotara ya 1* eka Nkomiso wa Vundzeni wa vhiki rin'wana na rin'wana.

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

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

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

Closing activities (20 minutes)

Facilitator's notes

- **Lessons learnt:** Ask participants to think about what they have learnt during the workshop and to complete **Activity 10** 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 10

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

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

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

Migingiriko yo pfala (20 wa timinete)

Tinotsi ta muhumelerisi

- **Tidyondzotsongo leti dyondziweke:** Kombela vatekaxiave ku ehleketa hi mayelana na leswi va swi dyondzeke hi nkarhi wa ndzetelavutivi na ku hetisa **Nghingiriko wa 10** hi un'weun'we.
- **Xintirhwana xo tlhelela na xona exikolweni:** Hlaya xintirhwana lexi. Vutisa loko ku ri na xihi kumbe xihi lexi xi nga riki erivaleni naswona xi 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 10

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

Take back to school task

1. Read the *Concept Guide* pages that were referred to during this workshop.
2. Prepare a Space and Shape (Geometry) maths area. Take a photograph of it and bring it to the next workshop.
3. Use *Activity Guide: Term 1* to plan and implement Weeks 3–5 of the Maths Programme. When planning, think about how the guiding principles will inform your planning and teaching:

   - How will you find out what learners already know and understand? (**level principle**)

   - How will you build on the prior knowledge that learners bring from home? (**context principle**)

   - How will you ensure that the planned activities are meaningful for learners? (**context principle**)

   - How will you build active listening and speaking into your planned activities? (**interaction principle**)
4. Write a reflection of what worked well and what did not work so well. Bring your reflection notes and some examples of work that the learners did to the next workshop.

Evaluation

Complete the Evaluation Form.

Xintirhwana xo tlhelela na xona exikolweni

1. Hlaya tipheji ta *Xiletelo xa Minongoti* leti ku kongomisiweke eka tona hi nkarhi wa ndzetelavutivi.
2. Lulamisa ndhawu ya matematiki ya Ndhawu na Xivumbeko (Jometiri). Teka xinepe xa yona kutani u ta na xona eka ndzetelavutivi lowu landzelaka.
3. Tirhisa *Xiletelo xa Migingiriko: Kotara ya 1* ku kunguhata na ku tirhisa Nongonoko wa Matematiki eka Mavhiki ya 3–5. Loko u ri eku kunguhateni, ehleketa hi mayelana na hilaha milawu yo letela yi nga ta letela nkunguhato wa wena na madyondziselo ya wena hakona:

   - Xana u ta kumisisa njhani leswi se vadyondzi va swi tivaka na ku swi twisisa? (**nawu wa levhele**)

   - Xana u ta aka njhani ehenhla ka vutivi bya nkarhi lowu nga hundza lebyi vadyondzi va taka na byona hi le kaya? (**nawu wa mbangu**)

   - Xana u ta tiyisisa njhani leswaku migingiriko leyi kunguhatiweke i ya nkoka eka vadyondzi? (**nawu wa mbangu**)

   - Xana u ta aka njhani ku yingisela na ku vulavula ko gingirika eka migingiriko ya wena leyi u yi kunguhateke? (**nawu wa n'wangulano**)

4. Tsala ehleketisiso wa leswi swi tirheke kahle swinene na leswi swi nga tirhangiki kahle ngopfu. Tana na tinotsi ta wena ta ehleketisiso na swikombiso swa ntirho lowu vadyondzi va wu endleke eka ndzetelavutivi lowu landzelaka.

Nkambelo

Tatisa Fomo leya Nkambelo.

APPENDIX A: TERM 1 WEEKLY CONTENT SUMMARY (WEEKS 3–5)

Term 1: Activity Plan

<table>
<tr><th colspan="5">Week 3</th></tr>
<tr><td colspan="5">CONTENT AREA: SPACE AND SHAPE (GEOMETRY)</td></tr>
<tr><td colspan="5">TOPIC: Recognise, identify and name 3-D objects; describe, sort and compare 3-D objects (boxes and balls); position, orientation and views: in and out
INTRODUCE NEW KNOWLEDGE: Counting objects 1–5, properties of boxes and balls, objects that roll or slide, position: in and out, big/small, biggest/smallest
PRACTISE: Oral counting 1–5, reinforce number concept (1), sorting</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Explore properties of boxes and balls.</td><td rowspan="5">Counting one-to-one correspondence 1–5.
Big and small game.
Properties of boxes and balls.
Compare boxes and balls.
Sort objects that slide and roll.</td><td>Activity 1
Activity 2
Activity 3
Activity 4</td><td>Construct objects with boxes.
Big and small playdough balls – sorting.
Paint prints with boxes or blocks.
Build animal shelters for the farm animals with building blocks.</td></tr>
<tr><td>Day 2</td><td>Compare sizes of boxes and balls.</td></tr>
<tr><td>Day 3</td><td>Explore which can slide, which can roll; big/biggest and small/smallest.</td></tr>
<tr><td>Day 4</td><td>Discuss why objects roll and slide.</td></tr>
<tr><td>Day 5</td><td>Position: in and out.</td></tr>
<tr><th colspan="5">Week 4</th></tr>
<tr><td colspan="5">CONTENT AREA: SPACE AND SHAPE (GEOMETRY)</td></tr>
<tr><td colspan="5">TOPIC: Recognise, identify and name 2-D shapes (circle); compare 3-D objects and 2-D shapes; symmetry
INTRODUCE NEW KNOWLEDGE: Circle, symmetry, introduce number 2
PRACTISE: Oral counting 1–5, counting objects 1–5, number 1</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Introduce 2; number frieze story.</td><td rowspan="5">Naming the shape and colour of counters from the Resource Kit.
Circle activity – properties.
Number dot cards, pictures and symbols 1 and 2.</td><td>Activity 1
Activity 2
Activity 3
Activity 4</td><td>Playdough template – make 2.
Circle prints – paint and containers.
‘Plate’ template – cut and paste pictures of food.
Body puzzles.</td></tr>
<tr><td>Day 2</td><td>What is a shape? Introduce the circle.</td></tr>
<tr><td>Day 3</td><td>Find circles in the classroom.</td></tr>
<tr><td>Day 4</td><td>Count different body parts; explore symmetry in their own body.</td></tr>
<tr><td>Day 5</td><td>Circle (use poster) and symmetry in a picture.</td></tr>
</table>

XIENGETELWA XA A: NKOMISO WA VUNDZENI WA VHIKI NA VHIKI WA KOTARA YA 1 (MAVHIKI YA 3–5)

Kotara ya 1: Kungu ra Migingiriko

<table>
<tr><th colspan="5">Vhiki ra 3</th></tr>
<tr><td colspan="5">XIYENGE XA VUNDZENI: NDHAWU NA XIVUMBEKO (JOMETIRI)</td></tr>
<tr><td colspan="5">NHLOKOMHAKA: Lemuka, kuma na ku nyika mavito ya michumu ya 3-D; Hlamusela, ava na ku fananisa michumu ya 3-D (tibolo na mabokisi) ; Xiyimo, vonakelna malangutekelo: endzeni na ehandle.
TIVISA VUTIVI BYINTSHWA: Ku hlayela michumu 1–5, swihlawulekisi swa tibolo na mabokisi, michumu leyi khungulukaka kumbe leyi rhetaka, xiyimo: endzeni na le handle, nkulu/ntsongo, nkulu kutlula hinkwaswo/ntsongo kutlula hinkwaswo
TITOLOVETI: Ku hlayela ka swanomu 1–5, tiyisisa nongoti wa nomboro (1), ku ava</td></tr>
<tr><th colspan="2">Migingiriko ya tlilasi hinkwayo</th><th>Nghingiriko lowu leteriwaka hi mudyondzisi</th><th colspan="2">Migingiriko ya le ka xitichi xo tirhela</th></tr>
<tr><td>Siku ra 1</td><td>Valanga swihlawulekisi swa mabokisi na tibolo.</td><td rowspan="5">Ku hlayela ku yelana ka xin’we-eka-xin’we 1–5.
Ntlangu wa nkulu na ntsongo
Swihlawulekisi swa mabokisi na tibolo.
Fananisa mabokisi na tibolo.
Avani michumu leyi rhetaka na leyi khungulukaka.</td><td>Nghingiriko wa 1
Nghingiriko wa 2

Nghingiriko wa 3

Nghingiriko wa 4</td><td>Aka michumu hi mabokisi.
Tibolo ta vumba byo tlangisa letikulu na letitsongo – ku ava.
Penda swikandziyisiwa hi mabokisi kumbe tibuloko.
Aka swivala swa swiharhi swa le purasini hi tibuloko to aka.</td></tr>
<tr><td>Siku ra 2</td><td>Fananisa tisayizi ta mabokisi na tibolo.</td></tr>
<tr><td>Siku ra 3</td><td>Valanga leswi swi nga rhetaka, leswi swi nga khungulukaka; nkulu/ntsongo na ntsongo/ntsongonyana</td></tr>
<tr><td>Siku ra 4</td><td>Kanelani hikwalahokayini michumu yi khunguluka na ku rheta</td></tr>
<tr><td>Siku ra 5</td><td>Xiyimo: endzeni na ehandle</td></tr>
<tr><th colspan="5">Vhiki ra 4</th></tr>
<tr><td colspan="5">XIYENGE XA VUNDZENI: NDHAWU NA XIVUMBEKO (JOMETIRI)</td></tr>
<tr><td colspan="5">NHLOKOMHAKA: Lemuka, kuma na ku nyika mavito ya swivumbeko swa 2-D (xirhendzevutana); fananisa michumu ya 3-D na swivumbeko swa 2-D; ndzingano
TIVISA VUTIVI BYINTSHWA: Xirhendzevutana, ndzingano, tivisa nomboro ya 2
TITOLOVETI: Ku hlayela ka swanomu 1–5, ku hlayela michumu 1–5, nomboro ya 1</td></tr>
<tr><th colspan="2">Migingiriko ya tlilasi hinkwayo</th><th>Nghingiriko lowu leteriwaka hi mudyondzisi</th><th colspan="2">Migingiriko ya xitichi xo tirhela</th></tr>
<tr><td>Siku ra 1</td><td>Tivisa 2; xitori xa xipendiwankhaviso xa tinomboro.</td><td rowspan="5">Ku vula xivumbeko na muhlovo wa swihlayeri kusuka eka Khiti ya Swipfuno.
Nghingiriko wa swirhendzevutana – swihlawulekisi.
Makhadi ya mathonsi ya tinomboro, swifaniso na mifungho ya 1 na 2.</td><td>Nghingiriko wa 1
Nghingiriko wa 2

Nghingiriko wa 3

Nghingiriko wa 4</td><td>Thempuleti ya vumba byo tlangisa – endla 2.
Swikandziyisiwa swa xirhendzevutana – pende na tikhontheni.
Thempuleti ya ‘puleti’ – tsema kutani u namarheta swifaniso swa swakudya.
Swiphazamiso swa miri.</td></tr>
<tr><td>Siku ra 2</td><td>Xana xivumbeko lexi i yini? Tivisa xirhendzevutana.</td></tr>
<tr><td>Siku ra 3</td><td>Kuma swirhendzevutana ekamareni ro dyondzela.</td></tr>
<tr><td>Siku ra 4</td><td>Hlayela swirho swa miri swo hambana; valanga ndzingano emirini ya vona vini.</td></tr>
<tr><td>Siku ra 5</td><td>Xirhendzevutana (tirhisa phositara) na ndzingano exifanisweni.</td></tr>
</table>

<table>
<tr><th colspan="5">Week 5</th></tr>
<tr><td colspan="5">CONTENT AREA: SPACE AND SHAPE (GEOMETRY)</td></tr>
<tr><td colspan="5">TOPIC: Recognise, identify and name 2-D shapes (square); compare 3-D objects and 2-D shapes (box and square); direction: forwards/backwards; position: inside/outside
INTRODUCE NEW KNOWLEDGE: Square, directionality (forwards/backwards), position (inside/outside)
PRACTISE: Circle, oral counting 1–5, counting objects 1–5, number concept 1 and 2</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Introduce the square (vocabulary).</td><td rowspan="5">Oral counting/matching dot, number cards 1 and 2.
Touch counting Unifix blocks, build Unifix towers.
Properties of a box and a square.
Feely bag (boxes and balls).
2-D square activity – tracing around a box.
Position (inside/outside).</td><td>Activity 1</td><td>Playdough with circle and square cookie cutter to make model.</td></tr>
<tr><td>Day 2</td><td>Properties of the square; difference between circle and square.</td><td>Activity 2</td><td>Cut out squares and paste to make a picture.</td></tr>
<tr><td>Day 3</td><td>Word problem (Poster Book) – square; find squares in the class.</td><td>Activity 3</td><td>Sorting square-shaped and circle-shaped objects.</td></tr>
<tr><td>Day 4</td><td>Directionality (forwards and backwards).</td><td>Activity 4</td><td>Puzzles (minimum six pieces).</td></tr>
<tr><td>Day 5</td><td>Make patterns with squares, colours.</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="5">Vhiki ra 5</th></tr>
<tr><td colspan="5">NKONGOMO WA XIYENGE XA VUNDZENI: NDHAWU NA XIVUMBEKO (JOMETIRI)</td></tr>
<tr><td colspan="5">NHLOKOMHAKA: Lemuka, tiva na ku vula mavito ya swivumbeko swa 2-D (xikwere); fananisa michumu ya 3-D na swivumbeko swa 2-D (bokisi na xikwere); tlhelo: kuya emahlweni/kuya endzhaku; xiyimo: endzeni/ehandle
TIVISA VUTIVI BYINTSHWA: Xikwere, swa matlhelo (kuya emahlweni/kuya endzhaku), xiyimo (endzeni/ehandle)
TITOLOVETI: Xirhendzevutana, ku hlayela ka swanomu 1–5, ku hlayela michumu 1–5, nongoti wa tinomboro 1 na 2</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</td></tr>
<tr><td>Siku ra 1</td><td>Tivisa xikwere (ntivomarito).</td><td rowspan="5">Ku hlayela kaswanomu/ku pananisa makhadi ya mathonsi, makhadi ya tinomboro ya 1 na 2.
Khumba tibuloko to hlayela ta Unifix, aka swihondzo swa Unifix.
Swihlawulekisi swa bokisi na swa xikwere
Bege yo twa (mabokisi na tibolo).
Nghingiriko wa swikwere swa 2-D – ku landzelerisa ku rhendzeleka na bokisi.
Xiyimo (endzeni/ehandle).</td><td>Nghingiriko wa 1</td><td>Vumba byo tlangisa lebyi nga na xitsemakhekhe na ra swikwere ku endla modlolo.</td></tr>
<tr><td>Siku ra 2</td><td>Swihlawulekisi swa xikwere; ku hambana exikarhi ka xirhendzevutana na xikwere.</td><td>Nghingiriko wa 2</td><td>Tsema swikwere kutani u swi namarheta ku endla xifaniso.</td></tr>
<tr><td>Siku ra 3</td><td>Xiphiqo xa marito (Buku ya Tiphositara) – xikwere; kuma swikwere etlilasini.</td><td>Nghingiriko wa 3</td><td>Ku ava michumu leyi nga na xivumbeko xa xikwere na xivumbeko xa xirhendzevutana.</td></tr>
<tr><td>Siku ra 4</td><td>Swa matlhelo (kuya emahlweni na kuya endzhaku).</td><td>Nghingiriko wa 4</td><td>Swiphazamiso (mpimohansi wa tsevu wa swiphemu).</td></tr>
<tr><td>Siku ra 5</td><td>Endla tipatironi hi swikwere, mihlovo.</td><td></td><td></td></tr>
</table>

Workshop 2 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 2

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?

_____
_____
_____
_____