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GROWING GAUTENG TOGETHER

Sepedi/English

Lenaneo la go Kaonafatša Thuto ya Dipalo Mphatong wa R
Grade R Mathematics Improvement Programme

Thutofatlhošo ya 3 ● Workshop 3
Pukutlhahlo ya Monolofatši ● 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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Lenaneokaonafatšo la Thuto ya Dipalo Mphatong wa R ke morero wa Kgoro ya Thuto ya Gauteng (**Gauteng Department of Education**) le badirišanimmogo ba bohlokwa e lego **Gauteng Education Development Trust**. Tšweletšo le kgatišo ya tlhahlo le dithušathuto tša phapoši tša Lenaneokaonafatšo la Thuto ya Dipalo Mphatong wa R e kgontšhitšwe ke thušo ka mašeleng go tšwa go **United States Agency for International Development** le **Zenex Foundation**.

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Schools Development Unit (SDU) kua **University of Cape Town** (UCT) ke badirišani ba sethekniki ba dipalo go Lenaneokaonafatšo la Thuto ya Dipalo Mphatong wa R. SDU ke uniti ya UCT ya School of Education yeo e hlokometšego tlhahlo le kgodišo ya dithuto tša Dipalo, Saense, Bokgoni bja go ngwala le go bala/Polelo le Mabokgoni a Bophelo go tloga go Mphato wa R go fihla go wa 12. SDU e aba dithuto tša tlhahlo ya barutiši le mangwalo a UCT a dithuto tše kopana tša tlaleletšo, tlhahlo ya mošomo yeo e ka dirwago sekolong, bongwadi bja dipuku le go dira dinyakišišo tšeo di thekgago go ithuta le go ruta mabakeng a go fapana dikolong tša Afrika Borwa.

DITEBOGO

Di lebišwa go:

- Bašomi ba Kgoro ya Thuto ya Gauteng Lefapha la Lenanethuto, Tlhahlo ya Barutiši le bašomedi ba Lefapha la Thuto ya go Ikgetha, ka maele a bona phetagatšong ya setšweletšwa se sa rena.
- Bašomi ba Western Cape Education Department (WCED) le barutiši ka maele a bona tšweletšong le tsentšhotirišong ya Grade R Mathematics Programme (*R-Maths*) profenseng ya Kapa Bodikela magareng ga mengwaga ya 2016 le 2019.
- Sehlopha sa bangwadi ba *R-Maths*: Bašomi le baeletši ba SDU.

Balaodi ba dikgopolokakaretšo le dikgatišo: Cally Kuhne le Tholisa Matheza
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Overview

Purpose

This is the third of twelve Grade R Mathematics Improvement Programme (Maths Programme) workshops, which form part of the Gauteng Department of Education (GDE) Grade R Mathematics and Language Improvement Project.

The purpose of this workshop is to assist teachers to implement the Maths Programme in their classrooms. Participants will strengthen their understanding of the CAPS Content Areas covered in Weeks 6–9 of Term 1 and practise skills in mediating maths learning.

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

Learning outcomes

- To reflect on the implementation of Term 1 Weeks 3–5
- To apply the Maths Programme principles in weekly planning
- To explore strategies to support teaching maths in Grade R
- To engage with the Maths Programme content of Term 1 Weeks 6–9 (Patterns, Functions and Algebra; Space and Shape (Geometry); Measurement; Numbers, Operations and Relationships)
- To start to understand how learners' different interests and ability levels inform learning and teaching

Workshop content

- Opening and reflection (1 hour)
- Session 1: Patterns, Functions and Algebra (1 hour)

TEA

- Session 2: Space and Shape (Geometry) (1 hour)
- Session 3: Measurement (1 hour)

LUNCH

- Session 4: Numbers, Operations and Relationships (1 hour)
- Session 5: Planning for teaching (1 hour)

Kakaretšo

Morero

Ye ke thutofatlhošo ya boraro ya tše lesomepedi tša Lenaneo la go Kaonafatša Thuto ya Dipalo Mphatong wa R (Lenaneo la Dipalo), ye e lego karolo ya Kgoro ya Thuto Profenseng ya Gauteng (GDE) Lenaneokaonafatšo la Thuto ya Dipalo le ya Leleme Mphatong wa R.

Morero wa thutofatlhošo ke go thuša barutiši go phethagatša Lenaneo la Dipalo ka diphapošing tša bona. Batšeakarolo ba tlo tiišetša kwešišo ya bona ya Dikarolo tša Diteng tša SEPHOLEKE tša go akaretšwa Dibekeng tša 6–9 Kotara ya 1 gomme ba ikatiša mabokgoni a go thekga go ithuta dipalo.

Ditšhupetšo go Dikarolo tša Diteng tša Dipalo Mphatong wa R di tšwa ka go *Setatamente sa Pholisi sa Lenaneothuto le Kelo (SEPHOLEKE)*: *Thuto ya Dipalo Mphatong wa R (Kakanywa ya Mafelelo),* 2011, Kgoro ya Thuto ya Motheo, Afrika Borwa.

Dineo tša thuto

- Go naganiša ka phethagatšo ya Kotara ya 1 Dibeke tša 3–5
- Go kwešiša ditheo tša go ruta tša ka gare ga Lenaneo la Dipalo peakanyong ya beke ka beke
- Go hlohlomiša maano a go thekga go ruta dipalo Mphatong wa R
- Go swaragana le diteng tša Lenaneo la Dipalo la Kotara ya 1 Dibeke tša 6–9 (Dipatrone, Difankšene le Altšebra; Sekgoba le Sebopego (Tšeometri); Kelo; Dinomoro, Tirišo le Tswalano)
- Go thoma go kwešiša ka fao dikgahlego tša go fapana tša barutwana le maemo a bokgoni ao a amago go ithuta le go ruta

Diteng tša thutofatlhošo

- Pulo le go naganiša (Iri e 1)
- Thuto ya 1: Dipatrone, Difankšene le Altšebra (Iri e 1)

TEYE

- Thuto ya 2: Sekgoba le Sebopego (Tšeometri) (Iri e 1)
- Thuto ya 3: Kelo (Iri e 1)

MATENA

- Thuto ya 4: Dinomoro, Tirišo le Tswalano (Iri e 1)
- Thuto ya 5: Go beakanyetša go ruta (Iri e 1)

Preparation

- PPT welcome and outcomes
- Read:

Concept Guide, pages 114–137
Activity Guide: Term 1, pages 18–21
Appendix A: Term 1 Weekly Content Summary

- Set out a Maths Programme *Resource Kit* on each group's table.

Materials

- Flipchart paper, kokis
- A *Resource Kit* for each group
- A *Poster Book* for each group
- *Resource Kit*: attribute blocks

Peakanyo

- PPT kamogelo le dineo
- Bala:

Pukutlhahlo ya Mareo, matlakala a 114–137
Pukutlhahlo ya Mešongwana: Kotara ya 1, matlakala a 18–21
Mamatletšo ya A: Kotara ya 1 Kakaretšo ya Diteng ya Beke ka Beke

- Tafoleng ya sehlopha se sengwe le se sengwe beakanya *Dithušathuto tša Phapoši* tša Lenaneo la Dipalo.

Didirišwa

- Pampiri ya tšhate ya go phetla, dikoki
- *Dithušathuto tša Phapoši* tša sehlopha se sengwe le se sengwe
- *Puku ya Diphoustara ya* sehlopha se sengwe le se sengwe
- *Dithušathuto tša Phapoši*: dipoloko tšeo di dirišwago go hlaola

Opening and reflection **1 hour**

Facilitator's notes

- PPT: Open the session and read through the agenda and learning outcomes for the workshop.
- Remind participants of the *Take back to school* task from the end of Workshop 2. Ask participants to reflect on this task and the implementation of Weeks 3–5 and to complete **Activity 1**.
- Groups share key points with the large group. Reflect on how assessment is continuous and that observations need to be ongoing.

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

 **Activity 1**

1. Discuss your progress in implementing Weeks 3–5 and the *Take back to school* task from Workshop 2.
2. Share your photograph of the Space and Shape (Geometry) focus in the maths area.
3. How did you record your observations of each learner during the teacher-guided activity?
4. Which teaching principles are you more aware of in your classroom?

 **Video 1**

Activity Guide: Term 1, Week 3, Day 2 #1, 2 and 3 (page 56)

Watch the video of how the teacher uses a rhyme to practise counting and solving word problems.

Discuss how you managed this and other lessons that incorporated rhymes into counting activities.

_____

_____

_____

_____

Pulo le go naganiša

Iri e 1

Dinoutse tša monolofatši

- PPT: Bula thuto o bale lenaneothero le dineo tša thuto ya thutofatlhošo.
- Gopotša batšeakarolo ka ga *Mošomo wo o tlo boelago le wona sekolong* wo o filwego mafelelong a Thutofatlhošo ya 2. Kgopela batšeakarolo go naganiša ka mošomo wo le phethagatšo ya Dibeke tša 3–5 le go tlatša **Mošongwana wa 1**.
- Dihlopha di abelana dintlhakgolo le sehlopha se segolo. Naganiša ka ga go tšwela pele ga tekolo le ka fao e lego gore tlhokomelo e swanetše go ba ye e tšwelago pele.

Naganiša ka phethagatšo ya Lenaneo la Dipalo ka go lenanephethagatšo la tšatši ka tšatši le go dira mošongwana wo ka sehlopha.

Mošongwana wa 1

1. Bolelang ka tšwelopele ya lena ge le phethagatša Dibeke tša 3–5 le *Mošomo wo o tlo boelago le wona sekolong* go tšwa Thutofatlhošong ya 2.
2. Bontšha senepe sa nepišo ya Sekgoba le Sebopego (Tšeometri) sebakeng sa dipalo.
3. O rekhotile tlhokomelo ya morutwana yo mongwe le yo mongwe bjang ka nako ya mošongwana wa go hlahlwa ke morutiši?
4. Ke ditheo dife tša go ruta tše o di lemogago kudu ka phapošing ya gago?

Bideo ya 1

Pukutlhahlo ya Mešongwana: Kotara ya 1, Beke ya 3, Letšatši la 2 #1, 2 le 3 (letlakala la 57)

Bogela bideo ya morutiši a diriša sereto go ikatiša go bala le go rarolla mathata.

Bolela ka fao o šomanego le se le dithuto tše dingwe tša go akaretša direto mešongwaneng ya go bala.

_____

_____

_____

_____

Session 1: Patterns, Functions and Algebra

1 hour

Facilitator's notes

- Explain that this workshop addresses the content of the Maths Programme Term 1 Weeks 6–9, and that the focus of Week 6 is on Patterns, Functions and Algebra.
- Refer participants to page 124 of the *Concept Guide*. Explain that the aim of **Activity 2** is to highlight the content of the Patterns, Functions and Algebra Content Area for Term 1.
- Ask participants to work in groups to complete **Activity 2**. Ask one person from each group to share their ideas.

This workshop focuses on teaching the following Maths Programme content: Term 1 Weeks 6–9. This session focuses on Term 1 Week 6: Patterns, Functions and Algebra.

Term 1 Content overview: Patterns, Functions and Algebra

Refer to the Patterns, Functions and Algebra Content Area on page 124 of the *Concept Guide*.

Activity 2

In your group, discuss:

1. What concepts are covered in Term 1?

_____

_____

_____

2. What are the differences between the content and the content from CAPS?

_____

_____

_____

Recognise the repeat in patterns.
Introduce language, e.g. What comes next? What comes before?
Create own pattern using physical objects, drawings, geometric patterns.
Explain own pattern (repeating rule).

Thuto ya 1: Dipatrone, Difankšene le Altšebra

Iri e 1

Dinoutse tša monolofatši

- Hlaloša gore thutofatlhošo ye e swaragana le diteng tša Lenaneo la Dipalo Kotara ya 1 Dibeke tša 6–9, le gore nepišo ya Beke ya 6 e mo go Dipatrone, Difankšene le Altšebra.
- Šupa batšeakarolo letlakaleng la 125 ka go *Pukutlhahlo ya Mareo*. O hlaloše gore maikemišetšo a **Mošongwana wa 2** ke go tšweletša diteng tša Karolo ya Diteng ya Dipatrone, Difankšene le Altšebra ya Kotara ya 1.
- Kgopela batšeakarolo gore ba šome ka dihlopha ba tlatše **Mošongwana wa 2**. Kgopela motho o tee sehlopheng se sengwe le se sengwe gore a abelane ka dikgopolo.

Thutofatlhošo ye e nepiša go ruta diteng tša Lenaneo la Dipalo tše di latelago: Kotara ya 1 Dibeke tša 6–9. Thuto ye e nepiša Kotara ya 1 Beke ya 6: Dipatrone, Difankšene le Altšebra.

Kakaretšo ya Diteng ya Kotara ya 1: Dipatrone, Difankšene le Altšebra

Šupetša Karolo ya Diteng ya Dipatrone, Difankšene le Altšebra letlakaleng la 125 la *Pukutlhahlo ya Mareo*.

Mošongwana wa 2

Sehlopheng sa gago, ahlaahlang:

1. Go akareditšwe mareo afe Kotareng ya 1?

_____

_____

_____

2. Go na le diphapano dife magareng ga diteng le diteng tša ka gare ga SEPHOLEKE?

_____

_____

_____

Lemoga poeletšo dipatroneng.
Tsebiša leleme, mohl, Go latela eng? Go tla eng pele?
Itlhamela dipatrone o diriša dilo tša kgonthe, dithalwa le dipatrone tša tšeometri.
Hlaloša patrone ya gago (molao wa go boeletša).

Understanding patterns

Facilitator's notes

- PPT: Refer groups to Poster 7 in the *Poster Book* and have them complete **Activity 3**.
- PPT: Give a definition of a pattern and a sequence, using the information below. Demonstrate these explanations.
  *A **pattern** describes the regular sequence of objects, pictures, movements, actions or events that are repeated in a predictable way.*
  *A **sequence** is the particular order in which objects, pictures, movements, actions or events follow each other.*

Developing an understanding of patterns is an important part of maths. Patterns are all around us and children encounter lots of patterns in their daily lives at home and at school.

Think about your own understanding of the Content Area: Patterns, Functions and Algebra and complete Activity 3 with your group.

 **Activity 3**

In your group, discuss:

1. What kinds of patterns might Grade R learners observe in their daily lives?

_____

_____

Patterns in clothes, on buildings, in nature (e.g. flower, beehive).

Facilitator's notes

- PPT: Pictures of patterns around us in our natural and built environment.
- Discuss how a sequence of items can be extended but that this won't necessarily create a pattern.
- Look at examples of where a sequence is repeated to create a pattern.

2. Look at Poster 7 in the *Poster Book*.

- What patterns do you see?

_____

_____

- What is the pattern?

_____

_____

Identify the 'repeat' part of the pattern.
Elements are repeated (unless it is an irregular pattern, e.g. bark on a tree, random patterns on paper or fabric).

Go kwešiša dipatrone

Dinoutse tša monolofatši

- PPT: Šupa dihlopha Phoustara ya 7 ka go *Puku ya Diphoustara* gomme ba feleletše **Mošongwana wa 3**.
- PPT: Efa hlalošo ya patrone le tatelano, o diriša tshedimošo ya ka tlase. Bontšha ditlhalošo tše.
  ***Patrone** e hlaloša peakanyo goba tsela ya go dira dilo go ya ka tatelano, tshepetšo le ditiragalo ka mokgwa wa go tlwaelega.*
  ***Tatelano** ke tsela ya dilo, tshepetšo goba ditiragalo di latelanago ka gona.*

Tlhamo le kwešišo ya dipatrone ke karolo ya bohlokwa ya dipalo. Dipatrone di hwetšwa gohle gomme bana ba itemogela dipatrone tše dintši maphelong a bona a tšatši ka tšatši ka gae le sekolong.

Nagana ka kwešišo ya gago ya Karolo ya Diteng: Dipatrone, Difankšene le Altšebra gomme o tlatše Mošongwana wa 3 le sehlopha sa gago.

Mošongwana wa 3

Sehlopheng sa gago, ahlaahlang:

1. Barutwana ba Mphato wa R ba ka itemogela dipatrone dife maphelong a bona a tšatši ka tšatši?

_____

_____

Dipatrone diaparong, meagong, tlhagong (mohl, letšobeng, phagong).

Dinoutse tša monolofatši

- PPT: Diswantšho tša dipatrone di dula le rena dilong tša hlago le tikologong.
- Ahlaahlang ka fao tatelano ya dilo e ka katološwago ka gona efela e ka se hlame patrone.
- Lebelela mehlala ya fao tatelano e boeleditšwego go hlama patrone.

2. Lebelela Phoustara ya 7 ka *Pukung ya Diphoustara*.

- O bona dipatrone dife?

_____

_____

- Patrone ke eng?

_____

_____

Hlatha karolo ya patrone ya 'poeletšo'.
Dielemente di a boeletšwa (ka ntle le patrone ye e arogilego, mohl, lekwakwatle la mohlare, dipatrone tša go se kgethwe tša pampiring goba lešeleng).

- Can you repeat the pattern? Explain.

_____

_____

A **pattern** describes the regular sequence of objects, pictures, movements, actions or events that are repeated in a predictable way.
A **sequence** is the particular order in which objects, pictures, movements, actions or events follow each other.

Identifying patterns

Facilitator's notes

- Explain that in a regular pattern we can see how the elements in a pattern are repeated, and we can predict the order or sequence that the pattern will follow.
- PPT: Circles and squares repeated to form a pattern.
- Refer participants to the circle and square patterns in the *Participant's Workbook*. Use the questions that follow to demonstrate how we can see that the circle and square are repeated and use this to predict what the next shape will be.
- In the pattern below we can see that the circle and square are repeated, and we can predict that the next shape in the sequence will be a circle, followed by a square and so on.

In a regular pattern, we can see how the elements in the sequence are repeated. We can also predict the order or sequence of the elements and how they will be repeated to create a pattern. In the pattern below we can see that the circle and square are repeated and we can predict what the next shape in the sequence will be.

Activity 4

1. Which shape is first?

_____

2. Which shape is next?

_____

3. What shape do you think will come after the last square?

_____

4. How would you extend the pattern?

_____

Repeating patterns are made up of a repeated sequence of elements, e.g. shapes, colours, sounds, objects, movements.

- O ka boeletša patrone? Hlaloša.

_____

_____

Patrone ke peakanyo goba tsela ya go dira dilo go ya ka tatelano, tshepetšo le ditiragalo ka mokgwa wa go tlwaelega.
Tatelano ke tsela yeo dilo, tshepetšo goba ditiragalo di latelanago ka gona.

Go hlatha dipatrone

Dinoutse tša monolofatši

- Hlaloša gore dipatroneng tša go tlwaelega re kgona go bona ka fao dielemente tša patrone di boleditšwego ka gona, gomme re kgona go naganela gore dipatrone di tlo latelana bjang.
- PPT: Poeletšo ya didiko le disekwere go dira patrone.
- Šupetša batšeakarolo dipatrone tša sediko le sekwere ka go *Pukutšhomo ya Motšeakarolo*. Diriša dipotšišo tše di latelago go bontšha ka fao re ka bonago gore sediko le sekwere di a ipoeletša le go diriša se go akanya gore sebopego sa go latela e ka ba eng.
- Mo patroneng ya ka tlase re kgona go bona gore sediko le patrone di a boeletšwa, gomme re ka akanya gore sebopego sa go latela tatelanong e tlo ba sediko, sa latela ke sekwere, bjalo bjalo.

Patroneng ya go tlwaelega, re ka bona ka fao dielemente tša tatelano di boleditšwego ka gona. Gape re ka naganela tatelano ya dielemente le ka fao di tlo boeletšwago go hlama patrone. Patroneng ya ka tlase re ka bona gore sediko le sekwere di a boeletšwa gomme re ka naganela gore go tlo latela sebopego sefe tatelanong.

Mošongwana wa 4

1. Sebopego sa mathomo ke sefe?

_____

2. Go latela sebopego sefe?

_____

3. O nagana gore ka morago ga sekwere sa mafelelo go tlo ba sebopego sefe?

_____

4. O ka dira eng go oketša patrone?

_____

Dipatrone tša poeletšo di dirilwe ke tatelano ya dielemente ya go boeletšwa, mohl, dibopego, mebala, medumo, dilo, mesepelo.

Facilitator's notes

- PPT: Display the following sequence of attribute blocks:

yellow red blue yellow

- Ask participants to look at the pattern and to use the attribute blocks on their tables to copy the sequence. Groups then complete **Activity 5**.

In the next activity, the facilitator will show you a sequence of shapes. You will use the attribute blocks on your table to copy this sequence and discuss how to extend this to create a pattern.

Activity 5

1. What is the pattern?

_____

_____

2. What is the repeating part of the sequence?

_____

_____

Facilitator's notes

- The point of this activity is to identify the repeating part of the sequence, i.e. the pattern. Does the pattern begin with the yellow square and end with the blue circle? Or does the pattern begin with the yellow square and end with the yellow square?
- Explain that learners need to be able to identify the pattern before they can extend or create their own pattern.
- Emphasise that teachers should always repeat the pattern at least twice before asking learners to extend it, for example:

- After these activities highlight the importance of introducing learners to patterns that have only one attribute that differs, e.g. shape, and providing them with a long enough repeat sequence (e.g. three repeats) so that they can work out the pattern.
- Ask participants for examples of the kinds of patterns that families might find in their own homes and communities (**context principle**).
- Reflect on how a learner's experience of everyday patterns is the starting point for understanding the concept of pattern (**level principle**).

Dinoutse tša monolofatši

- PPT: Bontšha tatelano ye e latelago ya dipoloko tšeo di dirišwago go hlaola:

serolane khubedu talalerata serolane

- Kgopela batšeakarolo gore ba lebelele patrone gomme ba kopise tatelano ba diriša dipoloko tšeo di dirišwago go hlaola tšeo di lego ditafoleng tša bona. Dihlopha di tlatša **Mošongwana wa 5**.

Mošongwaneng wa go latela, monolofatši o tlo go bontšha tatelano ya dibopego. O tlo diriša dipoloko tšeo di dirišwago go hlaola tšeo di lego tafoleng ya gago go kopisa tatelano gomme la bolela gore le tla di oketša bjang go hlama patrone.

Mošongwana wa 5

1. Ke patrone efe?

_____

_____

2. Ke karolo efe yeo e ipoeletšago tatelanong?

_____

_____

Dinoutse tša monolofatši

- Tabakgolo mošongwaneng wo ke go hlatha karolo ya tatelano ye e boeletšwago, mohl, patrone. Na patrone e thoma ka sekwere se se serolane ya feletša ka sediko se setalalerata? Goba patrone e thoma ka sekwere se se serolane ya feletša ka sekwere se se serolane?
- Hlaloša gore barutwana ba swanetše go kgona go hlatha patrone pele ba oketša goba go hlama patrone ya bona.
- Gatelela gore barutiši ba swanetše go boeletša patrone bonnyane gabedi pele ba kgopela barutwana gore ba e oketše, mohlala:

- Morago ga mešongwana ye laetša bohlokwa bja go tsebiša barutwana dipatrone tša go hlaolwa ka selo se setee sa go fapana, mohl, sebopego, le go ba fa tatelano ya poeletšo ye telele (mohl, dipoeletšo tše tharo) gore ba hwetše patrone.
- Kgopela batšeakarolo gore ba go fe mehlala ya mehuta ya dipatrone tšeo ba malapa ba ka di hwetšago ka magae le ditšhabeng (**setheo sa dikamano/sebaka**).
- Naganiša ka fao maitemogelo a morutwana a dipatrone tša tšatši ka tšatši e lego mathomomayo a go kwešiša lereo la patrone (**setheo sa kgato ya maleba**).

Introduce learners to patterns that start with only one attribute that differs, e.g. shape, and provide enough items in the sequence so that learners can work out what the pattern is (the repeating part in the sequence).

It is important for teachers to provide a range of opportunities for learners to identify, copy and create different kinds of patterns using sounds, actions, objects and pictures.

 **Video 2**

Activity Guide: Term 1, Week 6, Days 2, 3 and 4 (pages 104–111)

Watch the video of the teacher setting up activities that provide opportunities for learners to create and discuss patterns.

Notice how the teacher guides the learners through questions and prompts to create a pattern. Write down the vocabulary that she and the learners using during these activities.

_____

_____

_____

_____

Refer to pages 160–173 of the *Concept Guide* to read more about teaching Patterns, Functions and Algebra in Grade R. You will also find a list of appropriate questions and vocabulary for this Content Area.

The **level principle** says that learners are at different starting points in Grade R. Each learner's prior knowledge is the starting point for what they will learn. They can use what they know already to learn new maths concepts and skills.

Tsebiša barutwana dipatrone tša go thoma ka lehlaodi le letee la go fapana, mohl, sebopego, gomme o neelane ka dilo tše di lekanego tatelanong gore barutwana ba kgone go hwetša le gore ke patrone efe (karolo ya poeletšo tatelanong).

Go bohlokwa gore barutiši ba fe barutwana menyetla ya go hlatha, go kopolla le go hlama dipatrone tša mehutahuta ba diriša medumo, ditiro, dilo le diswantšho.

 **Bideo ya 2**

Pukutlhahlo ya Mešongwana: Kotara ya 1, Beke ya 6, Matšatši a 2, 3 le 4 (matlakala a 104–111)

Bogela bideo ya morutiši a beakanya mešongwana ya go fa barutwana menyetla ya go hlama le go ahlaahla dipatrone.

Lebelela ka fao morutiši a hlahlago barutwana ka dipotšišo le hlohloletšo gore ba hlame dipatrone. Ngwala tlotlontšu yeo yena le barutwana ba e dirišago mešongwaneng ye.

_____

_____

_____

_____

Lebelela matlakala a 160–173 ka go *Pukutlhahlo ya Mareo* go bala tše dintši ka ga go ruta Dipatrone, Difankšene le Altšebra ka Mphatong wa R. O tlo hwetša le lenaneo la dipotšišo tša maleba le tlotlontšu ya Karolo ye ya Diteng.

Setheo sa kgato ya maleba se re ge barutwana ba thoma Mphatong wa R ba maemong a go fapana. Ngwana yo mongwe le yo mongwe o thoma ka seo a se tsebago gomme seo ke motheo wa go ithuta ga ngwana yoo. Ba ka diriša seo ba šetšego ba se tseba go ithuta mareo a dipalo a maswa le mabokgoni.

Session 2: Space and Shape (Geometry) 1 hour

Facilitator's notes

- Explain that the focus of Week 7 is on Space and Shape (Geometry).
- Refer participants to pages 126–131 of the *Concept Guide*.
- Have participants work in groups to complete **Activity 6**. Ask one person from each group to report back.
- The focus on Space and Shape (Geometry) in this workshop extends the discussion in Workshop 2.

The focus of Term 1 Week 7 is Space and Shape (Geometry). In Workshop 2, we discussed 3-dimensional objects and 2-dimensional shapes and the content of Weeks 3–5 to be implemented in the classroom.

Term 1 Content overview: Space and Shape (Geometry)

Activity 6

Refer to the Space and Shape (Geometry) Content Area on pages 126–131 of the *Concept Guide*. You will see that circles, squares and triangles are introduced in CAPS in Term 1 and rectangles are introduced in Term 4. The Maths Programme suggests that rectangles are introduced incidentally in Term 1.

1. When you taught squares did you find that learners confused squares and rectangles? Give reasons to support your answer.

_____

_____

_____

_____

Learners need to see the differences between the two shapes. Even though both have four sides and four corners, the rectangle has two long sides and two short sides, and the square has four sides that are the same length.

2. How were rectangles introduced in Week 3 of the Maths Programme?

_____

_____

_____

_____

Practically by using boxes and discussing and comparing the sides of a box.

Thuto ya 2: Sekgoba le Sebopego (Tšeometri)

Iri e 1

Dinoutse tša monolofatši

- Hlaloša gore nepišo ya Beke ya 7 e go Sekgoba le Sebopego (Tšeometri).
- Šupa batšeakarolo matlakaleng a 126–131 ka go *Pukutlhahlo ya Mareo*.
- Laela batšeakarolo go tlatša **Mošongwana wa 6** ka dihlopha. Kgopela motho o tee sehlopheng se sengwe le se sengwe gore a fe pego.
- Nepišo ya Sekgoba le Sebopego (Tšeometri) thutofatlhošong ye e oketša poledišano ya Thutofatlhošo ya 2.

Nepišo ya Kotara ya 1 Beke ya 7 ke Sekgoba le Sebopego (Tšeometri). Ka go Thutofatlhošo ya 2, re boletše ka dilo tša mahlakoretharo le dibopego tša mahlakorepedi le diteng tša Dibeke tša 3–5 tša go phethagatšwa ka phapošing.

Kotara ya 1 Kakaretšo ya diteng: Sekgoba le Sebopego (Tšeometri)

Mošongwana wa 6

Šupetša Karolo ya Diteng ya Sekgoba le Sebopego (Tšeometri) matlakaleng a 126–131 ka go *Pukutlhahlo ya Mareo*. O tla bona gore didiko, disekwere le dikhutlotharo di tsebišwa ka go SEPHOLEKE ka Kotara ya 1 gomme dikhutlonnethwii di tsebišwa ka go SEPHOLEKE ka Kotara ya 4. Lenaneo la Dipalo le šišinya gore dikhutlonnethwii di tsebišwa bjalo ka tlaleletšo Kotareng ya 1.

1. Na ge o be o ruta ka disekwere o hweditše e le gore barutwana ba gakantšha disekwere le dikhutlonnethwii? Fahlela karabo ya gago ka mabaka.

_____

_____

_____

_____

Barutwana ba swanetše go bona phapano magareng ga dibopego tše pedi tše. Le ge ka bobedi di na le mahlakore a mane le dikhutlo tše nne, dikhutlonnethwii di na le mahlakore a matelele a mabedi le mahlakore a makopana a mabedi, gomme sekwere se na le mahlakore a mane a go lekana ka botelele.

2. Na dikhutlonnethwii di tsebišitšwe bjang Bekeng ya 3 ya Lenaneo la Dipalo?

_____

_____

_____

_____

Ka go diriša mapokisi le go ahlaahla le go bapetša mahlakore a lepokisi.

Identifying 2-dimensional shapes (triangles)

Facilitator's notes

- Remind participants that in Workshop 2 they learnt about 3-dimensional objects and 2-dimensional shapes.
  3-dimensional *means that an object has three dimensions: length, width and height.*
  2-dimensional *means that a shape has length and width.*
- Explain that triangles are taught in a similar way to circles and squares in Term 1 (Week 7).

In Grade R learners recognise, identify and name 2-dimensional shapes: circles, squares, triangles and rectangles. The Maths Programme also suggests that learners are encouraged to describe the properties of these shapes, e.g. straight or curved lines, number of lines and corners.

Learners apply their new knowledge of shapes and reinforce this learning in the independent small group activities.

 **Video 3**

Activity Guide: Term 1, Week 7, Days 1 and 2 (pages 120–125)

Watch the video of the teacher introducing the learners to the triangle.

Notice how the teacher encourages the learners to describe the properties of the triangle.

_____

_____

_____

_____

_____

Facilitator's notes

- In **Activity 7** participants will reflect on how the *Poster Book* can be used during activities to stimulate discussion.
- PPT: Display Poster 8 and ask participants to respond to the questions in **Activity 7**.
- After the activity ask participants which properties of 2-dimensional shapes were discussed and what maths language was used.
- Remind participants that 2-dimensional means that a shape has length and width (breadth) and that 3-dimensional means that an object has length, width and height.

Go hlatha dibopego tša mahlakorepedi (dikhutlotharo)

Dinoutse tša monolofatši

- Gopotša batšeakarolo gore ba ithutile ka ga dilo tša mahlakoretharo le dibopego tša mahlakorepedi ka go Thutofatlhošo ya 2.
  mahlakoretharo *e ra gore selo sa mahlakore a mararo: botelele, bophara le bogodimo.*
  mahlakorepedi *e ra gore sebopego sa go ba le botelele le bophara.*
- Hlaloša gore dikhutlotharo di rutwa ka tsela ya go swana le ya go ruta didiko le disekwere Kotareng ya 1 (Beke ya 7).

Ka Mphatong wa R, barutwana ba lemoga, hlatha le go bolela maina a dibopego tša mahlakorepedi: didiko, disekwere, dikhutlotharo le dikhutlonnethwii. Lenaneo la Dipalo le šišinya gape gore barutwana ba hlohleletšwa go hlaloša dipharologantšho tša dibopego tše, mohl, methaladi ya thwii goba ya go kgopama, palo ya methaladi le dikhutlo.

Barutwana ba diriša tsebo ya bona ya dibopego gomme ba tiišetša thuto ye mešongwaneng ya sehlopha se sennyane ntle le tlhahlo.

Bideo ya 3

Pukutlhahlo ya Mešongwana: Kotara ya 1, Beke ya 7, Matšatši a 1 le 2 (matlakala a 120–125)

Bogela bideo ya morutiši a tsebiša barutwana khutlotharo.

Lemoga ka fao morutiši a hlohleletšago barutwana go hlaloša dipharologantšho tša khutlotharo.

_____

_____

_____

_____

_____

Dinoutse tša monolofatši

- Ka **Mošongwaneng wa 7** batšeakarolo ba tlo naganiša ka fao *Puku ya Diphoustara* e ka dirišwago ka nako ya mešongwana go hlohleletša poledišano.
- PPT: Bontšha Phoustara ya 8 gomme o kgopele batšeakarolo go araba dipotšišo tša **Mošongwana wa 7**.
- Ka morago ga mošongwana botšiša batšeakarolo gore go boletšwe ka dipharologantšho dife tša dibopego tša mahlakorepedi le gore go dirišitšwe leleme lefe la dipalo.
- Gopotša batšeakarolo gore mahlakorepedi e ra gore sebopego se na le botelele le bophara (bophara) le gore mahlakoretharo e ra gore selo se na le botelele, bophara le bogodimo.

Activity Guide: Term 1 provides many opportunities throughout the term for teachers to use open-ended questions. The *Poster Book* is used during whole class activities and small group teacher-guided activities to encourage learners to express their own ideas and solve problems.

In Activity 7, you will discuss a poster and talk about whether the questions posed are 'open-ended' or 'closed' questions.

 **Activity 7**

1. Look at Poster 8 and respond to the following questions.

- How many triangles can you see? closed

_____

- How do you know it is a triangle? open-ended

_____

- How many sides does it have? closed

_____

- How many corners does it have? closed

_____

- How many lines? closed

_____

- Can you see any other triangles? closed

_____

- What other shapes can you see? closed

_____

- What is the same about these two shapes? open-ended

_____

- What is different about these two shapes? open-ended

_____

2. Which of the questions above are open-ended and which are closed questions?

_____

_____

Pukutlhahlo ya Mešongwana: Kotara ya 1 e fa barutiši menyetla ye mentši ya go diriša dipotšišo tša go lokologa mo kotareng. *Puku ya Diphoustara* e dirišwa ka nako ya mešongwana ya barutwana ka moka le nako ya mešomo ya dihlopha tše nnyane tša go hlahlwa ke morutiši go hlohleletša barutwana go hlagiša dikgopolo tša bona le go rarolla mathata.

Mošongwaneng wa 7, le tla ahlaahla phoustara la bolela ge eba go botšišitšwe 'dipotšišo tša go lokologa goba 'dipotšišothwii'.

Mošongwana wa 7

1. Lebelela Phoustara ya 8 o arabe dipotšišo tše di latelago.

- O bona dikhutlotharo tše kae? potšišothwii

_____

- O tseba bjang gore ke khutlotharo? potšišo ya go lokologa

_____

- E na le mahlakore a makae? potšišothwii

_____

- E na le dikhutlo tše kae? potšišothwii

_____

- Methaladi ke ye mekae? potšišothwii

_____

- O bona dikhutlotharo tše dingwe? potšišothwii

_____

- O bona dibopego dife tše dingwe? potšišothwii

_____

- Dibopego tše pedi di swana ka eng? potšišo ya go lokologa

_____

- Dibopego tše pedi tše di fapana ka eng? potšišo ya go lokologa

_____

2. Dipotšišo tša go lokologa ke dife, dipotšišothwii ke dife?

_____

_____

Facilitator's notes

- Discuss the kinds of questions that were asked in **Activity 7** and how the **guidance principle** encourages problem solving through effective questioning.
- Highlight the importance of using maths vocabulary in discussions with learners.
- Remind participants that not all learners will grasp the ideas/concepts at the same time (**level principle**) and that they should be encouraged to share their thinking and be given plenty of practical activities and opportunities to talk about shapes.

The **guidance principle** encourages teachers and learners to work together to solve problems using effective questioning.

- **Closed questions** are questions that have a limited 'yes' or 'no' response. Closed questions can be helpful in finding out what learners know, like 'Which shape is a triangle?', 'What colour is it?'
- **Open-ended questions** have more than one possible answer, stimulate thinking and encourage learners to express their own ideas when solving problems.

Not all learners will grasp these concepts or learn the maths language at the same time (**level principle**).

Maths vocabulary

When learners investigate, and describe shapes and objects, they use everyday language like 'flat', 'smooth' and 'pointy'. Teachers can introduce maths vocabulary to replace everyday language, for example: straight lines, curved lines, corners, sides. We also talk about how long something is, how wide it is and refer to the height of something.

Refer to the pages 190–193 of the *Concept Guide* to read more about asking questions related to teaching and learning Space and Shape (Geometry) concepts. Also read page 192 for more about Space and Shape (Geometry) vocabulary in Grade R.

Dinoutse tša monolofatši

- Ahlaahlang dipotšišo tše di botšišitšwego **Mošongwaneng wa 7** le ka fao **setheo sa tlhahlo** se hlohleletšago tharollo ya mathata ka dipotšišo tša go phethagala.
- Laetša bohlokwa bja go diriša tlotlontšu ya dipalo ge o boledišana le barutwana.
- Gopotša batšeakarolo gore ga se barutwana ka moka bao ba tlogo kwešiša dikgopolo/mareo ka nako yona yeo (**setheo sa kgato ya maleba**) le gore ba swanetše go hlohloletšwa go abelana ka dikgopolo tša bona gomme ba fiwe mešongwana ye mentši le menyetla ya go bolela ka dibopego.

Setheo sa tlhahlo se hlohleletša barutiši le barutwana go šoma mmogo ge ba rarolla mathata ba diriša dipotšišo tša go phethagala.

- **Dipotšišothwii** ke dipotšišo tša go hloka karabo ya 'ee' goba 'aowa'. Dipotšišothwii di ka thuša go utulla seo barutwana ba se tsebago, bjalo ka 'Sebopego sa khutlotharo ke sefe?', 'Ke mmala ofe?'
- **Dipotšišo tša go lokologa** ke dipotšišo tša go ba le dikarabo tše dintši, tša go tutuetša go nagana le go hlohleletša barutwana go hlagiša dikgopolo tša bona ge ba rarolla mathata.

Ga se barutwana ka moka bao ba tlogo kwešiša mareo a goba go ithuta leleme la dipalo ka nako yona yeo (**setheo sa kgato ya maleba**).

Tlotlontšu ya dipalo

Ge barutwana ba nyakišiša, le go hlaloša dibopego le dilo, ba diriša leleme la ka mehla bjalo ka 'papetla', 'boreledi' le 'ntlha'. Barutiši ba ka tsebiša tlotlontšu ya dipalo legatong la leleme la tšatši ka tšatši, mohlala: methaladi ya thwii, methaladi ya go kgopama, dikhutlo, mahlakore. Re bolela le ka botelele bja selo, bophara le go bontšha bogodimo bja selo.

Lebelelaa matlakala a 190–193 ka go *Pukutlhahlo ya Mareo* go bala ka botlalo ka ga go botšiša dipotšišo tša go tswalana le go ruta le go ithuta mareo a Sekgoba le Sebopego (Tšeometri). Bala le letlakala la 193 go kwa tše dintši ka ga tlotlontšu ya Sekgoba le Sebopego (Tšeometri) ka Mphatong wa R.

Session 3: Measurement

1 hour

Facilitator's notes

- Explain that the focus of Week 8 is on Measurement.
- Refer participants to pages 132–135 of the *Concept Guide*.
- Have participants work in groups to complete **Activity 8**. Ask one person from each group to share their ideas.

The focus of Term 1 Week 8 is Measurement: time and length.

Term 1 Content overview: Measurement

Activity 8

Refer to the Measurement Content Area on pages 132–135 of the *Concept Guide*.
In your group, review:

1. What concepts are covered in Term 1?

_____

_____

2. What are the differences between this content and the content from CAPS?

_____

_____

What is measurement?

Facilitator's notes

- Ask participants to think about what measurement is.
- PPT: Same picture as in Activity 9.
- Participants complete **Activity 9** and share what they have written.
- Brainstorm the following questions with the group:
  Who is taller?
  Who is heavier?
  Who is older?
- Explain that measurement is about finding out 'how much' there is of a something, e.g. the length of something, how much something holds (the capacity), the mass of something or how long it takes to do something (time).
- Explain that to talk about measurement you need to say what you want to measure – the attribute. Give examples of attributes: length, height, mass, capacity.
- Use the information below Activity 9 to explain standard and non-standard measuring units.
- Explain that in Grade R, learners measure informally using non-standard measuring units to measure time, length, mass and capacity or volume.

Thuto ya 3: Kelo

Iri e 1

Dinoutse tša monolofatši

- Hlaloša gore nepišo ya Beke ya 8 ke Kelo.
- Bontšha batšeakarolo matlakala a 132–135 ka go *Pukutlhahlo ya Mareo*.
- Laela batšeakarolo go feleletša **Mošongwana wa 8** ka dihlopha. Kgopela motho o tee sehlopheng se sengwe le se sengwe go abelana ka dikgopolo tša bona.

Nepišo ya Karolo ya 1 Beke ya 8 ke Kelo: nako le botelele.

Kotara ya 1 Kakaretšo ya diteng: Kelo

Mošongwana wa 8

Šupetša Karolo ya Diteng ya Kelo matlakaleng a 132–135 ka go *Pukutlhahlo ya Mareo*. Sehlopheng sa gago, ahlaahlang:

1. Go akareditšwe mareo afe Kotareng ya 1?

_____

_____

2. Go na le diphapano dife magareng ga diteng tše le diteng tša ka gare ga SEPHOLEKE?

_____

_____

Kelo ke eng?

Dinoutse tša monolofatši

- Kgopela batšeakarolo go nagana gore kelo ke eng.
- PPT: Seswantšho sa ka mošongwaneng wa 9.
- Batšeakarolo ba dira **Mošongwana wa 9** le go abelana se ba se ngwadilego.
- Nagana ka dipotšišo tše di latelago sehlopheng:
  Ke mang yo moteletšana?
  Ke mang yo boimanyana?
  Ke mang yo mogolwane?
- Hlaloša gore kelo ke go hwetša 'bogolo' bja selo, mohl, botelele bja selo, selo se swara go kaakang, (bogolo), boima bja selo goba nako ye o e tšeago go dira selo (nako).
- Hlaloša gore ge o bolela ka kelo o swanetše go bolela se o nyakago go se ela – lehlaodi. Efa mehlala ya mahlaodi: botelele, bogodimo, boima, bogolo.
- Diriša tshedimošo ya ka tlase ga mošongwana wa 9 go hlaloša diuniti tša kelo tša tekanyetšo le tše e sego tša tekanyetšo.
- Hlaloša gore ka Mphatong wa R, barutwana ba ela ka tsela ye e sego ya semmušo ba diriša diuniti tša kelo tše e sego tša tekanyetšo go ela nako, botelele, boima le bogolo goba bolumo.

In Activity 9 we will discuss the question ‘What is measurement?’.

Activity 9

Look at the picture below and answer the question.

Who is the biggest?

_____

Measurement is about finding ‘how much’ there is of a thing, e.g.:

- the length of something
- how much something holds
- the mass of something
- how long it takes to do something.

In order to measure, we need to decide on which attribute (feature/characteristic) we want to measure, e.g. length, mass, time. We use the following words to describe the measurements: taller, heavier, older.

Mošongwaneng wa 9 re tla ahlaahla potšišo ‘Kelo ke eng?’.

Mošongwana wa 9

Lebelela seswantšho sa ka tlase gomme o arabe potšišo.

Ke ofe yo e lego yo mogolo ka go fetiša?

_____

Kelo ke go hwetša ‘bogolo’ bja selo, mohl:

- botelele bja selo
- gore selo se rwala go kaakang
- boima bja selo
- nako ye o e tšeago go dira se sengwe.

Go ela, re swanetše go nagana gore re nyaka lehlaodi (seka/semelo) le re nyakago go le ela, mohl, botelele, boima, nako. Re diriša mantšu a latelago go hlaloša dikelo: telelenyana, boimanyana, golonyana.

We need to use units to measure. These can be non-standard units or standard units.

- **Non-standard measuring units** include hands, feet, crayons, pieces of string, sticks and blocks.
- **Standard measuring units** include litres, millilitres, kilograms, grams, metres, hours, minutes, etc.

In Grade R learners measure **informally** and use **non-standard measuring units** to measure time, length, mass, capacity and volume.

Direct comparison

Facilitator's notes

- Demonstrate how to use direct comparison and a non-standard unit of measurement. Ask eight volunteers to stand in front. Ask:
  Who is the tallest in the group? How do you know?
  Who is the shortest in the group? How do you know?
  Is anyone the same height? How do you know?
  How can we find out?
- Have the participants stand back-to-back to compare their height. Afterwards, ask participants to complete **Activity 10**.
- Discuss that by directly comparing the attribute (height) of the two people, we could find out who was taller.
- Point out that this measurement activity has been taken from Week 8 in *Activity Guide: Term 1* (pages 136–149) and that participants should refer to this activity when planning.

Measurement in Grade R includes comparing the attribute of something 'directly' with something else. For example, measuring the length of a crayon against another crayon or comparing the height of two learners standing back-to-back.

Observe the facilitator measuring a group of participants and then complete Activity 10 in your group.

Activity 10

Refer to pages 194–207 of the *Concept Guide* to read more about Measurement and pages 136–149 of *Activity Guide: Term 1* before you answer the questions below.

Re hloka go ela ka diuniti. E ka ba diuniti tša tekanyetšo goba tša go hloka tekanyetšo.

- **Metšo ya go se tlwaelege: mokgwa wa go lekanyet**ša dilo bjalo ka go šomiša seeta, letlakala goba poloko e ka ba seatla, leoto goba mmele.
- **Diuniti/Metš****o ya go tlwaelega ya go kala/ela** di akaretša dilitara, dimililitara, dikilogramo, digramo, dimetara, diiri, metsotso, bj.bj.

Ka Mphatong wa R barutwana ba ela ka tsela ye e sego ya semmušo gomme ba diriša **diuniti tša kelo tša go se tlwaelege** go ela nako, botelele, boima, motano le bolumo.

Papetšo ya thwii

Dinoutse tša monolofatši

- Bontšha ka fao go dirišwago papetšo ya thwii le diuniti tša kelo tša go hloka tekanyetšo. Kgopela baithaopi ba seswai gore ba eme mo pele. Botšiša:
  Ke ofe yo motelele ka go fetiša mo sehlopheng? O tseba bjang?
  Ke ofe yo mokopana ka go fetiša mo sehlopheng? O tseba bjang?
  Go na le ba go lekana? O tseba bjang?
  Re tla tseba bjang?
- Laela batšeakarolo gore ba furalelane ba bapetše botelele bja bona. Ka morago, o kgopele batšeakarolo gore ba feleletše **Mošongwana wa 10**.
- Ahlaahlang se ka go bapetša lehlaodi (botelele) bja batho ba babedi thwii, re tlo tseba gore ke mang yo e lego yo motelelenyana.
- Bolela gore mošongwana wo wa kelo o tšwa go Beke ya 8 ka go *Pukutlhahlo ya Mešongwana: Kotara ya 1* (matlakala a 136–149) gomme batšeakarolo ba swanetše go lebelela mošongwana wo ge ba beakanya.

Kelo ka Mphatong wa R e akaretša go bapetša lehlaodi la selo se sengwe 'thwii' le selo se sengwe. Mohlala, go ela botelele bja kherayone kgahlanong le kherayone ye nngwe goba go bapetša botelele bja barutwana ba babedi ba furalelane.

Lebelela monolofatši ge a ela sehlopha sa batšeakarolo gomme o dire Mošongwana wa 10 le sehlopha sa gago.

Mošongwana wa 10

Lebelela matlakala a 194–207 ka go *Pukutlhahlo ya Mareo* go bala go gontši ka ga Kelo le matlakala a 136–149 ka go *Pukutlhahlo ya Mešongwana: Kotara ya 1* pele o araba dipotšišo tša ka tlase.

1. What non-standard unit of measurement was used to measure the height of the participants?

_____

Learners' bodies.

2. What other non-standard units of measurement could be used to measure the height of the participants?

_____

E.g. string, pencil, block.

Time

Facilitator's notes

- Facilitate a discussion about teaching time to learners in Grade R – that it is an abstract concept and that learners need to learn about time from daily experiences that are familiar to them.
- Ask participants to complete **Activity 11** and share their ideas with the large group. These should include:
  - sequencing of repeated events or activities during the day
  - the weather chart with day, date and month and pictures on a weekly calendar
  - the calendar with days of the week.

Time is a difficult abstract concept for learners to understand. Learners need to understand how time passes in their own lives, so teachers need to relate time to the learner's daily experiences and events that are familiar to them.

Activity 11

Refer back to Term 1 Week 8 in *Activity Guide: Term 1* and with a partner discuss how time is taught in these lessons. Share your ideas about the following.

1. How can Grade R teachers/practitioners help learners understand more about the concepts of:

- day and night?
- yesterday, today and tomorrow?
- how long things take?
- the sequence of time?

_____

_____

_____

_____

1. Go dirišitšwe uniti efe ya kelo ya go hloka tekanyetšo go ela botelele bja batšeakarolo?

_____

Mebele ya barutwana.

2. Ke diuniti dife tše dingwe tša kelo tša go hloka tekanyetšo tše di ka dirišwago go ela botelele bja batšeakarolo?

_____

Mohl, lenti, phensele, poloko.

Nako

Dinoutse tša monolofatši

- Hlahla poledišano ka ga nako ya go ruta barutwana ba Mphato wa R – ke lereo la kgopolo gomme barutwana ba swanetše go ithuta ka nako maitemogelong a tšatši ka tšatši ao ba a tlwaetšwego.
- Kgopela batšeakarolo gore ba dire **Mošongwana wa 11** gomme o abelane dikgopolo tša bona le sehlopha se segolo. Go akaretšwe:
  - tatelano ya ditiragalo goba mešongwana ya go boeletšwa mo letšatšing
  - tšhate ya boso ya go ba le letšatši, letšatšikgwedi le kgwedi le diswantšho tša khalentara ya beke ka beke
  - khalentara ya matšatši a beke.

Nako ke lereo la kgopolo leo barutwana ba swarago bothata go le kwešiša. Barutwana ba hloka go tseba gore nako e sepela bjang maphelong a bona, gomme barutiši ba hloka go amanya nako le maitemogelo a barutwana a tšatši ka tšatši le ditiragalo tše ba di tlwaetšego.

Mošongwana wa 11

Lebelela Kotara ya 1 Beke ya 8 ka go *Pukutlhahlo ya Mešongwana: Kotara ya 1* gomme wena le mogwera le bolele gore nako e dirišwa bjang dithutong tše. Abelana ka dikgopolo ka ga tše di latelago.

1. Barutiši/batlhahli ba Mphato wa R ba ka thuša barutwana bjang gore ba kwešiše go gontši ka ga mareo:

- mosegare goba bošego?
- maabane, lehono le gosasa?
- nako ye e tšeago ke dilo?
- tatelano ya nako?

_____

_____

_____

_____

2. How can you use your daily programme activities to teach learners about the concept of time?

_____

_____

_____

_____

Discussing the sequence of activities – e.g. what do we do first, next, what happened before Storytime – provides opportunities to reflect on what happened first/next/last.

3. What vocabulary is important to understand the concept of time?

_____

_____

_____

Before, after, next, now, then, day, night, morning afternoon, today, yesterday, tomorrow.

Refer to pages 194–207 of the *Concept Guide* to read more about Measurement and time. Refer to the page 210 of the *Concept Guide* to read more about asking questions related to teaching and learning of Measurement in Grade R.

2. O ka diriša mešongwana ya lenanephethagatšo la tšatši ka tšatši bjang go ruta barutwana ka ga lereo la nako?

_____

_____

_____

_____

Go ahlaahla tatelano ya mešongwana – mohl, re dira eng pele, gwa latela eng, go diregile eng pele ga nako ya Kanegelo – neelana ka menyetla ya go naganiša ka se se diregilego pele/sa go latela/sa mafelelo.

3. Ke tlotlontšu efe ye e lego bohlokwa go kwešiša lereo la nako?

_____

_____

_____

Pele, ka morago, go latela, gona bjale, ka morago, mosegare, bošego, mesong, mathapama, lehono, maabane, gosasa.

Lebelela matlakala a 194–207 ka go *Pukutlhahlo ya Mareo* go bala ka botlalo ka ga Kelo le nako. Lebelela letlakala la 211 ka go *Pukutlhahlo ya Mareo* go bala ka botlalo ka ga go botšiša dipotšišo tša go amana le go ruta le go ithuta Kelo ka Mphatong wa R.

Session 4: Numbers, Operations and Relationships

1 hour

Facilitator's notes

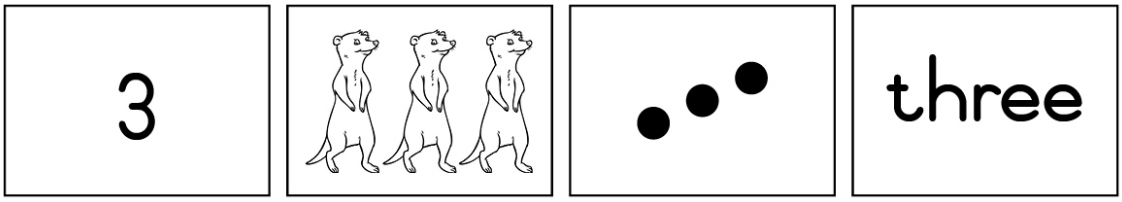
- Draw the participants' attention to how the number 3 is introduced on pages 102–105 of *Activity Guide: Term 1*.
- Explain that even though the Content Area Focus is Patterns, Functions and Algebra in Week 6, the number 3 is also introduced in this week.
- Discuss the routine that is followed for the numbers 1 and 2 and reflect on whether the same routine is followed for number 3. Discuss how each number of pictures and dots is one more than the previous one and make the connection to the fact that 2 is one more than 1 and 3 is one more than 2.
- Explain that in Week 6 learners are also introduced to dot cards.
- Use the dot cards in the *Resource Kit* to demonstrate how learners match counters to the dot cards and discover that 3 is made up of 1 and 2 dots.

In Workshop 2, you were introduced to the concepts of counting and representation of number. In this workshop we will see how the same ideas continue into Week 6 as the number 3 is introduced. The same routine is followed as with numbers 1 and 2, namely:

Refer to pages 102–105 of *Activity Guide: Term 1* for the introduction of number '3' activity.

Tell the *Number 3 story* and dramatise as you build up the story with the different representations of the number using frieze cards from the *Resource Kit*:

- animal (picture)
- number symbol
- number word
- dots (representing the doorbells).



Look for objects and match the number symbol (3) and number word (three). In Week 6, learners are introduced to dot cards (from the *Resource Kit*). Learners match counters to the dot cards and discuss that 3 is made up of 1 and 2 dots.

Thuto ya 4: Dinomoro, Tirišo le Tswalano **Iri e 1**

Dinoutse tša monolofatši

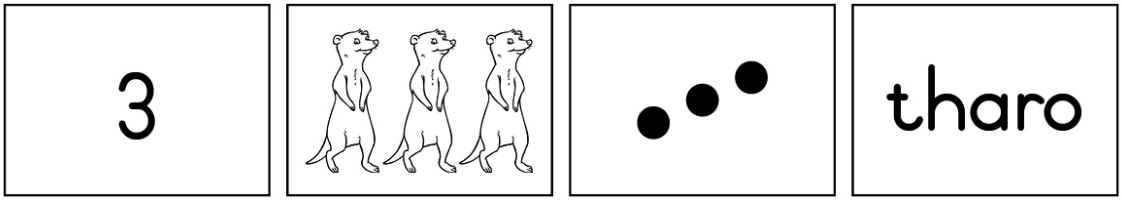
- Lebiša šedi ya batšeakarolo go tsela yeo nomoro 3 e tsebišwago ka gona matlakaleng a 102–105 ka go *Pukutlhahlo ya Mešongwana: Kotara ya 1*.
- Hlaloša gore le ge Nepišo ya Karolo ya Diteng e le Dipatrone, Difankšene le Altšebra mo go Beke ya 6, nomoro ya 3 le yona e tsebišwa beke ye.
- Ahlaahlang ka mokgwa wa go itlwaetša wa go latelwa dinomorong tša 1 le 2 gomme le naganiše ge eba go latelwa mokgwa wona woo go itlwaetša nomoro 3. Ahlaahlang ka fao nomoro ye nngwe le ye nngwe ya diswantšho le ya marontho e fetago ya go feta ka ye tee gomme o lemoge gore 2 e feta 1 ka tee le gore 3 e feta 2 ka tee.
- Hlaloša gore mo Bekeng ya 6 barutwana ba tsebišwa le dikarata tša marontho.
- Diriša dikarata tša marontho tša ka gare ga *Dithušathuto tša Phapoši* go bontšha ka fao barutwana ba tswalanyago dibaledi le dikarata tša marontho le go utulla gore 3 e dirwa ke lerontho le 1 le a 2.

Ka Thutofatlhošong ya 2, o tsebišitšwe mareo a go bala le kemedi ya dinomoro. Thutofatlhošong ye re tlo bona ka fao dikgopolo tše di tšwelago pele ge go tsebišwa nomoro 3 ka go Beke ya 6. Go latelwa mokgwa wona wola wa go itlwaetša wa dinomoro 1 le 2, e lego:

Lebelela matlakala a 102–105 ka go *Pukutlhahlo ya Mešongwana: Kotara ya 1* go tsebiša mošongwana wa nomoro '3'.

Anega kanegelo ya *Nomoro 3* le e diragatše ge le oketša kanegelo ka dikemedi tša go fapana tša nomoro le diriša dikarata tša tšhate ya tlotlontšu le dinomoro tše e lego ka gare ga *Dithušathuto tša Phapoši*:

- phoofolo (seswantšho)
- leswao la nomoro
- leina la nomoro
- marontho (kemedi ya dipele tša mabati).



Nyaka dilo gomme o tswalanye leswao la nomoro (3) le leina la nomoro (tharo). Mo Bekeng ya 6, barutwana ba tsebišwa dikarata tša marontho (tša ka gare ga *Dithušathuto tša Phapoši*). Barutwana ba tswalanya dibaledi le dikarata tša marontho gomme ba bolela gore 3 e dirwa ke lerontho le 1 le a 2.

Term 1 Content overview: Numbers, Operations and Relationships

Facilitator's notes

- Explain that the focus of Week 9 is on Numbers, Operations and Relationships.
- Refer participants to pages 114–123 of the *Concept Guide*.
- Have participants work in groups to complete **Activity 12**. Ask one person from each group to share their ideas.

Week 7 focuses on Space and Shape (Geometry) while Week 8 focuses on Measurement. The focus of Week 9 in Term 1 is once more on number concepts. In this session, you will investigate the relationship between numbers.

Activity 12

Refer to the Numbers, Operations and Relationships content overview on pages 114–123 of the *Concept Guide*. In your group, discuss the following features of the content overview:

1. What is Topic 1.4?
2. What sub-topics are listed under this topic?
3. What are the differences between the blue and black text? Explain why you think this is so.

Calculating

Facilitator's notes

- Point out that learners in Grade R do not do number operations such as addition and subtraction, multiplication and division. Give an example of how these concepts are gradually built up through counting and manipulation of concrete materials and through problem solving in appropriate real-life contexts.
- Demonstrate an activity that involves breaking down and building up numbers ('Shake and break' on pages 166–169 of *Activity Guide: Term 1*).
- After the demonstration, participants complete **Activity 13**. Ask one person from each group to share their ideas.
- Discuss which of the questions asked were open-ended and which were closed questions.
- Remind participants that not all learners will demonstrate an understanding of these number concepts at the same time (**level principle**).

In Grade R learners do not do number operations like addition and subtraction, multiplication and division. These concepts are gradually built up through investigation and through problem solving. For example: *I have three apples. I eat one. How many apples do I have left?*

Kotara ya 1 Kakaretšo ya diteng: Dinomoro, Tirišo le Tswalano

Dinoutse tša monolofatši

- Hlaloša gore nepišo ya Beke ya 9 e mo go Dinomoro, Tirišo le Tswalano.
- Laela batšeakarolo gore ba lebelele matlakala a 114–123 ka go *Pukutlhahlo ya Mareo*.
- Laela batšeakarolo gore ba šome ka dihlopha ba feleletše **Mošongwana wa 12**. Kgopela motho o tee sehlopheng se sengwe le se sengwe gore a abelane ka dikgopolo tša bona.

Beke ya 7 e nepiša Sekgoba le Sebopego (Tšeometri) mola Beke ya 8 e nepiša go Kelo. Nepišo ya Beke ya 9 ka go Kotara ya 1 e sa le go mareo a dinomoro. Thutong ye, o tlo nyakišiša ditswalano magareng ga dinomoro.

Mošongwana wa 12

Lebelela kakaretšo ya diteng ya Dinomoro, Tirišo le Tswalano matlakaleng a 114–123 ka go *Pukutlhahlo ya Mareo*. Sehlopheng sa gago, ahlaahlang dika tše di latelago tša kakaretšo ya diteng:

1. Hlogotaba ya 1.4 ke eng?
2. Go ngwadilwe dihlogotaba dife tše dinnyane ka tlase ga hlogotaba ye?
3. Phapano ke eng magareng ga sengwalwa se setalalerata le se seso? Hlaloša gore ke ka lebaka la eng o nagana bjalo.

Go hlakanya

Dinoutse tša monolofatši

- Lemoša gore barutwana ba Mphato wa R ga ba dire dipalo tše bjalo ka tša go hlakanya, go ntšha, go atiša le go arola. Efa mohlala o laetše ka fao mareo a bopiwago ke go bala le go diriša dilo tša go swarwa le ka go rarolla mathata dikamanong tša maleba tša bophelo bja nnete.
- Bontšha mošongwana wa go akaretša go aroganya le go bopa dinomoro ('Šikinya o aroganye' matlakaleng a 166–169 ka go *Pukutlhahlo ya Mešongwana: Kotara ya 1*).
- Morago ga go bontšha, batšeakarolo ba feleletše **Mošongwana wa 13**. Kgopela motho o tee sehlopheng se sengwe le se sengwe gore a abelane ka dikgopolo tša bona.
- Ahlaahlang gore go dipotšišo tše di botšišitšwego ke dife tše e lego dipotšišo tša go lokologa gomme ke dife tše e lego dipotšišothwii.
- Gopotša batšeakarolo gore ga se barutwana ka moka bao ba tlogo laetša kwešišo ya mareo a dinomoro ka nako yona yeo (**setheo sa kgato ya maleba**).

Ka Mphatong wa R barutwana ga ba dire dipalo tše bjalo ka tša go hlakanya, go ntšha, go atiša le go arola. Mareo a a bopiwa ka dinyakišišo le ka go rarolla mathata. Mohlala: *Ke na le diapole tše tharo. Ke ja e tee. Ke šetše ka diapole tše kae?*

Learners need to understand the relationship between numbers. Activities that involve breaking down and building up numbers help learners to understand the relationships between numbers and the value of numbers. For example: *5 is made up of 2 and 3, 1 and 4.*

Demonstration
Watch the demonstration of a 'shake-and-break' game and then discuss your observations in your group.

 **Activity 13**

Discuss the demonstration you have just watched.

1. What number concepts could the learners learn by playing this game?

_____

_____

Combining (adding) and separating (subtraction).

2. What questions did the facilitator use that highlighted addition and subtraction?

_____

_____

_____

_____

How many counters do I have in this hand? And in this hand? When I put them together how many do I have?
How did you break up your counters?
How many do you have on each lid? When you put them together how many do you have?
If you take the ones on this lid away how many will you have left?

Not all learners will demonstrate an understanding of these number concepts at the same time (**level principle**).

Barutwana ba hloka go kwešiša tswalano magareng ga dinomoro. Mešongwana ya go akaretša go aroganya le go bopa dinomoro e thuša barutwana go kwešiša ditswalano magareng ga dinomoro le boleng bja dinomoro. Mohlala: *5 e bopiwa ke 2 le 3, 1 le 4.*

Go bontšha

Bogelang pontšho ya moraloko wa 'šikinya-o-aroganye' gomme le bolele ka tše le di bonego sehlopheng.

Mošongwana wa 13

Ahlaahlang pontšho ye le bego le e bogetše.

1. Barutwana ba tla ithuta mareo afe a dipalo ka moraloko wo?

_____

_____

Go kopanya (go hlakanya) le go kgaoganya (go ntšha).

2. Monolofatši o dirišitše dipotšišo dife tša go laetša go hlakanya le go ntšha?

_____

_____

_____

_____

Ke na le dibaledi tše kae ka seatleng se? Ka seatleng se sona? Ge ke di kopanya ke ba le tše kae?
O aroganya dibaledi tša gago bjang?
O na le tše kae ka sekhurumelong se sengwe le se sengwe? Ge o di kopanya o ba le tše kae?
Ge o tloša tša ka sekhurumelong se o tlo šala ka tše kae?

Ga se barutwana ka moka bao ba tlogo laetša kwešišo ya mareo a ka nako yona yeo (**setheo sa kgato ya maleba**).

Session 5: Planning for teaching **1 hour**

Dinoutse tša monolofatši

- Refer participants to Appendix A: Term 1 Weekly Content Summary (Weeks 6–9).
- Read the whole class, teacher-guided and workstation activities sections.
- Have participants work in groups to complete **Activity 14**.

Term 1 Content Summary (Weeks 6–9)

Appendix A: Term 1 Weekly Content Summary (Weeks 6–9) outlines the main Content Area Focus for each week, the topics to be covered, the new knowledge and practise focus for each week, and suggested activities for whole class, teacher-guided and independent group work for the week.

Activity 14

Look at Appendix A: Term 1 Weekly Content Summary (Weeks 6–9). Answer the questions.

Questions	Week 6	Week 7	Week 8	Week 9
What is the Content Area Focus for the week?	Patterns, Functions and Algebra	Space and Shape (Geometry)	Measurement	Numbers, Operations and Relationships
What are the key concepts that learners will be learning?	Patterns Number 3 Sequencing numbers	2-D shapes Figure ground Position Oral counting	Length/height Time	Estimation More and less Position Problem solving
What new knowledge is introduced?	Identifying patterns Copying patterns Number 3 Sequencing numbers 1–3	2-D triangles Figure ground Position: in front of, behind	Sequencing time: day and night; light and dark Length: height chart Position: on, under, on top Counting backwards 5–1	Estimation Numbers in familiar contexts One more, one less Position: up/down
What skills are being practised?	Oral counting 1–5 Counting objects 1–5 Reinforce number concepts 1 and 2	Circle, square Counting objects 1–5 Reinforce number concept 1–3 Sequence numbers 1–3 Symmetry Big, small	Oral counting 1–10 Sequencing numbers 1–3 Counting objects 1–5 Reinforce 1–3	Oral counting 1–10 Counting backwards from 5 Sequence numbers 1–3 Count objects 1–5 Number concept 1–3 Problem solving Circle, square, triangle

Thuto ya 5: Go beakanyetša go ruta

Iri ye 1

Dinoutse tša monolofatši

- Bontšha batšeakarolo go Mamatletšo ya A: Kotara ya 1 Kakaretšo ya Diteng ya Beke ka Beke (Dibeke tša 6–9).
- Bala dikarolo tša mešongwana ya barutwana ka moka, ya go hlahlwa ke morutiši le ya mafelong a go šomela.
- Laela batšeakarolo gore ba dire **Mošongwana wa 14** ka dihlopha.

Kakaretšo ya Diteng ya Kotara ya 1 (Dibeke tša 6–9)

Mamatletšo ya A: Kotara ya 1 Kakaretšo ya Diteng ya Beke ka Beke (Dibeke tša 6–9) e laetša Nepišokgolo ya Karolo ya Diteng ya beke ye nngwe le ye nngwe, dihlogotaba tše di tlogo akaretšwa, tsebo ye mpsha le nepišo ya go ikatiša ya beke ye nngwe le ye nngwe, le mešongwana ye e šišintšwego ya barutwana ka moka, ya go hlahlwa ke morutiši le mošomo wa sehlopha ntle le tlhahlo wa beke.

Mošongwana wa 14

Lebelela Mamatletšo ya A: Kotara ya 1 Kakaretšo ya Diteng ya Beke ka Beke (Dibeke tša 6–9). Araba dipotšišo.

Dipotšišo	Beke ya 6	Beke ya 7	Beke ya 8	Beke ya 9
Nepišo ya Karolo ya Diteng ya beke ke efe?	Dipatrone, Difankšene le Altšebra	Sekgoba le Sebopego (Tšeometri)	Kelo	Dinomoro, Tirišo le Tswalano
Barutwana ba tlo ithuta mareokgolo afe?	Dipatrone Nomoro 3 Go latelanya dinomoro	Dibopego tša 2-D Temogo Maemo Go balela godimo	Botelele Nako	Akanya Ntši le nnyane Maemo Tharollo ya mathata
Go tsebišwa tsebo efe ye mpsha?	Hlatha dipatrone Kopolla dipatrone Nomoro 3 Go latelanya dinomoro 1–3	Dikhutlotharo tša mahlakorepedi Temogo Maemo: pele ga le ka morago	Go latelanya nako: mosegare le bošego; seetša le leswiswi Botelele: tšhate ye telele Maemo: go, ka tlase, godimo ga Go balela morago 5–1	Akanya Dinomoro ka kamano ya go tlwaelega Ntši ka tee, nnyane ka tee Maemo: godimo/tlase
Go ikatišwa mabokgoni afe?	Go balela godimo 1–5 Go bala dilo 1–5 Go gatelela mareo a dinomoro 1 le 2	Sediko, sekwere Go bala dilo 1–5 Go gatelela mareo a dinomoro 1–3 Go latelanya dinomoro 1–3 Lekanela Kgolo, nnyane	Go balela godimo 1–10 Go latelanya dinomoro 1–3 Go bala dilo 1–5 Go gatelela 1–3	Go balela pele 1–10 Go balela morago go tloga go 5 Go latelanya 1–3 Go bala dilo 1–5 Morero wa dinomoro 1–3 Tharollo ya mathata Sediko, sekwere, khutlotharo

Activity Guide: Term 1: Weeks 6, 7, 8 and 9

Refer to Weeks 6, 7, 8 and 9 in *Activity Guide: Term 1*. Complete Activity 15 in your group.

Activity 15

Find Weeks 6, 7, 8 and 9 in *Activity Guide: Term 1*. Answer the questions.

1. What is the Content Area Focus for each week?
2. What topics and new knowledge are taught in each week?
3. How does the 'Practise' content link to the previous week?
4. What do you need to get ready before teaching each week?
5. Read the whole class activities and small group activities.
6. Discuss in your small group how you will plan and organise your class for these four weeks of teaching.

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

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

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

Closing activities

Facilitator's notes

- **Lessons learnt:** Ask participants to think about what they have learnt during the workshop and to complete **Activity 16** individually.
- **Take back to school task:** Read through this task. Ask if there is anything that is not clear and that requires more explanation.
- **Evaluation:** Hand out copies of the Workshop Evaluation Form and have participants complete the form.
- **Next workshop:** Give dates for the next workshop and close the workshop.

Pukutlhahlo ya Mareo: Kotara ya 1: Dibeke tša 6, 7, 8 le 9

Lebelela Dibeke tša 6, 7, 8 le 9 ka go *Pukutlhahlo ya Mešongwana: Kotara ya 1*. Dira Mošongwana wa 15 sehlopheng sa gago.

Mošongwana wa 15

Hwetša Dibeke tša 6, 7, 8 le 9 ka go *Pukutlhahlo ya Mešongwana: Kotara ya 1*. Araba dipotšišo.

1. Nepišo ya Karolo ya Diteng ya beke ye nngwe le ye nngwe ke efe?
2. Go rutwa dihlogotaba dife le tsebo efe ye mpsha bekeng ye nngwe le ye nngwe?
3. Diteng tša 'Go ikatiša' di tswalana bjang le beke ya go feta?
4. O hloka go itokiša bjang pele o ruta beke ye nngwe le ye nngwe?
5. Bala mešongwana ya barutwana ka moka le mešongwana ya sehlopha se sennyane.
6. Mo sehlopheng se sennyane bolelang gore le tlo beakanya le go rulaganya phapoši bjang mo dibekeng tše nne tša go ruta.

Ka Mphatong wa R go dirwa tekolo ye e sego ya semmušo ye e tšwelago pele. Re swanetše go lebelela barutwana letšatši ka moka, ka gare le ka ntle ga phapoši. Aekhone ya leihlo e re gopotša gore re hloka go hlokomela barutwana ge ba šoma, ebile re hloka go ba theeletša ka hlokomelo ge ba bolela le rena le barutwana ba bangwe.

Lenaneo la Dipalo le diretšwe go fana sebaka ga dihlopha tše nnyane mo bekeng gomme morutiši o fa sehlopha se setee šedi ya go kgethega ka letšatši, a bogetše le go theeletša barutwana ge ba dira mošomo wo itšego. Nako ye e fa morutiši monyetla wa go lebelela morutwana yo mongwe le yo mongwe gabotse le go kgoboketša tshedimošo ya tšwelopele ya bona.

Lebelela poloko ya go fifatšwa mafelelong a mošongwana wa go hlahlwa ke morutiši: '**Lekola gore barutwana ba kgona go**'. Morutiši o swara tše a di bonago ka ga morutwana yo mongwe le yo mongwe ka hlogong gomme ge barutwana ba ile gae, o ngwala se a se bonego ka pukung ya temogo ya go ba le sekgoba sa morutwana yo mongwe le yo mongwe.

Mešongwana ya go tswalela

Dinoutse tša monolofatši

- **Thuto ye go ithutilwego yona:** Kgopela batšeakarolo go nagana ka se ba ithutilego sona ka thutofatlhošong le go feleletša **Mošongwana wa 16** ka o tee ka o tee.
- **Mošomo wo o tlo boelago le wona sekolong:** Bala mošomo wo. O botšiše ge go na le seo se sa kwagalego gabotse sa go nyaka tlhalošo ye ntši.
- **Tekolo:** Aba dikhophi tša Foromo ya Tekolo ya Thutofatlhošo gomme batšeakarolo ba e tlatše.
- **Thutofatlhošo ya go latela:** Efa matšatšikgwedi a thutofatlhošo ye e latelago gomme o tswalele thutofatlhošo.

Activity 16

Lessons learnt: Think about what you learnt during the workshop and complete the table.

Things I am already doing that work well	New ideas that I would like to try

Take back to school task

1. Read the *Concept Guide* pages that were referred to during this workshop.
2. Use *Activity Guide: Term 1* to plan and implement Weeks 6–9 of the Maths Programme, including creating a maths area with a focus on the concept for each week.
3. Write an evaluation of what worked well and what did not work so well. Bring your plan and evaluation to the next workshop.
4. Bring examples or photographs of work that learners did.

Evaluation

Complete the Evaluation Form.

Mošongwana wa 16

Dithuto tše go ithutilwego tšona: Nagana ka se o ithutilego sona ka thutofatlhošong gomme o feleletše tafola.

Dilo tše ke di dirago tše di šomago gabotse	Dikgopolo tše diswa tše ke ratago go di leka

Mošomo wo o tlo boelago le wona sekolong

1. Bala matlakala a *Pukutlhahlo ya Mareo* ao a šupeditšwego ka nako ya thutofatlhošo ye.
2. Diriša *Pukutlhahlo ya Mešongwana: Kotara ya 1* go beakanya le go phethagatša Dibeke tša 6–9 tša Lenaneo la Dipalo, go akaretšwa le go hlama karolo ya dipalo ya go nepiša lereo la beke ye nngwe le ye nngwe.
3. Ngwala tekolo ya tše di šomilego gabotse le tše di sa šomago gabotse. Etla le peakanyo ya gago le tekolo thutofatlhošong ye e latelago.
4. Etla le mehlala goba dinepe tša mešomo ye e dirilwego ke barutwana.

Tekolo

Tlatša Foromo ya Tekolo.

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

Term 1: Activity Plan

<table>
<tr><th colspan="5">Week 6</th></tr>
<tr><td colspan="5">CONTENT AREA: PATTERNS, FUNCTIONS and ALGEBRA</td></tr>
<tr><td colspan="5">TOPIC: Geometric patterns
INTRODUCE NEW KNOWLEDGE: Identify patterns, copy patterns, complete patterns, introduce number 3, sequencing numbers 1–3. Making groups the same.
PRACTISE: Oral counting 1–5, counting objects 1–5, number concept 1 and 2, circle, square, big and small, forwards and backwards</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Introduce number 3 number frieze story.</td><td rowspan="5">Play a movement game using symbols 1 and 2.
Match and order dot picture/number cards 1–3.
Simple pattern using counters. Discuss the pattern, use counters to copy the pattern.
Problem solving 1–3. Making groups the same.</td><td>Activity 1</td><td>Frame a picture using pattern and draw three objects.</td></tr>
<tr><td>Day 2</td><td>Uses different sized and coloured circles to make simple patterns. Discuss patterns (repetition, differences, similarities).</td><td>Activity 2</td><td>Fingerprint counting.</td></tr>
<tr><td>Day 3</td><td>Body percussion patterns and problem solving.</td><td>Activity 3</td><td>Pattern cards using counters and sticks.</td></tr>
<tr><td>Day 4</td><td>Using big and small circles and objects to make simple patterns. Identify patterns in classroom.</td><td>Activity 4</td><td>Template with playdough – make 3.</td></tr>
<tr><td>Day 5</td><td>Problem solving 1–3. Making groups the same.</td><td></td><td></td></tr>
<tr><th colspan="5">Week 7</th></tr>
<tr><td colspan="5">CONTENT AREA: SPACE and SHAPE (GEOMETRY)</td></tr>
<tr><td colspan="5">TOPIC: Recognise, identify and name 2-D shapes: triangle; describe and compare 3-D objects and 2-D shapes: triangles; sort 2-D shapes; figure ground; symmetry
INTRODUCE NEW KNOWLEDGE: Triangle; figure ground; position (in front and behind); oral counting 1–10
PRACTISE: Oral counting 1–10, sequencing number 1–3, counting objects 1–5, reinforce number concept 1–3, what number before/after, circle, square, symmetry, big and small</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Introduce triangle and its properties.</td><td rowspan="5">Oral counting.
Touch and count using number towers 1–3 (Unifix blocks).
One-to-one correspondence.
Properties of a triangle (2-D).
Sort and compare 3-D objects and 2-D shapes into two groups, one of triangles and one not triangles.</td><td>Activity 1</td><td>Triangle activity – cut and decorate four triangles.</td></tr>
<tr><td>Day 2</td><td>Identify triangle shapes in Poster Book, problem solving.</td><td>Activity 2</td><td>Butterfly prints – symmetry.</td></tr>
<tr><td>Day 3</td><td>In front of and behind; midline crossing.</td><td>Activity 3</td><td>Shape person – use pre-cut shapes.</td></tr>
<tr><td>Day 4</td><td>Compare biggest and smallest. Bigger and smaller.</td><td>Activity 4</td><td>Shape puzzles – (minimum six pieces).</td></tr>
<tr><td>Day 5</td><td>Symmetry.</td><td></td><td></td></tr>
</table>

MAMATLETŠO YA A: KOTARA YA 1 KAKARETŠO YA DITENG YA BEKE KA BEKE (DIBEKE TŠA 6–9)

Kotara ya 1: Peakanyo ya Mošongwana

<table>
<tr><th colspan="4">Beke ya 6</th></tr>
<tr><td colspan="4">KAROLO YA DITENG: DIPATRONE, DIFANKŠENE le ALTŠEBRA</td></tr>
<tr><td colspan="4">HLOGOTABA: Dipatrone tša tšeometri
TSEBIŠA TSEBO YE MPSHA: Hlatha dipatrone, kopisa dipatrone, feleletša dipatrone, tsebiša nomoro 3, go latelanya dinomoro 1–3. Go dira gore dihlopha di swane.
GO IKATIŠA: Go balela godimo 1–5, go bala dilo 1–5, lereo la nomoro 1 le 2, sediko, sekwere, kgolo le nnyane, pele le morago</td></tr>
<tr><th colspan="2">Mešongwana ya barutwana ka moka</th><th>Mošomo wa go hlahlwa ke morutiši</th><th colspan="2">Mešongwana ya mafelong a go šomela</th></tr>
<tr><td>Letšatši la 1</td><td>Tsebiša kanegelo ya tšhate ya tlotlontšu le dinomoro ya nomoro 3.</td><td rowspan="5">Bapala moraloko wa mosepelo ka maswao a 1 le 2.
Tswalanya o be o latelanye dikarata tša seswantšho sa lerontho/nomoro 1–3.
Dipatrone tše bonolo o diriša dibaledi. Ahlaahlang patrone, kopisa patrone ka dibaledi.
Tharollo ya mathata 1–3. Go dira gore dihlopha di swane.</td><td>Mošongwana wa 1</td><td>Direla seswantšho foreime ka patrone o be o thale dilo tše tharo.</td></tr>
<tr><td>Letšatši la 2</td><td>Dira dipatrone tše bonolo ka didiko tša bogolo le mebala ya go fapana. Ahlaahlang dipatrone (poeletšo, diphapano, tša go swana).</td><td>Mošongwana wa 2</td><td>Go bala kgatišo ya monwana.</td></tr>
<tr><td>Letšatši la 3</td><td>Dipatrone tša tšhomišo ya ditho tša mmele go tšweletša modumo le tharollo ya mathata.</td><td>Mošongwana wa 3</td><td>Dikarata tša patrone ka dibaledi le dikotana.</td></tr>
<tr><td>Letšatši la 4</td><td>Go dira dipatrone tše bonolo ka didiko tše dikgolo le tše dinnyane le dilo. Hlatha dipatrone ka phapošing.</td><td>Mošongwana wa 4</td><td>Dithempoleiti tša tlhama – dira tše 3.</td></tr>
<tr><td>Letšatši la 5</td><td>Tharollo ya mathata 1–3. Go dira gore dihlopha di swane.</td><td></td><td></td></tr>
<tr><th colspan="4">Beke ya 7</th></tr>
<tr><td colspan="4">KAROLO YA DITENG: SEKGOBA le SEBOPEGO (TŠEOMETRI)</td></tr>
<tr><td colspan="4">HLOGOTABA: Lemoga, hlatha o be o bolele maina a dibopego tša mahlakorepedi: khutlotharo; hlaloša o be o bapetše dilo tša mahlakoretharo le dibopego tša mahlakorepedi: dikhutlotharo; hlaola dibopego tša mahlakorepedi; temogo; go lekanela
TSEBIŠA TSEBO YE MPSHA: Khutlotharo; temogo; boemo (ka pele le ka morago); go balela godimo 1–10
GO IKATIŠA: Go balela godimo 1–10, go latelanya nomoro 1–3, go bala dilo 1–5, gatelela lereo la nomoro 1–3, nomoro efe pele ga/ka morago ga, sediko, sekwere, go lekanela, kgolo le nnyane</td></tr>
<tr><th colspan="2">Mešongwana ya barutwana ka moka</th><th>Mošomo wa go hlahlwa ke morutiši</th><th colspan="2">Mešongwana ya mafelong a go šomela</th></tr>
<tr><td>Letšatši la 1</td><td>Tsebiša khutlotharo le dipharologantšho tša yona.</td><td rowspan="5">Go balela godimo.
Swara o be o bale o diriša ditora tša dinomoro 1–3 (dipoloko tša Unifix).
Tee-ka-tee tša go swana.
Dipharologantšho tša khutlotharo (2-D).
Hlaola o be o bapetše dilo tša mahlakoretharo le dibopego tša mahlakorepedi ka dihlopha tše pedi, se setee sa dikhutlotharo gomme se sengwe e se be sa dikhutlotharo.</td><td>Mošongwana wa 1</td><td>Mošongwana wa khutlotharo – ripa o be o kgabiše dikhutlotharo tše nne.</td></tr>
<tr><td>Letšatši la 2</td><td>Hlatha dibopego tša khutlotharo ka Pukung ya Diphoustara, tharollo ya mathata.</td><td>Mošongwana wa 2</td><td>Dikgatišo tša dirurubele – go lekanela.</td></tr>
<tr><td>Letšatši la 3</td><td>Pele ga le ka morago ga; mothaladigare wa go putla.</td><td>Mošongwana wa 3</td><td>Motho wa dibopego – diriša dibopego tše di ripilwego.</td></tr>
<tr><td>Letšatši la 4</td><td>Bapetša kgolo ka go fetiša le nnyane ka go fetiša. Kgolonyana le nnyane nnyane.</td><td>Mošongwana wa 4</td><td>Marara a dibopego – (bonnyane diripa tše tharo).</td></tr>
<tr><td>Letšatši la 5</td><td>Go lekanela.</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="5">Week 8</th></tr>
<tr><td colspan="5">CONTENT AREA: MEASUREMENT</td></tr>
<tr><td colspan="5">TOPIC: Time: day and night; Length: compare and order objects to describe height
INTRODUCE NEW KNOWLEDGE: Sequencing day and night, light and dark; height chart; position (on, under, on top, below, next to, between); counting backwards 5–1
PRACTISE: Oral counting 1–10, counting backwards from 5, sequencing numbers 1–3, counting objects 1–5, reinforce number concept 1–3, patterns</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Day and night; light and dark.</td><td rowspan="5">Routine introduction.
Day and night; dark and light activities:
- blanket
- activity cards.
Day and night story and sequencing.
Position (on, under, below, on top, next to, between).
Pattern (animals).
Height chart.</td><td>Activity 1</td><td>Day and night activity – cutting out pictures.</td></tr>
<tr><td>Day 2</td><td>Introduce height chart; position vocabulary.</td><td>Activity 2</td><td>Draw from shortest to tallest.</td></tr>
<tr><td>Day 3</td><td>Height chart. Sorting day and night everyday objects.</td><td>Activity 3</td><td>Paste shapes from biggest to smallest.</td></tr>
<tr><td>Day 4</td><td>Poster – Day and night. Positional vocabulary: on, under, below and on top.</td><td>Activity 4</td><td>Day/night matching cards.</td></tr>
<tr><td>Day 5</td><td>Compare heights.
Movement-positions.</td><td></td><td></td></tr>
<tr><th colspan="5">Week 9</th></tr>
<tr><td colspan="5">CONTENT AREA: NUMBERS, OPERATIONS and RELATIONSHIPS</td></tr>
<tr><td colspan="5">TOPIC: Describe, order and compare numbers; estimation; problem-solving techniques; using numbers in familiar contexts; position
INTRODUCE NEW KNOWLEDGE: Estimation, numbers in familiar contexts, one more, one less, position (up/down)
PRACTISE: Oral counting 1–10, counting backwards from 5, sequencing numbers 1–3, counting objects 1–5, number concept 1–3, problem-solving techniques. Circle, square and triangle.</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Describe and order numbers 1–3.</td><td rowspan="5">Oral counting.
One-to-one correspondence.
Describe and order numbers 1–3.
Estimation.
Shake and break.</td><td>Activity 1</td><td>Playdough making 1–3 objects.</td></tr>
<tr><td>Day 2</td><td>Matching number representations 1–3.
Estimation.</td><td>Activity 2</td><td>Draw pictures 1–3 in shapes.</td></tr>
<tr><td>Day 3</td><td>Counting – one more/one less.
Position: up and down.</td><td>Activity 3</td><td>Pasting. Picture with three stars, two trees, one moon.</td></tr>
<tr><td>Day 4</td><td>Problem solving (more/less). Poster 1.</td><td>Activity 4</td><td>Puzzles (minimum six piece).</td></tr>
<tr><td>Day 5</td><td>Using number in familiar context: How old are you?</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="5">Beke ya 8</th></tr>
<tr><td colspan="5">KAROLO YA DITENG: KELO</td></tr>
<tr><td colspan="5">HLOGOTABA: Nako: mosegare le bošego; Botelele: hlaloša botelele ka go bapetša le go latelanya dilo
TSEBIŠA TSEBO YE MPSHA: Go latelanya mosegare le bošego, lesedi le leswiswi; tšhate ye telele; boemo (go, ka tlase, godimo, ka tlase, kgauswi le, gare ga); go balela morago 5–1
GO IKATIŠA: Go balela godimo 1–10, go balela morago go thoma ka 5, go latelanya dinomoro 1–3, go bala dilo 1–5, gatelela mareo a dinomoro 1–3, dipatrone</td></tr>
<tr><th colspan="2">Mešongwana ya barutwana ka moka</th><th>Mošomo wa go hlahlwa ke morutiši</th><th colspan="2">Mešongwana ya mafelong a go šomela</th></tr>
<tr><td>Letšatši la 1</td><td>Mosegare le bošego; lesedi le leswiswi.</td><td rowspan="5">Tsebišo ya go itlwaetša ditlwaelo.
Mosegare le bošego; mešongwana ya lesedi le leswiswi:
- kobo
- dikarata tša mešongwana.
Kanegelo ya mosegare le bošego le go latelanya.
Boemo (go, ka tlase, ka tlase, ka godimo, kgauswi le, gare ga).
Patrone (diphoofolo).
Tšhate ye telele.</td><td>Mošongwana wa 1</td><td>Mošongwana wa mosegare le bošego – go ripa diswantšho.</td></tr>
<tr><td>Letšatši la 2</td><td>Tsebiša tšhate ye telele; tlotlontšu ya boemo.</td><td>Mošongwana wa 2</td><td>Thala go thoma ka ye telele ka go fetiša go fihla ka ye kopana ka go fetiša.</td></tr>
<tr><td>Letšatši la 3</td><td>Tšhate ye telele. Go hlaola dilo tša tšatši ka tšatši tša mosegare le bošego.</td><td>Mošongwana wa 3</td><td>Kgomaretša dibopego go thoma ka ye kgolo ka go fetiša go fihla ka ye nnyane ka go fetiša.</td></tr>
<tr><td>Letšatši la 4</td><td>Phoustara – Mosegare le bošego. Tlotlontšu ya boemo: go, ka tlase ga, ka tlase le ka godimo.</td><td>Mošongwana wa 4</td><td>Dikarata tša go tswalana tša mosegare/bošego.</td></tr>
<tr><td>Letšatši la 5</td><td>Bapetša botelele.
Boemo bja mesepelo.</td></tr>
<tr><th colspan="5">Beke ya 9</th></tr>
<tr><td colspan="5">KAROLO YA DITENG: DINOMORO, TIRIŠO le TSWALANO</td></tr>
<tr><td colspan="5">HLOGOTABA: Hlaloša, latelanya o be o bapetše dinomoro; kakanyo; mekgwa ya go rarolla mathata; go diriša dinomoro dikamanong tša go tlwaelega; boemo
TSEBIŠA TSEBO YE MPSHA: Kakanyo, dinomoro tša dikamano tša go tlwaelega, ntši ka tee, nnyane ka tee, boemo (godimo/tlase)
GO IKATIŠA: Go balela godimo 1–10, go balela morago go thoma ka 5, go latelanya dinomoro 1–3, go bala dilo 1–5, lereo la nomoro 1–3, mekgwa ya go rarolla mathata. Sediko, sekwere le khutlotharo.</td></tr>
<tr><th colspan="2">Mešongwana ya barutwana ka moka</th><th>Mošomo wa go hlahlwa ke morutiši</th><th colspan="2">Mešongwana ya mafelong a go šomela</th></tr>
<tr><td>Letšatši la 1</td><td>Hlaloša o be o latelanye dinomoro 1–3.</td><td rowspan="5">Go balela godimo.tee-ka-tee tša go swana
Hlaloša o be o latelanye dinomoro 1–3.
Kakanyo.
Šikinya o be o robaganye.</td><td>Mošongwana wa 1</td><td>Tlhama ya go dira dilo tše 1–3.</td></tr>
<tr><td>Letšatši la 2</td><td>Go bapetša dikemedi tša dinomoro 1–3.
Kakanyo.</td><td>Mošongwana wa 2</td><td>Thala diswantšho tše 1–3 ka dibopego.</td></tr>
<tr><td>Letšatši la 3</td><td>Go bala – ntši ka tee/nnyane ka tee.
Boemo: godimo le tlase.</td><td>Mošongwana wa 3</td><td>Go kgomaretša. Seswantšho sa dinaledi tše tharo, mehlare ye mebedi, ngwedi o tee.</td></tr>
<tr><td>Letšatši la 4</td><td>Tharollo ya mathata (ntši/nnyane). Phoustara ya 1.</td><td>Mošongwana wa 4</td><td>Marara (bonnyane diripa tše tshela).</td></tr>
<tr><td>Letšatši la 5</td><td>Go diriša dinomoro dikamanong tša go tlwaelega: O na le mengwaga ye mekae?</td></tr>
</table>

Workshop 3 Evaluation Form

1. Did the workshop meet your expectations?

_____
_____
_____
_____

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

_____
_____
_____
_____

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

_____
_____
_____
_____

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

_____
_____
_____
_____

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

_____
_____
_____
_____

Foromo ya Tekolo ya Thutofatlhošo ya 3

1. Na thutofatlhošo e fihleletše tše o bego o di lebeletše?

_____
_____
_____
_____

2. O ithutile eng go thutofatlhošo ye se se go thušitšego kudu?

_____
_____
_____
_____

3. Go na le se o se go wa se rata goba o sa se kwešiše go?

_____
_____
_____
_____

4. O tlo phethagatša se o ithutilego sona bjang phapošing ya gago ya Mphato wa R?

_____
_____
_____
_____

5. Go na le tše o di šišinyago go kaonafatša dithutofatlhošo tše di latelago?

_____
_____
_____
_____