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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 9 • Workshop 9
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 badirišanimogo 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 mašelang 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.



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Contents

Overview

Purpose	page 6
Learning outcomes	page 6
Workshop content	page 6
Preparation	page 8
Materials	page 8

Workshop content

Opening and reflection	page 10
Session 1: Numbers, Operations and Relationships	page 16
Session 2: Numbers, Operations and Relationships (continued)	page 26
Session 3: Calculation in Grade R	page 30
Session 4: Planning for teaching	page 38
Closing activities	page 42
Appendix A: Term 3 Weekly Planning Template	page 46
Workshop 9 Evaluation Form	page 54

Diteng

Kakaretšo

Morero	letlakala la 7
Dineo tša thuto	letlakala la 7
Diteng tša thutofatlhošo	letlakala la 7
Peakanyo	letlakala la 9
Didirišwa	letlakala la 9

Diteng tša thutofatlhošo

Pulo le go naganiša	letlakala la 11
Thuto ya 1: Dinomoro, Tirišo le Tswalano	letlakala la 17
Thuto ya 2: Dinomoro, Tirišo le Tswalano (e tšwela pele)	letlakala la 27
Thuto ya 3: Go hlakantšha dipalo ka Mphatong wa R	letlakala la 31
Thuto ya 4: Go beakanyetša go ruta	letlakala la 39
Mešongwana ya go tswalela	letlakala la 43

Mamatletšo ya A: Thempoleiti ya Peakanyo ya Beke ka Beke ya Kotara

ya 3	letlakala la 47
Foromo ya Tekolo ya Thutofatlhošo ya 9	letlakala la 55

Overview

Purpose

This is the ninth 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 continue assisting teachers to implement the Maths Programme in their classrooms. Participants will have the opportunity to reflect on their implementation of the Maths Programme and discuss their planning, teaching and assessment. They will also consider learner progress, and individual developmental and learning needs. Participants will reflect on appropriate assessment strategies for capturing learner progress. The workshop explores the content for Term 3 Weeks 7–10 and its classroom implementation.

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

Learning outcomes

- ◆ To reflect on the implementation of Term 3 Weeks 4–6
- ◆ To explore play-based strategies to support teaching maths in Grade R
- ◆ To deepen understanding of number concept in the Numbers, Operations and Relationships Content Area and to link these to the implementation of maths in the Grade R classroom
- ◆ To deepen understanding of appropriate assessment in Grade R
- ◆ To reflect on challenges and find solutions to implementing the Maths Programme
- ◆ To map out the Maths Programme content to be taught in Term 3 Weeks 7–10

Workshop content

- ◆ Opening and reflection (1 hour)
 - ◆ Session 1: Numbers, Operations and Relationships (1 hour)
- TEA
- ◆ Session 2: Numbers, Operations and Relationships (continued) (1 hour)
 - ◆ Session 3: Calculation in Grade R (1 hour)
- LUNCH
- ◆ Session 4: Planning for teaching (1½ hours)
 - ◆ Closing activities (30 minutes)

Kakaretšo

Morero

Ye ke thutofatlhošo ya bosenyane 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 hwetša monyetla wa go naganiša ka ga tsela yeo ba phethagatšago Lenaneo la Dipalo gomme ba ahlaahla peakanyo, go ruta le tekolo. Ba tlo nagana le ka tšwelopele ya morutwana, le ditlhoko tša tlabologo le go ithuta ga morutwana. Batšeakarolo ba tlo naganiša ka ga mekgwa ya tekolo ya maleba ya go rekhota tšwelopele ya morutwana. Thutofatlhošo e hlohlomiša diteng tša Kotara ya 3 Dibeke tša 7–10 le phethagatšo ya yona ka phapošing.

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 3 Dibeke tša 4–6
- ◆ Go hlohlomiša mekgwa ya go ba le papadi go thekga go ruta dipalo ka Mphatong wa R
- ◆ Go oketša kwešišo ya lereo la nomoro ka go Karolo ya Diteng ya Dinomoro, Tirišo le Tswalano le go tswalanya se le phethagatšo ya dipalo ka phapošing ya Mphato wa R
- ◆ Go oketša kwešišo ya tekolo ya maleba ka Mphatong wa R
- ◆ Go naganiša ka ditlhohlo le go hwetša ditharollo gore go phethagatšwe Lenaneo la Dipalo
- ◆ Go beakanya diteng tša Lenaneo la Dipalo tše di tlo rutwago ka Kotara ya 3 Dibeke tša 7–10

Diteng tša thutofatlhošo

- ◆ Pulo le go naganiša (Iri e 1)
- ◆ Thuto ya 1: Dinomoro, Tirišo le Tswalano (Iri e 1)

TEYE

- ◆ Thuto ya 2: Dinomoro, Tirišo le Tswalano (e tšwela pele) (Iri e 1)
- ◆ Thuto ya 3: Go hlakantšha dipalo ka Mphatong wa R (iri e 1)

MATENA

- ◆ Thuto ya 4: Go beakanyetša go ruta (Iri e 1½)
- ◆ Mešongwana ya go tswalela (Metsotso ye 30)

Preparation

- ◆ PPT welcome and outcomes
- ◆ Familiarise yourself with all the PowerPoints and videos
- ◆ Read:
 - Concept Guide*, pages 138–161
 - Activity Guide: Term 3*, pages 120–185
- ◆ Bring the post box
- ◆ Remind participants to bring their:
 - Concept Guide*
 - Activity Guide: Term 2*
 - Activity Guide: Term 3*
 - Poster Book*
- ◆ Write the following sentences on four large strips of paper:
 - I learnt ...
 - I did not like ...
 - I now understand ...
 - I'm still not clear about ...
- ◆ Cut A4 paper strips for each group.

Materials

- ◆ Flipchart paper, kokis
- ◆ Prestik
- ◆ *A Resource Kit* for each group

Peakanyo

- ◆ PPT kamogelo le dineo
- ◆ Itlwaetše diPowerPoint ka moka ga tšona le dibideo
- ◆ Bala:
 - Pukutlhahlo ya Mareo, matlakala a 138–161*
 - Pukutlhahlo ya Mešongwana: Kotara ya 3, matlakala a 120–185*
- ◆ O tle le lepokisi la poso
- ◆ Gopotša batšeakarolo gore ba tle le:
 - Pukutlhahlo ya Mareo*
 - Pukutlhahlo ya Mešongwana: Kotara ya 2*
 - Pukutlhahlo ya Mešongwana: Kotara ya 3*
 - Puku ya Diphoustara*
- ◆ Ngwala mafoko ao a latelago mesetong ya pampiri ye megolo ye mene:
 - Ke ithutile ...
 - Ga se ke rate ...
 - Bjale ke kwešiša ...
 - Ga ke kwešiše ...
- ◆ Ripela sehlopha se sengwe le se sengwe meseto ya pampiri ya A4.

Didirišwa

- ◆ Pampiri ya tšhate ya go phetla, dikoki
- ◆ Phrestiki
- ◆ *Dithušathuto tša Phapoši tša sehlopha se sengwe le se sengwe*

Opening and reflection

1 hour

Reflection involves thinking and talking about your experiences and what you have learnt. Consider the Maths workshops you have attended and complete the sentences the facilitator displays.

Facilitator's notes

- ◆ PPT: Learning outcomes of the workshop.
- ◆ Put the sentence strips on the wall:
 - I learnt ...
 - I did not like ...
 - I now understand ...
 - I'm still not clear about ...
- ◆ Place A4 paper strips on each table. Participants write their responses to the sentence strips on the A4 paper strips. Use Prestik to display their strips under the relevant sentences.
- ◆ Discuss the post box comments and feedback from the previous workshop. Remind participants to 'post' any new comments and feedback during the workshop.

Reflection on implementation

Facilitator's notes

- ◆ Remind participants of the *Take back to school* task from the end of Workshop 8.
- ◆ Refer participants to **Activity 1** and **2** and read through the instructions. Participants complete the activities in their groups. Groups then share key points with the large group.
- ◆ After the small group discussions, take comments from each group. Summarise the successes and challenges and discuss the implications for classroom implementation.

The *Take back to school* task from Workshop 8, required you to do the following:

- ◆ Use *Activity Guide: Term 3* to plan and implement Term 3 Weeks 4–6 of the Maths Programme.
- ◆ Write comments in the book that you use to keep track of each learner's progress (learner observation book), and use the '**Check that learners are able to**' observation list during each of the teacher-guided activities to guide your observations and comments.
- ◆ Make notes of what worked well, what did not work well and how you resolved any challenges during your implementation of Term 3 Weeks 4–6.

In the next activities make use of your learner observation book and the notes you made when reflecting on each day's teaching.

Pulo le go naganiša

Iri e 1

Go naganiša go akaretša go gopola le go bolela ka maitemogelo a gago le se o ithutilego sona. Gopodišiša dithutofatlhošo tša Dipalo tše o di tsenetšego gomme o tlatše mafoko ao a bontšhitšwego ke monolofatši.

Dinoutse tša monolofatši

- ◆ PPT: Dineo tša thuto tša thutofatlhošo.
- ◆ Bea meseto ya mafoko lebotong:
 - Ke ithutile ...
 - Ga se ke rate ...
 - Bjale ke kwešiša ...
 - Ga ke kwešiše ...
- ◆ Bea meseto ya pampiri ya A4 tafoleng ye nngwe le ye nngwe. Batšeakarolo ba araba meseto ya mafoko mo mesetong ya pampiri ya A4. Diriša Phrestiki go kgomaretša meseto ya bona ka tlase ga mafoko a maleba.
- ◆ Ahlaahlang ditshwayatshwayo tša lepokisi la poso le pego ya dithutofatlhošo tša go feta. O gopotše batšeakarolo go 'posa' ditshwayatshwayo dife goba dife tše diswa le dipego ka nako ya thutofatlhošo.

Go naganiša ka phethagatšo

Dinoutse tša monolofatši

- ◆ Gopotša batšeakarolo ka ga *Mošomo wo o tlo boelago le wona sekolong* wa Thutofatlhošo ya 8.
- ◆ Laela batšeakarolo gore ba lebelele **Mošongwana wa 1 le 2** gomme ba bale ditaelo. Batšeakarolo ba dire mošongwana ka dihlopha. Ka morago dihlopha di abelane dintlhakgolo le sehlopha se segolo.
- ◆ Ka morago ga dipolelišano tša dihlopha tše dinnyane, theeletša ditshwayatshwayo tša sehlopha se sengwe le se sengwe. Akaretša dikatlego le ditlhohlo, gomme le bolele ka fao di tlogo ama phethagatšo ka phapošing.

Mošomo wo o tlo boelago le wona sekolong wa Thutofatlhošo ya 8, o be o nyaka gore o dire tše di latelago:

- ◆ Diriša *Pukutlhahlo ya Mešongwana: Kotara ya 3* go beakanya le go phethagatša Kotara ya 3 Dibeke tša 4-6 tša Lenaneo la Dipalo.
- ◆ Ngwala ditshwayatshwayo ka gare ga puku ye o e dirišago go rekhota tšwelopele ya morutwana yo mongwe le yo mongwe (puku ya tlhokomelo ya morutwana), gape o diriše lenaneo la '**Lekola gore barutwana ba kgona go**' ka nako ya e mengwe ya mešongwana ya go hlahlwa ke morutiši go hlahlwa tlhokomelo le ditshwayatshwayo tša gago.
- ◆ Ngwala tše di šomilego gabotse, le tše di sa šomago gabotse le ka mo o rarolotšego ditlhohlo ka gona ka nako ya ge o be o phethagatša Kotara ya 3 Dibeke 4-6.

Ka mešongwaneg ya go latela o diriše puku ya tlhokomelo ya barutwana le dinoutse tše o di ngwadilego ge o naganiša ka ga go ruta letšatši le lengwe le le lengwe.



Activity 1

1. In your group, share your successes and challenges with implementing the Maths Programme in Term 3 Weeks 4–6. Share strategies for improving teaching and learning for the challenges you identified.

2. Discuss your use of the '**Check that learners are able to**' observation list (in the eye box) during each of the teacher-guided activities.
Show members of your group your learner observation book.
Select one learner and discuss your observations of this learner's progress.

3. Write the main points of your discussion on flipchart paper. Report back on your discussion to the large group.



Video 1

Activity Guide: Term 3, Week 6, Teacher-guided activity (pages 114–117)

Watch the video of a teacher working with a small group of learners during the teacher-guided activity in Term 3 Week 6. The focus of our observation in this workshop is on how the teacher mediates the number activities.

Observe how the teacher works through the six activities. Notice:

- ◆ how she poses problems
- ◆ the language she uses when asking questions
- ◆ how she sets up each activity
- ◆ the questions she asks to guide the learners.



Mošongwana wa 1

1. Ka sehlopha, abelanang ka dikatlego le ditlhohlo tša ge le be le phethagatša Lenaneo la Dipalo la Kotara ya 3 Dibeke tša 4–6. Abelana ka maano a go kaonafatša go ruta le go ithuta go šomana le ditlhohlo tše o di hlathilego.

2. Ahlaahlang ka fao le dirišago lenaneo la tlhokomelo la **'Lekola gore barutwana ba kgona go'** (ka lepokising la leihlo) ka nako ya mešongwana ya go hlahlwa ke morutiši ka moka ga yona.
Bontšha maloko a sehlopha sa gago puku ya gago ya tlhokomelo ya barutwana.
Kgetha morutwana o tee gomme le ahlaahle ka fao le bonago tšwelopele ya morutwana yoo ka gona.

3. Ngwala dintlhakgolo tša dipoledišano tša lena pampiring ya tšhate ya go phetla.
Begela sehlopha se segolo ka ga poledišano ya lena.



Bideo ya 1

Pukutlhahlo ya Mešongwana: Kotara ya 3, Beke ya 6, Mošongwana wa go hlahlwa ke morutiši (matlakala a 114–117)

Bogela bideo ya morutiši a šoma le sehlopha se sennyane sa barutwana ka nako ya mošongwana wa go hlahlwa ke morutiši wa Kotara ya 3 Beke ya 6. Nepišo ya tlhokomelo ya rena thutofatlhošong ye e mo go tsela yeo morutiši a laolago mešongwana ya dinomoro ka yona.

Lebelela ka fao morutiši a dirago mešongwana ye tshela. Ela hloko:

- ◆ ka fao a hlagišago dipalo ka gona
- ◆ leleme le a le dirišago ge a botšiša dipotšišo
- ◆ ka fao a beakanyago mošongwana o mongwe le o mongwe
- ◆ dipotšišo tše a di botšišago go hlahlwa barutwana.



Activity 2

Refer to the teacher-guided activity (pages 114–117) in Week 6 of *Activity Guide: Term 3*.

1. Discuss how you managed this teacher-guided activity with your class.

2. Did you face any challenges? If so, how did you solve them?

Facilitator's notes

Show the video and lead a discussion based on the maths activities and questions. If participants do not mention the following points, add them to the discussion.

- ◆ The activities are short. The teacher doesn't linger unnecessarily when handing out apparatus or talk to one learner for too long. Transitions are quick and the teacher manages the six activities within the allocated time.
- ◆ Both the questions asked and language used are clear and concise.
- ◆ Activities build on previous knowledge and expand new ideas.
- ◆ Listening to and observing **each** learner provides insight into their progress. It helps you to identify their abilities and the gaps in their skill and/or understanding.



Mošongwana wa 2

Lebelela mošomo wa go hlahlwa ke morutiši (matlakaleng a 114–117) Bekeng ya 6
Pukutlhahlo ya Mešongwana: Kotara ya 3.

1. Ahlaahlang ka fao wena le mphato wa gago le dirilego mošomo wa go hlahlwa ke morutiši ka gona.

2. Le kopane le ditlhohlo? Ge go le bjalo, le di rarolotše bjang?

Dinoutse tša monolofatši

Bontšha bideo gomme o ete pele poledišo go ya ka mešongwana ya dipalo le dipotšišo. Ge batšeakarolo ba sa bolele dintlha tše di latelago, di tsenye dipoledišanong.

- ◆ Ke mešongwana ye mekopana, Morutiši ga a senye nako ge a aba didirišwa goba ka go bolela le morutwana o tee sebaka se setelele. O fetela pele ka potlako gomme morutiši o dira mešongwana ye tshela ka nako ye e filwego.
- ◆ Leleme le le dirišitšwego le dipotšišo tše di botšišitšwego di a kwagala ebile ke tše dikopana.
- ◆ Mešongwana e aga godimo ga se morutwana a se tsebago ya oketša tsebo ye mpsha.
- ◆ Go theeletša le go tlhokomela morutwana **yo mongwe le yo mongwe** go neelana ka kwešišo ya tšwelopele ya bona. Se se go thuša go hlatha tše ba di kgonago le dikgoba mabokgoning le/goba kwešišong ya bona.

Session 1: Numbers, Operations and Relationships

1 hour

In previous workshops we have discussed the Numbers, Operations and Relationships Content Area. In this session we will revisit different number topics and expand our discussion to further understand number concept. We will explore the following aspects of number and connect them to classroom practice:

- ◆ oral counting
- ◆ subitising
- ◆ representing number
- ◆ counting objects
- ◆ ordinal numbers
- ◆ calculating.

Oral counting

Facilitator's notes

- ◆ Oral counting involves saying the number words in order. Learners sequence numbers during routine oral counting activities and during transitions. Songs, rhymes and actions make oral counting fun while learning the order of the numbers. Once learners can repeat a sequence of numbers in the correct counting order, they begin to talk about the relationship between the numbers, e.g., which number is before, between or after another number.
- ◆ Choose one group to present their **Activity 3** discussion.

Children learn the correct order of number words as they play, sing, and repeat rhymes.

As we know, oral counting involves saying the number words in order. Learners sequence numbers during routine oral counting activities and during transitions. Songs, rhymes and actions make oral counting fun, but the focus is on the order of the numbers. Once learners can repeat a sequence of numbers in the correct counting order, they begin to talk about the relationship between the numbers, e.g., which number is *before*, *between* or *after* another number.



Activity 3

In your group, discuss how the following activities have promoted learning the sequence of counting words in your class:

- ◆ songs and rhymes
- ◆ number washing line
- ◆ jumping tracks.

Ka dithutofatlhošong tša go feta re boletše ka Karolo ya Diteng ya Dinomoro, Tirišo le Tswalano. Thutong ye re tlo etela dihlogotaba tša dinomoro tša go fapana gape gomme ra godiša poledišano gore re kwešiše lereo la nomoro. Re tlo hlohlomiša dikarolo tše tša nomoro gomme ra di kopanya le katišo ya ka phapošing:

- ◆ go balela godimo
- ◆ temogo
- ◆ kemedi ya palo
- ◆ go bala dilo
- ◆ palogohle
- ◆ go hlakantšha.

Go balela godimo

Dinoutse tša monolofatši

- ◆ Go balela godimo go akaretša go bolela maina a dinomoro ka tatelano. Barutwana ba latelanya dinomoro ge ba itlwaetša ditlwaelo tša mešongwana ya go balela godimo le ka nako ya diphetogo. Dikoša, direto le ditiro di dira gore go balela godimo go thabiše mola ba le gare ba ithuta tatelano ya dinomoro. Ge barutwana ba ka boeletša tatelano ya dinomoro ba bala ka tatelano ya go nepagala, ba thoma go bolela ka tswalano ya dinomoro, mohl, ke nomoro efe ye e tlogo pele, gare goba ka morago ga nomoro ye nngwe.
- ◆ Kgetha sehlopha se setee gore se bege ka ga poledišano ya sona ya **Mošongwana wa 3**.

Ba ithuta tatelano ya go nepagala ya maina a dinomoro ge ba bapala, ba opela, le go boeletša direto.

Bjalo ka ge re tseba, go balela godimo go akaretša go bolela maina a dinomoro ka tatelano. Barutwana ba latelanya dinomoro ge ba itlwaetša ditlwaelo tša mešongwana ya go balela godimo le ka nako ya diphetogo. Dikoša, direto le ditiro di dira gore go balela godimo go thabiše, efela nepišo e mo go tatelano ya dinomoro. Ge barutwana ba ka boeletša tatelano ya dinomoro ba bala ka tatelano ya go nepagala, ba thoma go bolela ka tswalano ya dinomoro, mohl, ke nomoro efe ye e tlogo *pele, gare goba ka morago* ga nomoro ye nngwe.



Mošongwana wa 3

Ka sehlopha, ahlaahlang ka fao mešongwana ye e godišitšego go ithuta tatelano ge go balwa mantšu ka mphatong wa gago:

- ◆ dikoša le direto
- ◆ mothalopalo
- ◆ methaladi ya go taboga.

Facilitator's notes

- ◆ PPT: Different 'meanings' of number and different kinds of numbers.
- ◆ Discuss different 'meanings' of number and different kinds of numbers, and the focus of number in Grade R.



Activity 4

Read the information on pages 138–143 and look at the diagram at the top of pages 144–145 of the *Concept Guide*.

In your group, discuss the following aspects of number:

- ◆ different 'meanings' of number

- ◆ different kinds of numbers

Learners in Grade R work mostly with the whole numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10. (In Grade 1 this is extended to 20 and beyond.) We focus on counting and representing number in different ways and provide opportunities for learners to engage with numbers in different contexts.

Dinoutse tša monolofatši

- ◆ PPT: 'Tlhalošo' ya nomoro ka ditsela tša go fapana le mehuta ya dinomoro ya go fapana.
- ◆ Ahlaahlang 'Kwešišo' ya nomoro ka ditsela tša go fapana le mehuta ya dinomoro ya go fapana, le nepišo ya nomoro ka Mphatong wa R.



Mošongwana wa 4

Bala tshedimošo ye e lego matlakaleng a 138–143 gomme o lebelele seswantšho seo se lego godimo matlakaleng a 144–145 ka go *Pukutlhahlo ya Mareo*.

Ka sehlopha, ahlaahlang dikarolo tša nomoro tše di latelago:

- ◆ 'kwešišo' ya nomoro ka ditsela tša go fapana

- ◆ mehuta ya dinomoro ya go fapana

Barutwana ba Mphato wa R ba šoma kudu ka dipalotlalo 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 le 10. (Ka Mphatong wa 1 di oketšwa go ya go 20 le go feta.) Re nepiša go bala le kemedi ya palo ka ditsela tša go fapana le go neela barutwana menyetla ya go šomana le dinomoro dikamanong tša go fapana.

Subitising

Facilitator's notes

- ◆ Use the dot cards from the *Resource Kit*.
- ◆ Ask participants to tell you 'how many' they see as you flash each dot card quickly:
 - Show a card with 3 dots.
 - Show a card with 2 dots.
 - Hold the above cards alongside each other.
- ◆ Explain what subitising is (*Concept Guide* pages 144–147) and discuss how this skill benefits children as they learn about number:
 - Learners associate number names with small collections.
 - Learners recognise the total in a collection (up to five) without counting.
 - Learners start to recognise that, for example, 'five and one is six'.
 - It builds number sense.
 - Learners understand that a number can be broken down and built up. (These number combinations lay the foundation for bonds.)
 - It builds the memorisation and automation of number facts.
- ◆ Discuss classroom activities that reinforce subitising. These include:
 - dot card activities
 - structure beads
 - dice games
 - dominoes
 - shake-and-break activities.



Activity 5

Observe the facilitator. Each time she/he flashes a card, say as quickly as you can 'how many' dots you see.

1. Did you count each dot one by one? Why not?

2. What do you think the benefit is of reinforcing the skill of subitising?

Temogo

Dinoutse tša monolofatši

- ◆ Diriša dikarata tša maronho tše di lego ka go *Dithušathuto tša Phapoši*.
- ◆ Kgopela batšeakarolo go bolela gore ba bona 'tše kae' ge o fetiša karata ye nngwe le ye nngwe ya maronho ka potlako:
 - Bontšha karata ya maronho a 3.
 - Bontšha karata ya maronho a 2.
 - Swara dikarata tša ka godimo kgauswi le kgauswi.
- ◆ Hlaloša gore temogo ke eng (*Pukutlhahlo ya Mareo* matlakala a 144–147) gomme o hlaloše ka fao mabokgoni a a thušago bana ge ba ithuta ka nomoro:
 - Barutwna aba tswalanya maina a dinomoro le mekgobo ye mennyane.
 - Barutwana ba lemoga palomoka mokgobong (go fihla ka hlano) ntle le go bala.
 - Barutwana ba thoma go lemoga gore, mohlala, 'hlano le tee ke tshela'.
 - E aga kwešišo ya nomoro.
 - Barutwana ba kwešiša gore nomoro e ka aroganywa le go agiwa. (Dikopanyo tše ke motheo wa ditswalano.)
 - E aga go kherema le boitirišo dinneteng tša dinomoro.
- ◆ Ahlaahlang mešongwana ya ka phapošing ya go gatelela temogo. E akaretša:
 - mešongwana ya dikarata tša maronho
 - lenti la pheta
 - meraloko ya letaese
 - ditomino
 - mešongwana ya šikinya o aroganye.



Mošongwana wa 5

Lebelela monolofatši. Nako le nako ge a fetiša karata, bolela gore o bona maronho 'a makae' ka potlako ka mo o ka kgonago.

1. Na o badile maronho ka le tee ka le tee? Ka lebaka la eng?

2. Ke ka lebaka la eng o nagana gore se se thuša go gatelela mabokgoni a temogo?

3. What activities that reinforce the ability to subitise have you used in your Term 1 and 2 maths sessions?

Refer to pages 144–147 of the *Concept Guide*.

Representing number

Facilitator's notes

- ◆ PPT: Animation of the diagram in this section that shows the link between a number and its different representations.
- ◆ Explain the concept of number as detailed below.
- ◆ Explain that learners need to understand each component in order to make the connection between them.
 1. The '5' in the centre of the diagram is the number 5, and this is an abstract idea.
 2. Learners need to be able to represent the concept of 5 as a collection, using concrete manipulatives, like counters, to represent the number 5.
 3. Learners then need to learn that '5' can be written as a symbol and that the symbol 5 also represents the collection (of counters).
 4. Learners then need to learn that the number word 'five' can be written to represent the symbol and the collection.
 5. Finally, learners need to make the connection between these different representations of five to fully understand the concept.

A number is an abstract concept. It is an idea that exists in your head. We can't see numbers, so we have to find different ways to represent (show) the number that is being referred to. Learners need to make the connection between the idea of a number, e.g., 5, and its different representations, like a collection of objects, a symbol, a word. They also need to understand that if we say, 'how many' sweets, claps, houses, birthdays, etc., five always refers to the same number of these things.

Learners need to internalise the 'how muchness' or numerosity of the number. To communicate this concept to learners, teachers need to introduce the idea using concrete objects, for example, counters. To help learners understand the concept of a number, they need to realise that numbers can be represented in different ways. Learners also need to make the connection between different representations of the number, for example an object, picture, symbol and word.

3. O dirile mešongwana efe ya go gatelela bokgoni bja temogo dithutong tša gago tša dipalo Kotareng ya 1 le 2?

Lebelela matlakala a 144–147 ka go *Pukutlhahlo ya Mareo*.

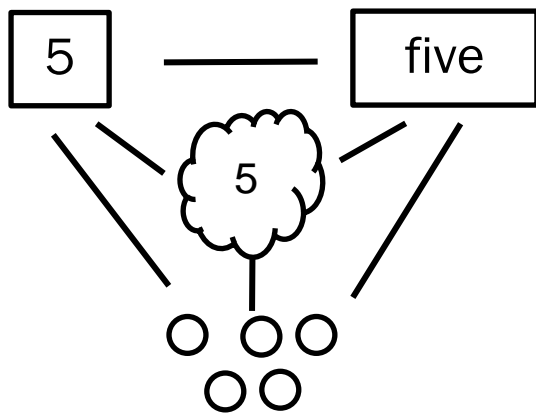
Kemedi ya palo

Dinoutse tša monolofatši

- ◆ PPT: Seswantšho sa go ba le bophelo karolong ye sa go bontšha tswalano gare ga nomoro le dikemedi tša yona tša go fapana.
- ◆ Hlaloša nomoro ya lereo bjalo ka ge go laeditšwe ka fa tlase.
- ◆ Hlaloša gore barutwana ba swanetše go kwešiša karolo ye nngwe le ye nngwe gore ba bone tswalano ya tšona.
 1. '5' gare ga seswantšho ke nomoro 5, se ke kgopolo.
 2. Barutwana ba swanetše go kgona go emela lereo la 5 bjalo ka mokgobo ba diriša dilo tša go swarwa, bjalo ka dibaledi, go emela nomoro 5.
 3. Barutwana ba swanetše go ithuta gore '5' e ka ngwalwa bjalo ka leswao le gore leswao la 5 gape le emela mokgobo (wa dibaledi).
 4. Barutwana gomme ba swanetše go ithuta gore leina la nomoro 'hlano' le ka ngwalwa go emela leswao le mokgobo.
 5. Sa mafelelo, barutwana ba hloka go tswalanya dikemedi tša go fapana tša hlano gore ba kwešiše lereo ka botlalo.

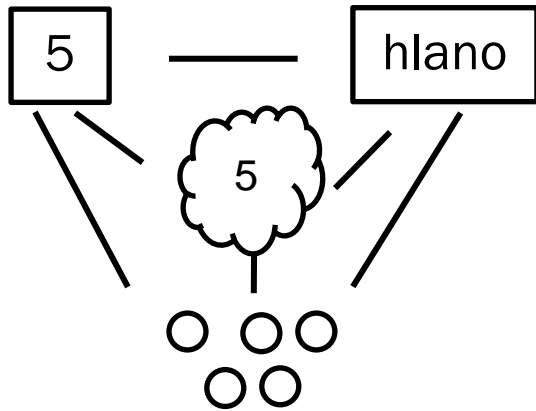
Nomoro ke lereo la kgopolo. Ke kgopolo ye e lego ka hlogong ya gago. Re ka se bone dinomoro, ka fao re swanetše go hwetša ditsela tša go fapana tša go emela (bontšha) nomoro ye e bontšhwago. Barutwana ba hloka go tswalanya kgopolo ya nomoro, mohl, 5, le dikemedi tša yona tša go fapana, bjalo ka mokgobo wa dilo, leswao, leina. Ba hloka le go kwešiša gore ge re re, malekere, mephaphatho, dintlo, matšatši a matswalo, bj.bj., 'a makae' hlano ka mehla e bolela ka palo ya dilo tše ya go swana.

Barutwana ba hloka go tseba 'palo ya dilo' ka hlogo goba dilo tša palo ya go swana. Go botša barutwana ka lereo le, barutiši ba hloka go tsebiša kgopolo ye ka go diriša dilo tša go swarwa, mohlala, dibaledi. Go thuša barutwana gore ba kwešiše lereo la nomoro, ba swanetše go lemoga gore dinomoro di ka emelwa ka ditsela tša go fapana. Barutwana ba hloka le go tswalanya dikemedi tša go fapana tša nomoro, mohlala, selo, seswantšho, leswao le leina.



Facilitator's notes

- ◆ Discuss how the idea of multiple representations informs the methodology of introducing a number through a story in the Maths Programme.
- ◆ Remind participants of the routine used for teaching each number:
 - Number frieze and story: build the house by showing the picture/s, house number, doorbell/s and number word.
 - Matching objects, number symbols, number words and dot cards.



Dinoutse tša monolofatši

- ◆ Ahlaahlang ka fao kgopolo ya dikemedintši e hloago mokgwa wa go tsebiša nomoro ka kanegelo ka Lenaneong la Dipalo.
- ◆ Gopotša batšeakarolo ka ditlwaelo tše di dirišitšwego go ruta nomoro ye nngwe le ye nngwe:
 - Tšhate ya tlotlontšu ya dinomoro le kanegelo: aga ntlo ka go bontšha di/seswantšho, nomoro ya ntlo, di/pele ya lebati le leina la nomoro.
 - Dilo tša go tswalana, maswao a dinomoro, maina a dinomoro le dikarata tša marontho.

Session 2: Numbers, Operations and Relationships (continued)

1 hour

Counting objects

Facilitator's notes

- ◆ Allow 40 minutes for this section of Session 2.
- ◆ PPT: Summarise the counting principles (*Concept Guide* page 148–149). Present them one at a time. These counting principles are the basis of learning to count. Once learners can apply these principles, we can say that they are able to count. Highlight that learners need to be able to demonstrate all five of the counting principles before we can say that they are able count.
- ◆ Ask participants to use the apparatus on the table to demonstrate their understanding of each of the counting principles.
- ◆ To consolidate, demonstrate each principle to the whole group.
- ◆ Discuss the daily classroom activities that reinforce the counting of objects that participants have done in Terms 1 and 2.
- ◆ Read the 'In practice' box on page 150 of the *Concept Guide* to explain how learners progress as they learn to count and combine groups of objects.

To count '**how many**', learners need to realise that each object in a group has a number name and that you count each object only once.

There are five counting principles that describe the process of learning to count. Once learners have understood and can apply all five of these counting principles, we are able to say that they can count.



Activity 6

Read the information on pages 148–151 of the *Concept Guide*.

1. Use the apparatus provided to demonstrate these principles as they are explained in the *Concept Guide*.
2. Discuss each principle in your group and make your own notes in the table below to explain your understanding of each principle.

One-to-one correspondence principle	
Stable order principle	

Thuto ya 2: Dinomoro, Tirišo le Tswalano (e tšwela pele)

Iri e 1

Go bala dilo

Dinoutse tša monolofatši

- ◆ Efa karolo ye ya Thuto ya 2 metsotso ye 40.
- ◆ PPT: Akaretša ditheo tša go bala (*Pukutlhahlo ya Mareo* matlakala a 148–149). Bega ka setheo se setee ka nako. Ditheo tše tša go bala ke motheo wa go ithuta go bala. Ge barutwana ba ka kgona go di diriša, re ka re ba kgona go bala. Laetša gore barutwana ba swanetše go kgona go bontšha ditheo tše hlano ka moka pele re ka re ba kgona go bala.
- ◆ Kgopela batšeakarolo gore ba diriše didirišwa tafoleng go bontšha kwešišo ya bona ya setheo se sengwe le se sengwe sa go bala.
- ◆ Go kopanya, bontšha sehlopha ka moka setheo se sengwe le se sengwe.
- ◆ Ahlaahlang mešongwana ya ka phapošing ya tšatši ka tšatši ya go gatelela go bala dilo ye e dirilwego ke batšeakarolo ka go Kotara ya 1 le 2.
- ◆ Bala lepokisi la 'Go ikatiša' letlakaleng la 151 ka go *Pukutlhahlo ya Mareo* go hlaloša ka fao barutwana ba tšwelago pele ge ba ithuta go bala le go kopanya dihlopha tša dilo.

Go bala gore ke barutwana '**ba bakae**', ba go hloka go lemoga gore selo se sengwe le se sengwe sehlopheng se na le leina la nomoro le gore o bala selo se sengwe le se sengwe gatee fela.

Go na le ditheo tša go bala tše hlano tša go hlaloša tshepedišo ya go ithuta go bala. Ge barutwana ba kwešišitše ebile ba kgona go diriša ditheo tše hlano tše, re ka bolela gore ba ka kgona go bala.



Mošongwana wa 6

Bala tshedimošo ye e lego matlakaleng a 148–151 ka go *Pukutlhahlo ya Mareo*.

1. Diriša didirišwa tše di abilwego go bontšha ditheo tše ge di hlalošwa ka go *Pukutlhahlo ya Mareo*.
2. Ahlaahlang setheo se sengwe le se sengwe sehlopheng sa gago gomme le ngwale dinoutse tafoleng ya ka fase go hlaloša kwešišo ya lena ya setheo se sengwe le se sengwe.

Setheo sa go tswalanya tee-ka-tee	
Setheo sa tatelano	

Cardinal principle	
Abstraction principle	
Order-irrelevance principle	

Ordinal numbers

We have discussed the kinds of numbers that tell you 'how many'. These are called **cardinal numbers**.

There are also numbers that indicate the position of something or someone in a series or order. These are called **ordinal numbers**.

Facilitator's notes

- ◆ Allow 20 minutes for this section of Session 2.
 - ◆ Participants select six animal counters from the *Resource Kit* and arrange these in a row, facing left.
 - ◆ Ask these questions:
 - Which animal is first?
 - Which animal is second?
 - Where is the chicken placed?
 - Which animal is next?
 - What is the colour of the third animal?
- Note: Participants will have different arrangements of animals, so allow them to give answers according to the order of the animals in their arrangement.
- ◆ Ask participants to turn the animals so that they are facing right.
 - ◆ Repeat the above questions.
 - ◆ Discuss how ordinal numbers can be practised during daily routines and activities, e.g., while lining up or when doing outdoor races.
 - ◆ Refer to the number washing line. Ask which number is *first, second, next to, before*.



Activity 7

Arrange the animal counters on your table according to the facilitator's instructions. Answer her/his questions about the position of the animal counters.

Setheo sa palokgoboko	
Setheo sa go nagana/gopola	
Setheo sa go hloka tatelano	

Palogohle

Re boletše ka mehuta ya dinomoro tša go laetša 'tše kae'. Di bitšwa **palokgoboko**.

Go na le dinomoro tša go laetša boemo bja selo goba motho ka tatelano. Di bitšwa **palogohle**.

Dinoutse tša monolofatši

- ◆ Efa karolo ye ya Thuto ya 2 metsotso ye 20.
- ◆ Batšeakarolo ba kgetha dibaledi tša diphoofolo tše tshela ka gare ga *Dithušathuto tša Phapoši* gomme ba di beakanya ka molokoloko, di lebeletše go la ngele.
- ◆ Botšiša dipotšišo tše:
 - Phoofolo ya mathomo ke efe?
 - Phoofolo ya bobedi ke efe?
 - Kgogo e mo kae?
 - Go latela phoofolo efe?
 - Phoofolo ya boraro ke ye bjang ka mmala?

Ela hloko: Batšeakarolo ba beakanya diphoofolo ka ditsela tša go fapana, gomme o ba dumelele go fa dikarabo go ya ka peakanyo ya bona ya tatelano ya diphoofolo.
- ◆ Kgopela batšeakarolo gore ba retolle diphoofolo di lebelele go la go ja.
- ◆ Boeletša dipotšišo tša ka godimo.
- ◆ Ahlaahlang gore go ka ikatišwa palogohle bjang ka nako ya go itlwaetša ya tšatši ka tšatši le ya mešongwana, mohl, ge ba eme mothalading goba ba kitima ka ntle ga phapoši.
- ◆ Ba laele gore ba lebelele mothalopalo. Botšiša gore nomoro ya *mathomo*, ya *bobedi*, ya *kgauswi le*, ya *pele ga* ke efe.



Mošongwana wa 7

Beakanya dibaledi tša diphoofolo tafoleng ya gago go ya ka taelo ya monolofatši. Araba dipotšišo tša gagwe ka ga boemo bja dibaledi tša diphoofolo.

Session 3: Calculation in Grade R

1 hour

Facilitator's notes

- ◆ Discuss calculation in Grade R by summarising the text below.
- ◆ **Activity 8:** Give each small group a different kind of apparatus:
 - counters
 - structure beads
 - dot cards
 - Unifix blocks.Note: You will have more than one group with the same kind of apparatus.
- ◆ After each group has demonstrated, discuss the different ways learners find out about number combinations through building up and breaking down numbers.
- ◆ Point out that understanding numbers greater than 5 is based on number concepts learnt for numbers 5 and less. Reflect on how Terms 1 and 2 have provided experiences for learning about numbers 1–5. This forms the foundation for understanding numbers greater than 5.

Learners need to understand the value of numbers and the relationships between them before they can do operations like addition and subtraction. They need to know, for example, 'how many' three is; 3 comes before 4, after 2 and between 2 and 4; and 3 is one more than 2 and one less than 4.

Working with counters, structure beads, dot cards, and the shake-and-break game provides opportunities for learners to understand that numbers can be built up or broken down. In this way, they gradually recognise that any number is made up of many different combinations of other numbers. For example, number 5 can be made up of:

- ◆ 4 and 1
- ◆ 1 and 1 and 1 and 2
- ◆ 0 and 5.

In Grade R, learners explore different ways of building up and breaking down numbers, and adding and subtracting using counters.



Activity 8

Read the information on pages 154–156 of the *Concept Guide*.

Think about how you have used the materials provided in the Maths Programme to help learners understand number operations (calculations) and relationships. Use the materials to demonstrate this.

Thuto ya 3: Go hlakantšha ka Mphatong wa R

Iri e 1

Dinoutse tša monolofatši

- ◆ Ahlaahlang go hlakantšha ka Mphatong wa R ka go akaretša sengwalwa sa ka tlase.
- ◆ **Mošongwana wa 8:** Efa sehlopha se sengwe le se sengwe se sennyane sedirišwa sa go fapana:
 - dibaledi
 - lenti la pheta
 - dikarata tša marontho
 - dipoloko tša *Unifix*.Ela hloko: 0 tlo ba le dihlopha tša go feta se setee di swere sedirišwa sa go swana.
- ◆ Morago ga gore sehlopha se sengwe le se sengwe se bontšhe, ahlaahlang ditsela tša go fapana tšeo ka tšona barutwana ba hwetšago dikopanyo tša dinomoro ka go aga le go aroganya dinomoro.
- ◆ Bolela gore go kwešiša dinomoro tša go feta 5 go laolwa ke mareo a dinomoro ao go ithutilego ona a nomoro 5 le tša ka tlase ga yona. Naganiša ka fao Kotara ya 1 le 2 di neelanego ka maitemogelo a go ithuta ka dinomoro 1–5. Se ke motheo wa go kwešiša dinomoro tša go feta 5.

Barutwana ba hloka go kwešiša boleng bja dinomoro le ka fao di tswalanego pele ba dira dipalo tša go swana le tša go hlakantšha le go ntšha. Ba hloka go tseba, mohlala, gore ke ditharo 'tše kae'; 3 e tla pele ga 4, ka morago ga 2 le gare ga 2 le 4; le gore 3 e feta 2 ka tee ebile e fetwa ke 4 ka tee.

Go šoma ka dibaledi, lenti la pheta, dikarata tša marontho, le moraloko wa šikinya o aroganye di nea barutwana menyetla ya go kwešiša gore dinomoro di ka agiwa goba tša aroganywa. Ka tsela ye, gannyane-gannyane ba lemoga gore nomoro efe goba efe e dirwa ke dikopanyo tša go fapana tša dinomoro tše dingwe. Mohlala, nomoro 5 e ka dirwa ke:

- ◆ 4 le 1
- ◆ 1 le 1 le 1 le 2
- ◆ 0 le 5.

Ka Mphatong wa R, barutwana ba hlohlomiša ditsela tša go fapana tša go aga le go aroganya, le go hlakantšha le go ntšha ba diriša dibaledi.



Mošongwana wa 8

Bala tshedimošo ye e lego matlakaleng a 154–156 ka go *Pukutlhahlo ya Mareo*.

Nagana ka fao o dirišitšego didirišwa tša ka Lenaneong la Dipalo go thuša barutwana go kwešiša go hlakantšha dipalo (go hlakantšha) le ditswalano. Bontšha se ka didirišwa.

1. How do learners explore the concept of number in the Maths Programme using the materials provided?
2. What questions could you ask that would guide their learning? (Refer to page 156 of the *Concept Guide* for examples of questions.)

Prepare to present your discussion to the whole group.

Word problems

Facilitator's notes

- ◆ Briefly reflect on word problems and questions discussed in Workshop 6. Explain that when we talk about word problems, we are not referring to open-ended questions. Word problems or 'story sums' are situations/contexts that require Grade R learners to apply addition, subtraction, sharing and grouping strategies.
- ◆ In groups, participants solve the word problems in **Activity 9**.
- ◆ For each word problem, discuss their responses to the questions.
- ◆ Remind participants that the language used needs to be simple and clear. The confusion and difficulty that learners experience when solving word problems is often a result of the language structure used to express the problem, rather than a lack of mathematical understanding.

Grade R learners need to orally solve word problems involving addition, subtraction, and equal sharing and grouping. They also need to explain their own reasoning and ways of solving different problems.

Give learners plenty of time to think and let them use real objects (e.g. counters, fingers, structure beads) to solve the problems and check their answers.

When presenting a word problem to learners, it is important to encourage them to:

- ◆ find a strategy to solve the problem
- ◆ explain how they solved the problem
- ◆ say why they think their answer is correct.

Common addition and subtraction contexts can be presented as word problems. The way that the word problem is structured, determines how easy or difficult it is to solve. It is important to use clear, simple language when presenting word problems.

1. Barutwana ba hlohloimiša bjang lereo la nomoro ka Lenaneong la Dipalo ba diriša didirišwa tše go neelanwego ka tšona?
2. O ka ba botšiša dipotšišo dife go hlahla go ithuta ga bona? (Lebelela mehlala ya dipotšišo ka letlakaleng la 157 ka go *Pukutlhahlo ya Mareo*.)

Beakanya ka fao o tlo begelago sehlopha se segolo ka ga poledišano ya lena.

Dipalo tša mantšu

Dinoutse tša monolofatši

- ◆ Naganiša gannyane ka dipalo tša mantšu le dipotšišo tše go boletšwego ka tšona ka Thutofatlhošong ya 6. Hlaloša gore ge re bolela ka dipalo tša mantšu, ga re bolele ka dipotšišo tša go lokologa. Dipalo tša mantšu goba 'dipalo tša dikanegelo' ke mabaka/dikamano tša go nyaka gore barutwana ba Mphato wa R ba diriše maano a go hlakantšha, go ntšha, go aba le go hlopha.
- ◆ Ka dihlopha, batšeakarolo ba šoma dipalo tša mantšu tša **Mošongwana wa 9**.
- ◆ Palong ye nngwe le ye nngwe ya mantšu, ahlaahlang dikarabo tša bona.
- ◆ Gopotša batšeakarolo gore go dirišwa leleme la bonolo la go kwagala. Go tlalelwa le bothata bjo barutwana ba itemogelago bjona ge ba dira dipalo tša mantšu gantši bo hlolwa ke tshamo ya leleme ye e dirišwago go hlagiša palo, e sego go se kwešiše dipalo.

Barutwana ba Mphato wa R ba hloka go dira dipalo tša mantšu tša go akaretša go hlakantšha, go ntšha, go aba ka go lekana le go hlopha. Ba hloka le go hlaloša kgopolo ya bona le tsela ya go šomana le dipalo.

Efa barutwana sebaka se setelele sa go nagana gomme ba diriše dilo tša nnete (mohl, dibaledi, menwana, lenti la pheta) go rarolla bothata le go lekola dikarabo tša bona.

Ge o begela barutwana palo ya mantšu, go bohlokwa go ba hlohleletša go:

- ◆ hwetša leano la go rarolla bothata
- ◆ hlaloša ka fao ba rarolotšego bothata ka gona
- ◆ bolela gore ke ka lebaka la eng ba nagana gore karabo ya bona e nepagetše.

Dikamano tša hlakantšho ya go tlwaelega le ntšho di ka hlagišwa bjalo ka dipalo tša mantšu. Ka fao palo ya mantšu e hlamilwego ka gona, go laola go ba bonolo/bothata go e šoma. Go bohlokwa go diriša leleme le bonolo la go kwagala ge o hlagiša dipalo tša mantšu.

In Workshop 6 we looked at the importance of using clear, simple language and asking appropriate questions during problem-solving activities. We also designed real-world problems in contexts that learners could relate to. In Activity 9, you will discuss problem solving in more detail.



Activity 9

1. Look at the word problems below.
 - ◆ How would you solve each problem?
 - ◆ How do you think your Grade R learners would solve each problem?
 - ◆ Why are some of these problems more difficult than others?
 - ◆ Use the counters on your table to show how learners would solve the problems.

Combine	Separate
Laylah has 6 sweets. Malusi gives her 2 more. How many sweets does Laylah have altogether?	There are 8 sweets. Laylah eats 3 sweets. How many are left for Malusi?
Laylah has 5 sweets. How many more does she need to have 8?	Laylah has 8 sweets. Malusi eats some. There are 4 left. How many did Malusi eat?
Laylah had some sweets. Malusi gives her 2 more. Now she has 8. How many did Laylah start with?	Laylah had some sweets. She gave 6 sweets to Malusi. She has 2 sweets left. How many sweets did she start with?

2. Write a word problem that you could present to your Grade R learners for each of the following:

Ka Thutofatlošong ya 6 re boletše ka bohlokwa bja go diriša leleme le bonolo la go kwagala le go botšiša dipotšišo tša maleba ge go dirwa mešongwana ya tharollo ya mathata. Re hlamilile le mathata a nnete a lefase ka dikamano tšeo barutwana ba tlogo di kwešiša. Ka Mošongwaneng wa 9, le tlo ahlaahla tharollo ya mathata ka botlalo.



Mošongwana wa 9

1. Lebelela dipalo tša mantšu ka fase.
 - ◆ O tla rarolla bothata bjo bongwe le bjo bongwe bjang?
 - ◆ O nagana gore barutwana ba gago ba Mphato wa R ba tla rarolla bothata bjo bongwe le bjo bongwe bjang?
 - ◆ Ke ka lebaka la eng mathata a mangwe a thatafa go feta a mangwe?
 - ◆ Diriša dibaledi tše di lego tafoleng go bontšha gore barutwana ba tla rarolla mathata bjang.

Kopanya	Aroganya
Laylah o na le malekere a 6. Malusi o mo fa a mangwe a 2. Na malekere a Laylah ke a makae ka moka?	Go na le malekere a 8. Laylah o ja malekere a 3. Go šetše a makae a Malusi?
Laylah o na le malekere a 5. O hloka a mangwe a makae gore a be 8?	Laylah o na le malekere a 8. Malusi o ja a mangwe. Go šetše a 4. Malusi o jele a makae?
Layla o be a na le malekere. Malusi o mo fa a mangwe a 2. Bjale o na le a 8. Na Laylah o be a na le a makae mathomong?	Laylah o be a na le malekere. O file Malusi malekere a 6. O šetše ka malekere a 2. O be a na le malekere a makae mathomong?

2. Ngwala palo ya mantšu ye o ka e fago barutwana ba gago ba Mphato wa R ka ye nngwe le ye nngwe ya tše di latelago:

Addition: $4 + 5 =$

Subtraction: $7 - 3 =$

Equal sharing without a remainder: 8 shared between 4 learners

Equal sharing with a remainder: 5 shared between 2 learners

Facilitator's notes

- ◆ PPT: The 'combine' and 'separate' table.
- ◆ In Grade R, most learners will solve problems using these strategies or techniques:
 - counting all
 - using counters or fingers to represent the collections being combined or separated.Very few learners will count on from the biggest number because this level of number knowledge is still being developed.
- ◆ Ask participants to share their examples with the whole group.

Go hlakantšha: $4 + 5 =$

Go ntšha: $7 - 3 =$

Go abelana ka go lekana ntle le go šadiša: 8 e abelwa barutwana ba 4

Go abelana ka go lekana le go šadiša: 5 e abelwa barutwana ba 2

Dinoutse tša monolofatši

- ◆ PPT: Tafola ya go 'kopanya' le go 'aroganya'.
- ◆ Ka Mphatong wa R, barutwana ba bantši ba tla rarolla mathata ka go diriša maano goba dithekniki tše:
 - bala ka moka
 - go diriša dibaledi goba menwana go emela mekgobo ye e kopantšwego goba ye e arogantšwego.Ke barutwana ba mmalwa fela bao ba tla balago go thoma go nomoro ye kgolo ka go fetiša ka gobane maemo a tsebo ya nomoro a sa hlabollwa.
- ◆ Kgopela batšekarolo gore ba abele sehlopha ka moka mohlala wa bona.

Session 4: Planning for teaching

1½ hours

This workshop session prepares participants for implementing Term 3 Weeks 7–10. By this stage of the year, the teacher will have noticed distinct differences between learners' levels of progress. Term 3 builds on the content of Terms 1 and 2. Some learners will be ready for this, while others will need support and more consolidation to progress. It is important to plan and prepare for this difference in learner competence to ensure that all the content and skills of Grade R Mathematics are covered, and learners are well prepared for Term 4.

Facilitator's notes

Show the video and discuss the challenges and opportunities for differentiated teaching and learning in Grade R. If participants do not mention the following points, add them to the discussion.

- ◆ Learners can all do the same activity, but easier questions can be posed.
- ◆ The teacher can offer more guidance to slower/weaker learners and encourage more advanced learners to discuss their reasoning.
- ◆ Learners can be placed in ability groups for some activities and in mixed-ability groups for other activities.
- ◆ Observation and the recording of observation are important. They enable the teacher to have insight into each learner's progress and to know how to assist learners.

Video 2

Video 1 edited to include a teacher talking about how she manages differentiated teaching and learning, and assessment in her class.

Watch the video of a teacher discussing how she deals with the range of learner competence in her class. Listen to what she says about planning and managing the difference between learners' ability levels and how she goes about her planning in order to support the learners' individual needs.

Note your ideas about differentiated teaching and learning in your classroom.

Thuto ya 4: Go beakanyetša go ruta

Iri e 1½

Thuto ye ya thutofatlhošo e beakanya batšeakarolo gore ba phethagatše Kotara ya 3 Dibeke tša 7–10. Ka nako ye ya ngwaga, morutiši o tla be a lemogile diphapano magareng ga maemo a tšwelopele barutwaneng. Kotara ya 3 e aga go diteng tša Dikotara tša 1 le 2. Barutwana ba bangwe ba tla be ba loketše se, mola ba bangwe ba tla be ba nyaka thekgo le kopanyo ye ntši gore ba tšwelele. Go bohlokwa go beakanyetša phapano ye ya bokgoni bja barutwana go kgonthiša gore go akaretšwa diteng ka moka le mabokgoni a Thuto ya Dipalo Mphatong wa R, le gore barutwana ba lokele Kotara ya 4.

Dinoutse tša monolofatši

Bontšha bideo gomme go bolelwe ka ditlhohlo le menyetla ya go ruta go go fapanego le go ithuta ka Mphatong wa R. Ge batšeakarolo ba sa bolele dintlha tše, di tsenye poledišanong.

- ◆ Barutwana ka moka ba ka dira mošongwana wa go swana, efela go botšišwe dipotšišo tše bonolo.
- ◆ Morutiši a ka fa barutwana ba go kwešiša ka go nanya/ba bokoa tlhahlo gomme a hlohleletša barutwana ba go kwešiša kudu gore ba bolele ka mabaka a bona.
- ◆ Barutwana ba ka bewa ka dihlopha tša bokgoni ka nako ya mešongwana ye mengwe gomme ba bewa ka dihlopha tša bokgoni bja go tswakwa ka nako ya mešongwana ye mengwe.
- ◆ Tlhokomelo le go rekhota tlhokomelo go bohlokwa. Di kgontšha morutiši go kwešiša tšwelopele ya morutwana le go tseba gore a ka thuša morutwana bjang.



Bideo ya 2

Bideo ya 1 e rulagantšwe gore e bontšhe morutiši a bolela ka tsela yeo a laolago go ruta go go fapanego le go ithuta, le tekolo ka phapošing ya gagwe.

Bogela bideo ya morutiši a bolela ka fao a šomanago le bokgoni bja go fapana bja barutwana ba ka phapošing ya gagwe. Theeletša gore o reng ka peakanyo le go laola phapano ya maemo a bokgoni barutwaneng le gore o beakanya bjang gore a thekge ditlhoko tša barutwana ba go fapana.

Ngwala dikgopolo tša gago ka ga bokgoni bja go fapana bja go ruta le go ithuta ka phapošing ya gago.

Facilitator's notes

- ◆ Move between the groups as participants discuss the planning and preparation for teaching Term 3 Weeks 7–10 in **Activity 10**. Assist by making suggestions on overcoming challenges.
- ◆ Each group presents their main discussion points to the whole group.



Activity 10

1. In your group, complete the planning templates for Term 3 Weeks 7–10 (Appendix A).
2. Your group will present an overview of your planning discussion to the other groups. Note the main points of your discussion on flipchart paper. Include answers to the following questions:
 - ◆ What challenges do you anticipate in implementing Weeks 7–10?
 - ◆ How can you solve each of these challenges in order to achieve successful implementation?
 - ◆ How does the teacher-guided activity provide opportunities for the teacher to assess and support the learners?
 - ◆ Do the independent small group activities allow for adequate practice of new knowledge and skills?

Dinoutse tša monolofatši

- ◆ Sepela gare ga dihlopha ge batšeakarolo ba ahlaahla peakanyo le tokišetšo ya go ruta Kotara ya 3 Dibeke tša 7–10 ka **Mošongwaneng wa 10**. Ba thuše ka go šišinya tše ba ka di dirago go hlola ditlhohlo.
- ◆ Sehlopha se sengwe le se sengwe se begela sehlopha se segolo dintlhakgolo tše ba boletšego ka tšona.



Mošongwana wa 10

1. Ka sehlopha, dirang dithempoleiti tša peakanyo tša Kotara ya 3 Dibeke tša 7–10 (Mamatletšo ya A).
2. Sehlopha sa gago se tlo begela dihlopha tše dingwe ka ga kakaretšo ya poledišano ya lena ya peakanyo. Ngwala dintlhakgolo tša poledišano ya lena pampiring ya tšhate ya go petla. Akaretša dikarabo tša dipotšišo tše di latelago:
 - ◆ O nagana gore o tlo kopana le ditlhotlo dife ge o phethagatša Dibeke tša 7–10?
 - ◆ O ka rarolla ditlhotlo tše bjang gore phethagatšo e atlege?
 - ◆ Na mošomo wa go hlahlwa ke morutiši o nea morutiši menyetla ya go lekola le go thekga morutwana bjang?
 - ◆ Na mešomo ya dihlopha tše nnyane ya go se hlahlwe e dumelela katišo ye e lekanego ya tsebo ye mpsha le mabokgoni?

Closing activities

30 minutes

Facilitator's notes

- ◆ **Workshop reflection:** Ask participants to take a few minutes to reflect on the day and to page through their *Participant's Workbook*. Ask them to jot down any questions or comments to share with the whole group.
Ask individual participants to volunteer responses and write these on the flipchart.
- ◆ Encourage participants to add any comments and feedback not yet shared to the post box.
- ◆ **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 11

Workshop reflection: Take a few minutes to reflect on the day. Page through your *Participant's Workbook* to remind yourself of what was covered. Write down your thoughts.

Share your reflections with the large group.



Take back to school task

1. Use *Activity Guide: Term 3* to plan and implement Term 3 Weeks 7–10 of the Maths Programme.
2. Make notes of what worked well, what did not work well and how you resolved any challenges during your implementation of Term 3 Weeks 7–10.
3. Write comments in the book that you use to keep track of each learner's progress (learner observation book). Use the '**Check that learners are able to**' observation list (eye box) during each of the teacher-guided activities to guide your observations and comments.
4. Bring your learner observation book and the notes you made when reflecting on each day's teaching to the next workshop.
5. Bring a copy of Term 3: Exemplar Record of Continuous Assessments (from *Activity Guide: Term 3*) to the next workshop.

Dinoutse tša monolofatši

- ◆ **Go naganiša ka thutofatlhošo:** Kgopela batšeakarolo gore ba tšee metsotso ye mmalwa ba naganiša ka letšatši gomme ba phetle *Pukutšhomo ya Motšeakarolo*. O ba kgopele gore ba ngwale dipotšišo goba ditshwayatshwayo tše ba tlogo di abelana le sehlopha ka moka. Kgopela batšeakarolo gore ba ithaope go fa dikarabo gomme o di ngwale tšhateng ya go phetla.
- ◆ Hlohleletša batšeakarolo gore ba tsenye ditshwayatshwayo le dipego tšeo di sa hlwago di abiwa lepokising la poso.
- ◆ **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.



Mošongwana wa 11

Go naganiša ka thutofatlhošo: Tšea metsotso ye mmalwa ba naganiša ka letšatši. O phetle *Pukutšhomo ya Motšeakarolo* go ikgotšiša tše di akareditšwego. Ngwala dipotšišo goba ditshwayatshwayo tše o tlo di abelanago le sehlopha ka moka.

Abelana ka se o se naganago le sehlopha se segolo.



Mošomo wo o tlo boelago le wona sekolong

1. Diriša *Pukutlhahlo ya Mešongwana: Kotara ya 3* go beakanya le go phethagatša Kotara ya 3 Dibeke tša 7–10 tša Lenaneo la Dipalo.
2. Ngwala dinoutse ka ga tšeo di šomilego gabotse, tše di sa šomago gabotse le ka fao o šomanego le ditlhohlo ge o phethagatša Kotara ya 3 Dibeke tša 7–10.
3. Ngwala ditshwayatshwayo ka pukung ye o e dirišago go rekhota tšwelopele ya morutwana yo mongwe le yo mongwe (puku ya go hlokomela morutwana). Diriša lenaneo la tlhokomelo (lepokisi la leihlo) la **'Lekola gore barutwana ba kgona go'** ka nako ya mešongwana ka moka ya go hlahlwa ke morutiši go hlahlwa tlhokomelo ya gago le ditshwayatshwayo.
4. O tle le puku ya tlhokomelo ya barutwana le dinoutse tše o di ngwadilego ge o naganiša ka ga go ruta ga letšatši le lengwe le le lengwe thutofatlhošong ya go latela.
5. O tle le khophi ya Rekhote ya Tekolo/Kelotšweledi: Kotara ya 3 (ka go *Pukutlhahlo ya Mešongwana: Kotara ya 3*) thutofatlhošong ya go latela.

Evaluation

Complete the Evaluation Form.

Tekolo

Tlatša Foromo ya Tekolo.

APPENDIX A: TERM 3 WEEKLY PLANNING TEMPLATE

Term 3: Activity Plan: Week ____

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

MAMATLETŠO YA A: THEMPOLEITI YA PEAKANYO YA BEKE KA BEKE YA KOTARA YA 3

Kotara ya 3: Peakanyo ya Mošongwana: Beke ya ____

KAROLO YA DITENG:				
HLOGOTABA:				
TSEBIŠA TSEBO YE MPSHA:				
GO IKATIŠA:				
Mešongwana ya barutwana ka moka		Mošomo wa go hlhlwa ke morutiši	Mešongwana ya mafelong a go šomela (mešongwana ya sehlopha se sennyane ya go se hlhlwe)	
Letšatši la 1			Mošongwana wa 1	
Letšatši la 2			Mošongwana wa 2	
Letšatši la 3			Mošongwana wa 3	
Letšatši la 4			Mošongwana wa 4	
Letšatši la 5				

Term 3: Activity Plan: Week ____

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

Kotara ya 3: Peakanyo ya Mošongwana: Beke ya ____

KAROLO YA DITENG:			
HLOGOTABA:			
TSEBIŠA TSEBO YE MPSHA:			
GO IKATIŠA:			
Mešongwana ya barutwana ka moka		Mošomo wa go hlhlwa ke morutiši	Mešongwana ya mafelong a go šomela (mešongwana ya sehlopha se sennyane ya go se hlhlwe)
Letšatši la 1			Mošongwana wa 1
Letšatši la 2			Mošongwana wa 2
Letšatši la 3			Mošongwana wa 3
Letšatši la 4			Mošongwana wa 4
Letšatši la 5			

Term 3: Activity Plan: Week ____

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

Kotara ya 3: Peakanyo ya Mošongwana: Beke ya ____

KAROLO YA DITENG:			
HLOGOTABA:			
TSEBIŠA TSEBO YE MPSHA:			
GO IKATIŠA:			
Mešongwana ya barutwana ka moka		Mošomo wa go hlhlwa ke morutiši	Mešongwana ya mafelong a go šomela (mešongwana ya sehlopha se sennyane ya go se hlhlwe)
Letšatši la 1			Mošongwana wa 1
Letšatši la 2			Mošongwana wa 2
Letšatši la 3			Mošongwana wa 3
Letšatši la 4			Mošongwana wa 4
Letšatši la 5			

Term 3: Activity Plan: Week ____

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

Kotara ya 3: Peakanyo ya Mošongwana: Beke ya ____

KAROLO YA DITENG:			
HLOGOTABA:			
TSEBIŠA TSEBO YE MPSHA:			
GO IKATIŠA:			
Mešongwana ya barutwana ka moka		Mošomo wa go hlhlwa ke morutiši	Mešongwana ya mafelong a go šomela (mešongwana ya sehlopha se sennyane ya go se hlhlwe)
Letšatši la 1			Mošongwana wa 1
Letšatši la 2			Mošongwana wa 2
Letšatši la 3			Mošongwana wa 3
Letšatši la 4			Mošongwana wa 4
Letšatši la 5			

Workshop 9 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 9

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?
