Sepedi/English

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

Thutofatlhošo ya 9 ● Workshop 9
Pukutšhomo ya Motšeakarolo ● Particpant's Workbook

ACKNOWLEDGEMENTS

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**.

Lenaneokaonafatšo la Thuto ya Dipalo Mphatong wa R le laolwa ke **JET Education Services** gammogo le **Schools Development Unit** ya **UCT** le **Wordworks** bjalo ka badirišani ba sethekniki.

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.

Contents

Overview

Workshop content

Diteng

Kakaretšo

Diteng tša thutofatlhošo

Overview

Purpose

This is the nineth 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 tlhabologo 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)

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.

Reflection on 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.

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.

_____
_____
_____

Pulo le go naganiša

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.

Go naganiša ka phethagatšo

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 hlahla 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.

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

Video 1

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.

_____
_____
_____
_____
_____
_____
_____
_____

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?

_____
_____
_____

_____

_____

_____

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

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 hlahla barutwana.

_____

_____

_____

_____

_____

_____

_____

_____

👪 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?

_____

_____

_____

Session 1: Numbers, Operations and Relationships

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

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.

_____
_____
_____
_____
_____

Thuto ya 1: Dinomoro, Tirišo le Tswalano

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

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 tlago *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.

_____
_____
_____
_____
_____

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.

Subitising

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?

_____
_____
_____
_____

🏿 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.

Temogo

🏿 Mošongwana wa 5

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

1. Na o badile marontho 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

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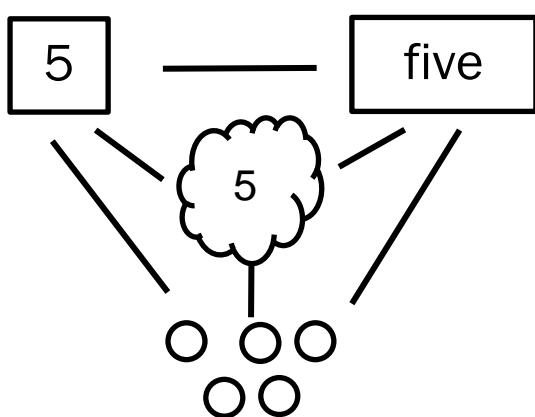
3. O dirile mešongwana efe ya go gatelela bokgoni bja temogo dithutong tša gago tša dipalo Kotareng ya 1 le 2?

_____

_____

_____

_____

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

Kemedi ya palo

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.
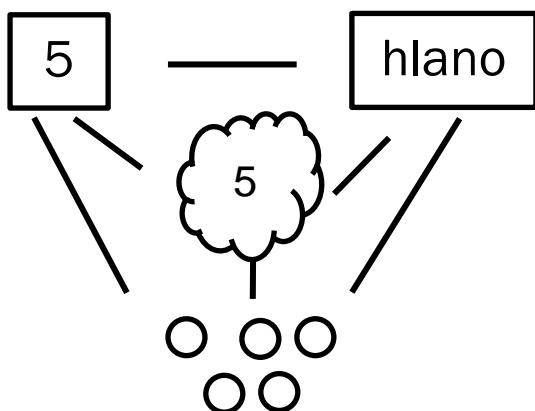
Session 2: Numbers, Operations and Relationships (continued)

1 hour

Counting 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	
Cardinal principle	
Abstraction principle	
Order-irrelevance principle	

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

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

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**.

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.

_____
_____
_____
_____

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.**

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**

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.

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.

Thuto ya 3: Go hlakantšha ka Mphatong wa R

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. Barutwana ba hlohlomiša 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.

Word problems

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.

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 (page 26).
♦ 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.

Dipalo tša mantšu

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.

Ka Thutofatlhošong 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 hlamile 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 (letlakala la 27).
♦ 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.

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:

Addition: 4 + 5 =

_____
_____
_____
_____

Subtraction: 7 – 3 =

_____
_____
_____
_____

Equal sharing without a remainder: 8 shared between 4 learners

_____
_____
_____
_____

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:

Go hlakantšha: 4 + 5 =

_____
_____
_____
_____

Go ntšha: 7 – 3 =

_____
_____
_____
_____

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

_____
_____
_____
_____

Equal sharing with a remainder: 5 shared between 2 learners

_____
_____
_____
_____

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

_____

_____

_____

_____

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.

Video 2

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.

_____
_____
_____
_____
_____
_____

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?

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.

Bideo ya 2

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.

_____
_____
_____
_____
_____
_____

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

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.

Evaluation
Complete the Evaluation Form.

Mešongwana ya go tswalela

Mošongwana wa 11

Go naganiša ka thutofatlhošo: Tšea metsotso ye mmalwa ba naganiša ka letšatši. O phetle *Pukutšhomo ya Motšeakarolo* go ikgopotša 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 hlahla 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.

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 hlahlwa ke morutiši**	**Mešongwana ya mafelong a go šomela (mešongwana ya sehlopha se sennyane ya go se hlahlwe)**	
Letšatši la 1		**Mošongwana wa 1**	
Letšatši la 2		**Mošongwana wa 2**	
Letšatši la 3		**Mošongwana wa 3**	
Letšatši la 4			
Letšatši la 5		**Mošongwana wa 4**	

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 hlahlwa ke morutiši**	**Mešongwana ya mafelong a go šomela (mešongwana ya sehlopha se sennyane ya go se hlahlwe)**	
Letšatši la 1		**Mošongwana wa 1**	
Letšatši la 2		**Mošongwana wa 2**	
Letšatši la 3		**Mošongwana wa 3**	
Letšatši la 4			
Letšatši la 5		**Mošongwana wa 4**	

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 hlahlwa ke morutiši**	**Mešongwana ya mafelong a go šomela (mešongwana ya sehlopha se sennyane ya go se hlahlwe)**	
Letšatši la 1			**Mošongwana wa 1**	
Letšatši la 2			**Mošongwana wa 2**	
Letšatši la 3			**Mošongwana wa 3**	
Letšatši la 4				
Letšatši la 5			**Mošongwana wa 4**	

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 hlahlwa ke morutiši**	**Mešongwana ya mafelong a go šomela (mešongwana ya sehlopha se sennyane ya go se hlahlwe)**
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?

_____
_____
_____
_____