Setswana/English

Lenaneotokafatso la Dipalo tsa Mophato R

Grade R Mathematics Improvement Programme

Thutano 9 ● Workshop 9

Bukatiro ya Batsayakarolo ● Participant's Workbook

Porojeke ya Lenaneotokafatso la Dipalo le Puo tsa Mophato wa R ke itshimololelo ya **Lefapha la Thuto la Gauteng (Gauteng Department of Education)** mmogo le badirisani ba bona ba botlhokwa, **Gauteng Education Development Trust**.

Tlhabololo le tlhagiso ya didiriswa tsa katiso le phaposiborutelo ya Porojeke ya Lenaneotokafatso la Dipalo le Puo tsa Mophato wa R e kgontshitswe ke tshegetso ya **United States Agency for International Development** le **Zenex Foundation** ka matlole.

Porojeke ya Lenaneotokafatso la Dipalo le Puo tsa Mophato wa R e laolwa ke **JET Education Services** mmogo le **Schools Development Unit** ya **UCT** le **Wordworks** jaaka badirisani ba setegeniki.

Schools Development Unit (SDU) kwa **University of Cape Town** (UCT) ke badirisani ba setegeniki ba dipalo go Porojeke ya Lenaneotokafatso la Dipalo le Puo tsa Mophato wa R. SDU ke yuniti e e ka fa tlase ga School of Education sa UCT e e totileng tokafatso ya boporofešenale jwa barutabana mo Dipalong, Bonetetshing, Kitsokwalo/Puo le Dikgonotshelo go simolola ka Mophato R go fitlha ka Mophato 12. SDU e neelana ka thuto ka boithutedi jwa borutabana le dithutokhutshwe tse di dumeletsweng tsa UCT, tiro ya kwa sekolong, tlhagiso ya dibukana le dipatlisiso go tshegetsa go ruta le go ithuta mo makaelong otlhe a Aforikaborwa.

DITEBOGO
Ditebogo di lebisiwa segolobogolo go:
- ▪ Batlhankedi ba Lefapha la Thuto la Gauteng mo Lephateng la Kharikhulamo, Bokaedi jwa Thuto ya Barutabana le Thuto e e Kgethegileng ka ntlha ya seabe sa bona go dirisa dibukana tseno tsa rona.
- ▪ Badiri le barutabana ba Western Cape Education Department (WCED) ka ntlha ya seabe sa bona mo go netefatseng gore Grade R Mathematics Programme (*R-Maths*) e a diragadiwa mo Kapabophirima magareng ga 2016 le 2019.
- ▪ Setlhopha se se kwalang *R-Maths*: Badiri ba SDU le bagakolodi.

Motlhami le molaodi wa lenaneo: Cally Kuhne le Tholisa Matheza
Phetolelo le phasalatso ya bolaodi jwa lenaneo: Arabella Koopman
Morulaganyi wa phetolelo (dipuo tsa Sesotho): Lorato Trok
Phetolelo: Gaoretelelwe Benjamin Phuti
Tseleganyo (Setswana): Lorato Trok
Ditshwantsho: Jiggs Snaddon-Wood

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Overview

Purpose

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

The purpose of this workshop is to 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)

Thadiso

Maitlhomo

Eno ke thutano ya borobongwe ya dithutano di le lesomepedi tsa Lenaneotokafatso la Dipalo tsa Mophato R, le e leng karolo ya Porojeke ya Lenaneotokafatso la Dipalo le Puo tsa Mophato wa R la Lefapha la Thuto la Gauteng (GDE).

Maitlhomo a thutano eno ke go thusa barutabana go diragatsa Lenaneo la Dipalo mo diphaposiborutelong tsa bona. Batsayakarolo ba tlaa nna le tšhono ya go sedisisa ya tiragatso ya bona ya Lenaneo la Dipalo le go buisana ka ga thulaganyo ya bona, go tuta le tlhatlhobo. Gape ba tlaa ela tlhoko tswelelopele ya barutwana, le ditlhokego tsa kgolo le tsa go ithuta tsa motho ka esi. Thutano e sedisisa diteng tsa Kgweditharo 3 Dibeke 7–10 le tiragatso ya tsona mo phaposiborutelong.

Metswedi ya Dikaroloteng tsa Dipalo tsa Mophato wa R di tserwe go tswa mo *Polelong ya Pholisi ya Kharikhulamo le Tlhatlhobo (PPKT)*: *Dipalo tsa Mophato wa R (Lokwalo lwa Bofelo),* 2011, Lefapha la Thutotheo, Aforika Borwa.

Dipoelothuto

- ♦ Go sedisisa mo tiragatsong ya Kgweditharo 3 Dibeke 4–6
- ♦ Go sedisisa ditogamaano tse di ikaegileng ka metshameko go tshegetsa go ruta dipalo mo Mophatong wa R
- ♦ Go tiisa go tlhaloganya ga mogopolo wa dipalo mo karoloteng ya Dinomore, Ditiro le Dikamano le go e golaganya le tiragatso ya dipalo mo phaposiborutelong ya dipalo tsa Mophato R
- ♦ Go tiisa go tlhaloganya tlhatlhobo e e maleba mo Mophatong wa R
- ♦ Go sedisisa dikgwetlho le go batla ditharabololo tsa go diragatsa Lenaneo la Dipalo
- ♦ Go rulaganya diteng tsa Lenaneo la Dipalo tse di tshwanetseng go rutiwa mo Kgweditharong 3 Dibeke 7–10

Diteng tsa thutano

- ♦ Pulo le tshedisiso   (Ura e le 1)
- ♦ Karolo 1: Dinomore, Ditiro le Dikamano   (Ura e le 1)

TEE

- ♦ Karolo 2: Dinomore, Ditiro le Dikamano (tsweletso)   (Ura e le 1)
- ♦ Karolo 3: Palelo mo Mophatong wa R   (Ura e le 1)

DIJOTSHEGARE

- ♦ Karolo 4: Go ithulaganyetsa go ruta   (Diura di le 1½)
- ♦ Ditirwana tsa tswalelo   (Metsotso e le 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 tshedisiso

Tshedisiso e akaretsa go akanya le go bua ka ga maitemogelo a gago le se o se ithutileng. Ela tlhoko dithutano tsa Dipalo tse o di tsenetseng mme o feleletse dipolelo tse mofatlhosi o di supang.

Tshedisiso mo tiragatsong
Tirwana e o e busetsang kwa sekolong go tswa mo Thutanong ya 8, e ne e tlhoka gore o dire tse di latelang:
♦ Dirisa *Kaedi ya Ditirwana: Kgweditharo 3* go rulaganya le go diragatsa Kgweditharo 3 Dibeke 4–6 tsa Lenaneo la Dipalo.
♦ Kwala ditshwaelo mo bukeng tse o di dirisang go ela tlhoko tswelelopele ya morutwana (buka ya ngwana ya kelotlhoko), mme o dirise lenanekelotlhoko la '**Ela tlhoko gore barutwana ba kgona go**' ka nako ya ditirwana tse dingwe le tse dingwe tse di kaelwang ke morutabana go kaela dikelotlhoko le ditshwaelo tsa gago.
♦ Kwala dintlha tsa se se dirileng sentle thata, se se sa dirang sentle le gore ba rarabolotse jang dikgwetlho dingwe ka nako ya tiragatso ya Kgweditharo 3 Dibeke 4–6.

Mo ditirwaneng tse di latelang, dirisa buka ya gago ya go ela barutwana tlhoko le dintlha tse o di kwadileng fa o ne o sedisisa ka ga thuto ya letsatsi lengwe le lengwe.

Tirwana 1
1. Mo setlhopheng sa gago, aroganang katlego le dikgwetlho tsa lona mo go diragatseng Lenaneo la Dipalo mo Kgweditharong ya 3 Dibeke 4-6. Go lepalepana le dikgwetlho tse o di lemogileng, aroganang malepa a go tokafatsa go ruta le go ithuta.

   _____
   _____
   _____

2. Buisanang ka ga tiriso ya lona mo lenaneng la kelotlhoko la '**Ela tlhoko gore barutwana ba kgona go**' (mo lebokosong la leitlho) ka nako ya ditirwana tse dingwe le tse dingwe tse di kaelwang ke morutabana.
   Bontsha ditokololo tsa setlhopha sa gago buka ya gago ya go ela barutwana tlhoko. Tlhopha morutwana a le mongwe mme lo buisane ka ga tse o di etseng tlhoko tebang le tswelelopele ya gagwe.

   _____
   _____
   _____

_____
_____
_____

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.   Kwala dintlhakgolo tsa dipuisano tsa lona mo pampiring ya tšhatephetogi. Begelang
      setlhopha se segolo ka ga dipuisano tsa lona.

📹 Video 1

Lebelela video ya morutabana a dira le setlhopha se sennye sa barutwana ka nako ya
tirwana e e kaelwang ke morutabana mo Kgweditharong ya 3 Beke 6. Kelotlhoko ya
rona mo thutanong eno e tobile ka moo morutabana o tsereganyang ka teng mo
ditirwaneng tsa dinomore.

Ela tlhoko ka moo morutabana o dirang ka teng mo ditirwaneng tse thataro. Ela tlhoko:
♦   gore o botsa dipotso jang
♦   puo e o e dirisang fa a botsa dipotso
♦   gore o rulaganyetsa jang tirwana e nngwe le e nngwe
♦   dipotso tse o di botsang go kaela barutwana.

_____
_____
_____
_____
_____
_____
_____
_____
_____

👥 Tirwana 2

Lebelela tirwana e e kaelwang ke morutabana (ditsebe 114–117) mo Bekeng 6 ya *Kaedi
ya Ditirwana: Kgweditharo 3*.

1.   Buisanang mokgwa o lo neng lwa tsamaisa tirwana eno e e kaelwang ke
      morutabana le phaposiborutelo ya gago.

_____
_____
_____

2.   A o ne o lebanwe ke dikgwetlho dingwe? Fa go le jalo, o di rarabolotse jang?

_____
_____
_____

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.

_____
_____
_____
_____
_____

Karolo 1: Dinomore, Ditiro le Dikamano

Mo dithutanong tse di fetileng, re buisane ka Dikaroloteng tsa Dinomore, Ditiro le Dikamano. Mo karolong eno, re tlaa lebelela ditlhogo tse di farologaneng tsa dipalo gape le go atolosa puisano ya rona go tlhaloganya mogopolopalo. Re tlaa tlhotlhomisa dikarolwana tse di latelang tsa dinomore le go di golaganya le tiragatso ya phaposiborutelo:

♦ go balela kwa godimo
♦ go sekena
♦ go tshwantsha nomore
♦ go bala dilo
♦ dipalokemotatelano
♦ palelo.

Go balela kwa godimo

Bana ba ithuta thulaganyo e e nepagetseng ya mainapalo fa ba tshameka, ba opela le go boeletsa merumo.

Jaaka re itse, go balela kwa godimo go akaretsa go bua mainapalo ka tatelano. Barutwana ba tlhomaganya dinomore ka nako ya moetlo wa ditirwana tsa go balela kwa godimo le ka nako ya diphetogo. Dipina, merumo le ditiragatso di dira gore go balela kwa godimo go itumedise, fela go lebeletswe tatelano ya dinomore. Fela fa barutwana ba ka boeletsa tatelano ya dinomore ka tatelano e e nepagetseng ya go bala, ba simolola go bua ka ga kamano magareng ga dinomore, sk. ke nomore efe e e tlang *pele*, e e *magareng* kgotsa e e *tlang morago* ga e nngwe.

👥 Tirwana 3

Mo setlhopheng sa gago, buisanang ka moo ditirwana tse di latelang di rotloeditseng go ithuta tatedisano ya mafoko a go bala mo phaposiborutelong ya gago:

♦ dipina le merumo
♦ mogala wa dinomore
♦ mela ya go tlola.

_____
_____
_____
_____
_____

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?

_____
_____
_____
_____

Tirwana 4

Buisa tshedimosetso mo ditsebeng 138–143 mme o lebelele sethalo se se kwa godimo ga ditsebe 144–145 tsa *Kaedi ya Mogopolo*.

Mo setlhopheng sa gago, buisanang ka ga dikarolwana tse di latelang tsa nomore:

♦ 'dikao' tse di farologaneng tsa nomore

_____
_____
_____
_____

♦ mefuta e e farologaneng ya dinomore

_____
_____
_____
_____

Barutwana ba Mophato R ba dira thata ka dipalotlalo 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 le 10. (Mo Mophatong wa R seno se atoloseditswe kwa go 20 le go feta.) Re tota go bala le go tshwantsha nomore ka ditsela tse di farologaneng le go neela barutwana ditšhono go dira ka dinomore mo makaelong a a farologaneng.

Go sekena

Tirwana 5

Ela mofatlhosi tlhoko. Nako le nako fa a kgantsha karata, bua gore o bona marontho 'a le kae' ka bonako jo o ka bo kgonang.

1. A o badile marontho ka bongwe le ka bongwe? Goreng o sa dira jalo?

_____
_____
_____
_____

2. O akanya gore botlhokwa jwa go gatelela kgono ya go sekena ke eng?

_____
_____
_____
_____

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.
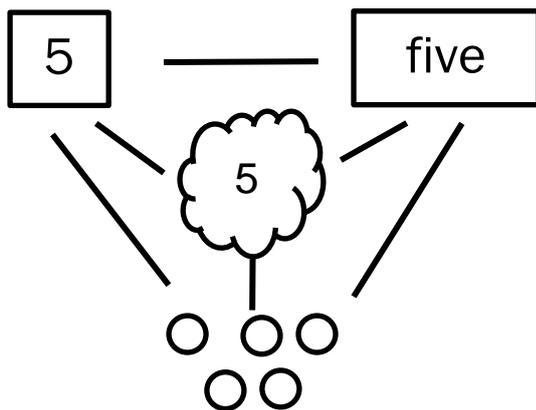
3. O dirisitse ditirwana dife tse di gatelelang bokgoni jwa go sekena mo karolong ya gago ya dipalo mo Kgweditharong 1 le 2?

_____

_____

_____

_____

Lebelela ditsebe 144–147 tsa *Kaedi ya Mogopolo*.

Go tshwantsha dinomore

Nomore ke mogopolo o o sa tshwaregeng. Ke kakanyo e e leng mo tlhogong ya gago. Ga re ka ke ra bona dinomore, ka jalo re tlhoka go batla ditsela tse di farologaneng go tshwantsha (bontsha) nomore e e kaiwang. Barutwana ba tlhoka go dira kgolagano magareng ga kakanyo ya nomore, sk. 5, le ditshwantsho tsa yona tse di farologaneng, jaaka kokoanyo ya dilo, letshwao, lefoko. Gape ba tlhoka go tlhaloganya gore fa re re, 'tse kae' dimonamone, kopodiatla, dintlo, malatsi a botsalo, j.j., tlhano ka gale o kaya palo e e tshwanang ya dilo tseno.

Barutwana ba tlhoka go tshwarelela 'bobokae' kgotsa palo ya nomore. Go tlhaeletsa mogopolo ono kwa baneng, barutabana ba tlhoka go ba tlhagisetsa kakanyo eno ka go dirisa dilo tse di tshwaregang, sekao, dibadi. Go thusa barutwana go tlhaloganya mogopolo wa nomore, ba tlhoka go lemoga gore dinomore di ka tshwantshanngwa ka ditsela tse di farologaneng. Gape barutwana ba tlhoka go dira kgolagano magareng ga ditshwantshiso tse di farologaneng tsa nomore, sekao, selo, setshwantsho, letshwao le lefoko.
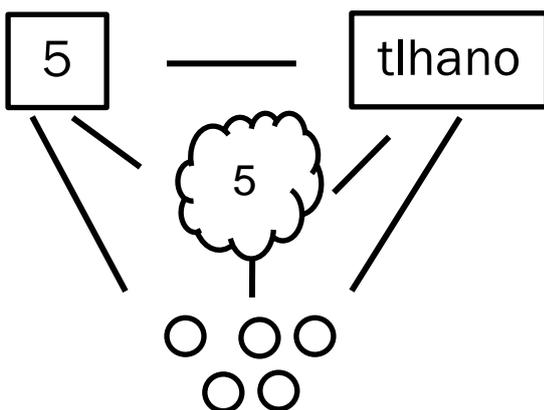
Session 2: Numbers, Operations and Relationships (continued)

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	

Karolo 2: Dinomore, Ditiro le Dikamano (tsweletso)

Dilo tsa go bala

Go bala '**di le kae**', barutwana ba tlhoka go lemoga gore selo se sengwe le se sengwe mo setlhopheng se na le leina la palo le gore o bala selo se sengwe le se sengwe gangwe fela.

Go na le melawana e le metlhano ya go bala e e tlhalosang tsela ya go ithuta go bala. Fa barutwana ba tlhalogantse mme e bile ba kgona go diragatsa melawana yotlhe e metlhano eno ya go bala, re kgona go re ba kgona go bala.

 Tirwana 6

Buisa tshedimosetso mo ditsebeng tsa 148–151 tsa *Kaedi ya Mogopolo*.

1. Dirisa didiriswa tse di neetsweng go diragatsa melawana eno jaaka e tlhalosiwa mo *Kaeding ya Mogopolo*.
2. Buisanang ka ga molawana o mongwe le o mongwe mo setlhopheng sa gago mme o kwale dintlha tsa gago mo papetleng e e fa tlase go tlhalosa ka moo o tlhaloganyang molawana o mongwe le o mongwe.

Molawana wa tsamaelano ya nngwe ka nngwe	
Molawana wa thulaganyo e e tlhomameng	
Molawana wa khadinale	
Molawana wa maitlhomo	
Molawana wa tatelano e e sa tsepamang	

19

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.

_____
_____
_____
_____

Dipalokemotatelano

Re buisane ka ga mefuta ya dinomore tse di go bolelelang go re 'di le kae'. Tseno di bidiwa **dipalokhadinale**.

Gape go na le dinomore tse di bontshang maemo a sengwe kgotsa mongwe mo motseletselng kgotsa mo tatelanong. Tseno di bidiwa **dipalokemotatelano**.

Tirwana 7

Rulaganya dibalaphologolo mo tafoleng ya gago go latela ditaelo tsa mofatlhosi. Araba dipotso tsa gagwe tebang le maemo a dibalaphologolo.

_____
_____
_____
_____

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.

Karolo 3: Palelo mo Mophatong wa R Ura e le 1

Barutwana ba tlhoka go tlhaloganya botlhokwa jwa dinomore le ka mokgwa o di amanang ka teng pele ga ba ka dira ditiro tse di etsang tlhakanyo le ntsho. Ba tshwanetse go itse, sekao, 'go na le di le kae' tharo ke; 3 e tla pele ga 4, morago ga 2 le magareng ga 2 le 4; mme e bile 3 e feta 2 ka nngwe mme gape e nnye mo go 4 ka nngwe.

Go dira ka dibadi, dibaga tsa dikago, dikaratarontho, le motshameko wa tshikhinya le go thuba go tlamela barutwana ka ditšhono tsa go tlhaloganya gore dinomore di ka agiwa kgotsa di ka tlhatlhamololwa. Ka tsela eno, ka iketlo ba lemoga gore nomore nngwe le nngwe e dirilwe ka kopakopano ya dinomore tse dingwe tse di farologaneng. Sekao, nomore 5 e ka dirwa ka:

♦   4 le 1
♦   1 le 1 le 1 le 2
♦   0 le 5.

Mo Mophatong wa R, barutwana ba lekeletsa ditsela tse di farologaneng tsa go aga le go tlhatlhamolola dinomore, le go tlhakanya mmogo le go ntsha ka go dirisa dibadi.

👥 Tirwana 8

Buisa tshedimosetso mo ditsebeng tsa 154–156 tsa *Kaedi ya Mogopolo*.

Akanya ka mokgwa o o dirisitseng didiriswa tse di neetsweng mo Lenaneong la Dipalo go thusa barutwana go tlhaloganya ka moo dinomore di dirang ka teng (dipalelo) le dikamano. Dirisa didiriswa go bontsha seno.

1.   Barutwana ba lekeletsa jang mogopolo wa dipalo mo Lenaneong la Dipalo ka go dirisa didiriswa tse ba di neetsweng?

2.   O ne o ka botsa dipotso dife tse di ka kaelang go ithuta ga bona? (Lebelela tsebe 157 ya *Kaedi ya Mogopolo* go bona dikao tsa dipotso.)

_____
_____
_____
_____

Baakanyetsa go tlhagisa puisano ya gago le setlhopha sotlhe.

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.

Dipalofoko

Barutwana ba Mophato R ba tlhoka go rarabolola dipalo tse di akaretsang go tlhakanya, go ntsha, le go arogana ka go lekana le go kokoanya ba buela kwa godimo. Gape ba tlhoka go tlhalosa peo ya bona ya mabaka le ditsela tse ba rarabololang dipalo ka yona.

Neela barutwana nako e e motlele ya go akanya mme o ba letle go dirisa dilo tsa leruri (sk. dibadi, menwana, dibaga tsa dikago) tharabololo ya dipalo le go lekola dikarabo tsa bona.

Fa o tlhagisetsa barutwana palofoko, go botlhokwa go ba rotloetsa go:
♦   batla malepa a go e rarabolola
♦   tlhalosa gore ba rarabolotse palo jang
♦   bua gore ke ka ntlha yang ba akanya gore karabo ya bona e nepagetse.

Makaelo a a tlwaelegileng a go tlhakanya le go ntsha a ka tlhagisiwa jaaka dipalofoko. Tsela eo palo e agegileng ka yona, e na le seabe mo go reng go e rarabolola go bonolo kgotsa go boima go le kana kang. Go botlhokwa go dirisa puo e e bonolo e e utlwalang fa o tlhagisa dipalofoko.

Mo Thutanong ya 6, re lebeletse botlhokwa jwa go dirisa puo e e bonolo, e e utlwalang le go botsa dipotso tse di maleba ka nako ya ditirwana tsa tharabololo ya dipalo. Gape re bopile dipalo tse di diragalang mo lefatsheng ka makaelo ao barutwana ba ka ikamanyang le ona. Mo Tirwaneng ya 9, lo tlaa buisana ka ga tharabololo ya dipalo ka botlalo.

🤼 Tirwana 9

1.   Lebelela dipalofoko tse di fa tlase (tsebe 27).
♦   O ne o ka rarabolola palo e nngwe le enngwe jang?
♦   O akanya gore barutwana ba gago ba Mophato R ba ne ba ka rarabolola jang palo e nngwe le e nngwe?
♦   Ke ka ntlha ya eng dingwe tsa dipalo di le thata go feta tse dingwe?
♦   Dirisa dibadi mo papetleng ya gago go bontsha gore barutwana ba ka rarabolola jang dipalo.

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 dimonamone di le 6. Malusi o mo neela tse dingwe gape tse 2. Laylah jaanong o na le palogotlhe ya dimonamone di le kae?	Go na le dimonamone di le 8. Laylah o ja di le 3. Malusi o saletswe ke dimonamone di le kae?
Laylah o na le dimonamone di le 5. O tlhoka di le kae gore a nne le di le 8?	Laylah o na le dimonamone di le 8. Malusi o ja tse dingwe. Go setse di le 4. Malusi o jele di le kae?
Laylah o ne a na le dimonamone. Malusi o mo neela di le 2. Jaanong o na le di le 8. Laylah o simolotse a na le di le kae kwa tshimologong?	Laylah o ne a na le dimonamone. O neetse Malusi di le 6. O setse ka di le 2. O simolotse a na le dimonamone di le kae?

2. Kwala palofoko e o ka e tlhagisetsang barutwana ba gago ba Mophato R ka nngwe le nngwe ya tse di latelang:

Tlhakanyo: 4 + 5 =
_____
_____
_____
_____

Ntsho: 7 – 3 =
_____
_____
_____
_____

Go arogana go na le masaledi: 8 e aroganngwa magareng ga barutwana ba le 4
_____
_____
_____
_____

Equal sharing with a remainder: 5 shared between 2 learners

_____
_____
_____
_____

Go arogana le go nna le masaledi: 5 e aroganngwa magareng ga barutwana ba le 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?

Karolo 4: Go ithulaganyetsa go ruta   Diura di le 1½

Karolo eno ya thutano e baakanyetsa batsayakarolo go diragatsa Kgweditharo 3 Dibeke 7–10. Mo pakeng eno ya ngwaga, morutabana o tshwanetse a bo a lemogile pharologano e e itlhaotseng magareng ga maemo a tswelelopele ya barutwana. Kgweditharo 3 e agelela mo ditennyeng tsa Kgweditharo 1 le 2. Bangwe ba barutwana ba tlaa bo ba le malala a laotswe, fa ba bangwe ba tlaa tlhoka tshegetso le tsolotanyo e e rileng go tswelela pele. Go botlhokwa go ithulaganyetsa le go ipaakanyetsa pharologano eno ya bokgoni jwa barutwana go netefatsa gore diteng tsotlhe le dikgono tsa Dipalo tsa Mophato R di lebeletswe, le gore barutwana ba ipaakanyeditse Kgweditharo 4 sentle.

Video 2

Lebelela video ya morutabana a bua ka mokgwa o a diranang ka teng le bokgoni jo bo farologaneng jwa barutwana mo phaposiborutelong ya gagwe. Reetsa se a se buang ka mokgwa o a rulaganyang le go laola pharologano ya maemo a bokgoni jwa barutwana le gore o ithulaganya jang e le go tshegetsa ditlhokego tsa barutwana ka nosi.

Kwala dikakanyo tsa gago tebang le go ruta le go ithuta ka dipharologantsho mo phaposiborutelong ya gago.

_____
_____
_____
_____
_____
_____

Tirwana 10

1. Mo ditlhopheng tsa lona, tlatsang dithempoleiti tsa Kgweditharo 3 Dibeke 7–10 (Mametlelelo A).
2. Setlhopha sa gago se tlaa tlhagisetsa ditlhopha tse dingwe thadiso ya puisano e lo e rulagantseng. Kwalang dintlhakgolo tsa puisano ya lona mo pampiring ya tšhatephetogi. Akaretsa dikarabo tsa dipotso tse di latelang:
   - Ke dikgwetlho dife tse o di solofetseng mo tiragatsong ya Dibeke 7–10?
   - O ka rarabolola jang e nngwe le e nngwe ya dikgwetlho tseno gore o kgone go diragatsa ka katlego?
   - Tirwana e e kaelwang ke morutabana e neelana jang ka ditšhono tsa gore morutabana a tlhatlhobe le go tshegetsa barutwana?
   - A ditirwana tse di ikemetseng tsa ditlhopha tse dinnye di letla ikatiso e e lekaneng ya kitso e ntšhwa le dikgono?

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.

Ditirwana tsa tswalelo

Tirwana 11

Tshedisiso ya thutano: Tsaya metsotso e le mmalwa go sedisisa ka ga letsatsi. Phetlha *Bukatiro ya Batsayakarolo* ya gago go ikgopotsa se se dirilweng. Kwala dikakanyo tsa gago mo fatshe.

_____
_____
_____
_____
_____

Arogana ditshedisiso tsa gago le setlhopha se segolo.

Tirwana e o e busetsang kwa sekolong

1. Dirisa *Kaedi ya Ditirwana: Kgweditharo 3* go rulaganya le go diragatsa Kgweditharo 3 Dibeke 7–10 tsa Lenaneo la Dipalo.
2. Kwala dintlha tsa se se dirileng sentle thata, se se sa dirang sentle le gore ba rarabolotse jang dikgwetlho dingwe ka nako ya tiragatso ya Kgweditharo 3 Dibeke 7–10.
3. Kwala ditshwaelo mo bukeng tse o di dirisang go ela tlhoko tswelelopele ya morutwana (buka ya ngwana ya kelotlhoko). Dirisa lenanekelotlhoko (lebokoso la leitlho) la '**Ela tlhoko gore barutwana ba kgona go**'. Ka nako ya ditirwana tse dingwe le tse dingwe tse di kaelwang ke morutabana go kaela dikelotlhoko le ditshwaelo tsa gago.
4. Tlaya ka buka ya morutwana ya kelotlhoko le dintlha tse o di kwadileng fa o sedisisa thuto ya letsatsi le lengwe le le lengwe mo thutanong e e latelang.
5. Tlaya ka khophi ya Kgweditharo 3: Rekoto ya Sekai sa Ditlhatlhobotsweledi (go tswa mo *Kaeding ya Ditirwana*: *Kgweditharo 3*) kwa thutanong e e latelang.

Tlhatlhobo

Tlatsa Foromo ya Tlhatlhobo.

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		

MAMETLELELO A: KGWEDITHARO 3 THEMPOLEITI YA THUALAGANYO YA BEKE LE BEKE

Kgweditharo 3: Thulaganyo ya ditirwana: Beke _____

KAROLOTENG:			
SETLHOGO: TLHAGISA KITSO E NTŠHWA: IKATISE:			
Ditirwana tsa phaposiborutelo yotlhe		**Tirwana e e kaelwang ke morutabana**	**Ditirwana tsa seteišenetiro (ditirwana tse di ikemetseng tsa setlhopha se sennye)**
Letsatsi 1			**Tirwana 1**
Letsatsi 2			**Tirwana 2**
Letsatsi 3			**Tirwana 3**
Letsatsi 4			**Tirwana 4**
Letsatsi 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		

Kgweditharo 3: Thulaganyo ya ditirwana: Beke _____

KAROLOTENG:				
SETLHOGO:				
TLHAGISA KITSO E NTŠHWA:				
IKATISE:				
Ditirwana tsa phaposiborutelo yotlhe		**Tirwana e e kaelwang ke morutabana**	**Ditirwana tsa seteišenetiro (ditirwana tse di ikemetseng tsa setlhopha se sennye)**	
Letsatsi 1			**Tirwana 1**	
Letsatsi 2			**Tirwana 2**	
Letsatsi 3			**Tirwana 3**	
Letsatsi 4			**Tirwana 4**	
Letsatsi 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				

Kgweditharo 3: Thulaganyo ya ditirwana: Beke ____

KAROLOTENG:				
SETLHOGO: **TLHAGISA KITSO E NTŠHWA:** **IKATISE:**				
Ditirwana tsa phaposiborutelo yotlhe		**Tirwana e e kaelwang ke morutabana**	**Ditirwana tsa seteišenetiro (ditirwana tse di ikemetseng tsa setlhopha se sennye)**	
Letsatsi 1			**Tirwana 1**	
Letsatsi 2			**Tirwana 2**	
Letsatsi 3			**Tirwana 3**	
Letsatsi 4			**Tirwana 4**	
Letsatsi 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			

Kgweditharo 3: Thulaganyo ya ditirwana: Beke _____

KAROLOTENG:				
SETLHOGO:				
TLHAGISA KITSO E NTŠHWA:				
IKATISE:				
Ditirwana tsa phaposiborutelo yotlhe		**Tirwana e e kaelwang ke morutabana**	**Ditirwana tsa seteišenetiro (ditirwana tse di ikemetseng tsa setlhopha se sennye)**	
Letsatsi 1			**Tirwana 1**	
Letsatsi 2			**Tirwana 2**	
Letsatsi 3			**Tirwana 3**	
Letsatsi 4			**Tirwana 4**	
Letsatsi 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 Tlhatlhobo ya Thutano 9

1. A thutano e kgonne go fitlhelela ditsholofelo tsa gago?

_____
_____
_____
_____

2. Ke eng se o se ithutileng mo thutanong eno se se go thusitseng go gaisa?

_____
_____
_____
_____

3. A go na le sengwe se o sa se ratang kgotsa se se neng se go thatafalela?

_____
_____
_____
_____

4. O ya go diragatsa jang se o se ithutileng mo phaposiborutelong ya gago ya Mophato wa R?

_____
_____
_____
_____

5. A go na le se o se tshikhinyang go ka thusa go tokafatsa dithutano tse di latelang?

_____
_____
_____
_____