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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 10 • Workshop 10
Pukutšhomo ya Motšekarolo • Participant's Workbook**

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The Grade R Mathematics and Language Improvement Project is managed by **JET Education Services** with **UCT's Schools Development Unit** and **Wordworks** as technical partners.

The **Schools Development Unit (SDU)** at the **University of Cape Town (UCT)** is the mathematics technical partner to the Grade R Mathematics and Language Improvement Project. The SDU is a unit within UCT's School of Education that focuses on teachers' professional development in Mathematics, Science, Literacy/Language and Life Skills from Grade R to Grade 12. The SDU offers teacher qualifications and approved UCT short courses, school-based work, materials development and research to support teaching and learning in all South African contexts.

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Lenaneokaonafatšo la Thuto ya Dipalo Mphatong wa R ke morero wa Kgoro ya Thuto ya Gauteng (**Gauteng Department of Education**) le badirišanimmogo ba bohlokwa e lego **Gauteng Education Development Trust**.

Tšweletšo le kgatišo ya tlhahlo le dithušathuto tša phapoši tša Lenaneokaonafatšo la Thuto ya Dipalo Mphatong wa R e kgontšhitšwe ke thušo ka mašelang go tšwa go **United States Agency for International Development** le **Zenex Foundation**.

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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.
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Overview

Purpose

This is the tenth 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 4 Weeks 1–3 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 7–10
- ◆ To reflect on the use of the guiding principles of teaching maths in Grade R
- ◆ To deepen understanding of continuous learner observation in Grade R
- ◆ To reflect on informal forms of 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 4 Weeks 1–3

Workshop content

- ◆ Opening and reflection (1 hour)
 - ◆ Session 1: Observation and assessment (1 hour)
- TEA
- ◆ Session 2: The guiding principles of teaching maths in Grade R (1 hour)
 - ◆ Session 3: Introducing numbers 10 and 0 (1 hour)
- LUNCH
- ◆ Session 4: Planning for teaching (1½ hours)
 - ◆ Closing activities (30 minutes)

Kakaretšo

Morero

Ye ke thutofatlhošo ya bolesome 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 tše ba di bonego. Ba tla hlohlomiša ka fao ditheo tša go ruta dipalo Mphatong wa R di swanetšego go laola peakanyo ya bona, go ruta le tekolo. Ba tlo nagana le ka tšwelopele ya morutwana le ditlhoko tša tlabologo le go ithuta ga morutwana. Thutlofatlhošo e hlohlomiša diteng tša Kotara ya 4 Dibeke tša 1–3 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 7–10
- ◆ Go naganiša ka tirišo ya ditheo tša go ruta dipalo ka Mphatong wa R
- ◆ Go tliša kwešišo ya tlhokomelo ya morutwana ye e tšwelago pele ka Mphatong wa R
- ◆ Go naganiša ka mekgwa ya tekolo ye e sego ya ka mehla 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 4 Dibeke tša 1–3

Diteng tša thutofatlhošo

- ◆ Pulo le go naganiša (Iri e 1)
- ◆ Thuto ya 1: Tlhokomelo le tekolo (Iri e 1)

TEYE

- ◆ Thuto ya 2: Ditheo tša go ruta dipalo ka Mphatong wa R (Iri e 1)
- ◆ Thuto ya 3: Go tsebiša dinomoro 10 le 0 (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.

Reflection on implementation

Here is the *Take back to school task* from Workshop 9.



Take back to school task (Workshop 9)

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 the Term 3: Exemplar Record of Continuous Assessments (from *Activity Guide: Term 3*) to the next workshop.



Activity 1

1. In your group, prepare a newspaper article on teaching and learning maths in Grade R. Use the Maths Programme and your classroom implementation of it as the basis for your article. Include the following:
 - ◆ why maths in Grade R is important
 - ◆ your successes and challenges with implementing the Maths Programme in Terms 1, 2 and 3
 - ◆ strategies you used to resolve challenges.

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.

Go naganiša ka phethagatšo

Fa ke *Mošomo wo o tloboelago le wona sekolong* wa Thutofatlhošo ya 9.



Mošomo wo o tloboelago le wona sekolong (Thutofatlhošo ya 9)

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.



Mošongwana wa 1

1. Ka sehlopha, beakanyang sehlogo sa kuranta ka ga go ruta le go ithuta dipalo ka Mphatong wa R. Dirišang Lenaneo la Dipalo le phethagatšo ya lona ka phapošing bjalo ka mothopo wa sehlogo sa lena. Le akaretše tše di latelago:
 - ◆ lebaka la go dira gore dipalo di be bohlokwa ka Mphato wa R
 - ◆ dikatlego le ditlhohlo tša lena ge le be le phethagatša Lenaneo la Dipalo Dikotareng tša 1, 2 le 3
 - ◆ mekgwa ye le e dirišitšego go rarolla ditlhohlo tše.

2. Write the newspaper article on flipchart paper.
3. You will present your article to the other groups and answer any of their questions.

2. Ngwalang sehlogo sa kuranta pampiring ya tšhate ya go phetla.
3. Le tlo begela dihlopha sehlogo sa lena le go araba efe goba efe ya dipotšišo tša bona.

Session 1: Observation and assessment

1 hour

Observation in Grade R

Observation is an important part of the process of teaching, learning and assessment. In Grade R, the main assessment method is observation. Teachers gather information about learners during whole class activities, small group activities and free play (inside and outside the classroom). During the teacher-guided activities, your interaction with individual learners provides valuable information about their progress. By recording the learners' progress in understanding specific maths concepts in your notebook on an ongoing basis, you build up a complete picture of each learner.

Objective observation

For observation to be effective, teachers need to understand and know what to focus on.

In the next activity, you will practise your observation skills. *This is an individual activity. It is very important that you do not talk to anyone about your observations.*



Activity 2

Look at the photograph of two Grade R learners playing with blocks. Write down what you observe when you look at the photograph.



Thuto ya 1: Tlhokomelo le tekolo

Iri e 1

Tlhokomelo ka Mphatong wa R

Tlhokomelo ke karolo ye bohlokwa tshepedišong ya go ruta, go ithuta le go lekola. Ka Mphatong wa R, mokgwa o mogolo wa tekolo ke wa tlhokomelo. Barutiši ba kgoboketša tshedimošo ka ga barutwana ka nako ya mešongwana ya barutwana ka moka, mešomo ya dihlopha tše nnyane le go bapala ka tokologo (ka gare le ka ntle ga phapoši). Ka nako ya mešomo ya go hlahlwa ke morutiši, tšhomišano ya gago le barutwana ka o tee ka o tee e go fa tshedimošo ya bohlokwa ka tšwelopele ya bona. Ka go rekhota tšwelopele ya barutwana ka kwešišo ya mareo a dipalo a itšego ka pukung ya gago ya dinoutse ka dinako ka moka, o aga seswantšho sa go tlala ka ga morutwana.

Tlhokomelotebano

Gore tlhokomelo e atlege, barutiši ba swanetše go kwešiša le go tseba seo ba swanetšego go se nepiša.

Ka mošongwaneng wa go latela, o tlo ikatiša bokgoni bja tlhokomelo. *O ke mošongwana wa motho a le noši. Go bohlokwa kudu gore o se botše motho yo mongwe ka tlhokomelo ya gago.*



Mošongwana wa 2

Lebelela seswantšho sa barutwana ba Mphato wa R ba babedi ba bapala ka dipoloko. Ngwala se o se bonago ge o lebeletše seswantšho.



My observations:



Video 1

1. Watch the video of a group of learners playing the game, Bingo. Write down your observations of the learners.

2. Which of your observations are facts and which are assumptions? Go through your list and write an 'F' or 'A' next to each statement.

When we write what we **think** a learner can or cannot do, or what a learner is feeling, we are making assumptions. The only way to know what a learner is thinking or feeling, is to ask them to tell you.

Objective observation involves:

- ◆ describing only what you see and hear
- ◆ recording what the learner is doing and saying in as much detail as possible
- ◆ not judging – avoid giving your own ideas and opinions
- ◆ observing each learner regularly, in different activities and at different times of the day.

Tše ke di hlokometshego:



Bideo ya 1

1. Bogela bideo ya sehlopha sa barutwana ba bapala moraloko, Bingo. Ngwala tlhokomelo ya gago go barutwana.

2. Ke dife tše o bonego e le dinnete le tše o bonego e le dikakanyo? Lebelela lenaneo la gago o ngwale 'N' goba 'K' kgauswi le setatemente se sengwe le se sengwe.

Ge re ngwala se re **naganago** gore morutwana a ka se dira goba a palelwa ke go se dira, goba maikutlo a morutwana, re a akanya. Tsela e tee ya go tseba gore morutwana o nagana goba go kwa eng, ke ge o ka mo kgopela gore a go botše.

Tlhokomelotebano e akaretša:

- ◆ go hlaloša fela se o se bonago le go se kwa
- ◆ go rekhota seo morutwana a se dirago goba a se bolelago ka botlalo ka fao go kgonegago
- ◆ go se ahlole – o se fe dikgopolo goba tše o di naganago
- ◆ go hlokomela morutwana yo mongwe le yo mongwe ka mehla, mešongwaneng ya go fapana ka dinako tša go fapana mo letšatšing.



Activity 3

1. Think about your observations of *one* of your learners in Term 3. What mathematical knowledge and skills is this learner developing?

2. Refer to (3) to (5) of the *Take back to school task* from Workshop 9 (page 8).
 - ◆ Discuss your use of the '**Check that learners are able to**' observation list (eye box) during teacher-guided activities.
 - ◆ Show members of your group your learner observation book.
 - ◆ Take turns to discuss a learner's progress. Which mathematical skills did you observe? How do you know? (What did the learner do and say?)
 - ◆ Explain how you captured this information using the Term 3: Exemplar Record of Continuous Assessments.
 - ◆ Did you manage to implement a differentiated approach to teaching and learning in your class. If so, how?

Assessment in Grade R

Assessment in Grade R is used to make decisions about the best way to support each learner's development. During teacher-guided activities, whole class activities as well as other activities in the daily programme, you will have opportunities to observe learners and gain insight into their progress. This information should guide your planning for further teaching and learning.

The continuous assessment tables in CAPS and in the Maths Programme's *Activity Guides* are based on the content that has been taught each term and can be used to summarise each learner's progress during the term.

Note that skills and behaviours should be observed on several occasions so that patterns of development over time can be recorded.



Mošongwana wa 3

1. Nagana ka tlhokomelo ya morutwana wa gago o *tee* Kotareng ya 3. Morutwana o hlabolla tsebo efe ya dipalo le mabokgoni?

2. Lebelela (3) go fihla go (5) *Mošomo wo o tloboelago le wona sekolong wa Thutofatlhošo* ya 9 (letlakala la 9).

- ◆ Ahlaahlang ka fao le dirišago lenaneo la tlhokomelo (lepokisi la leihlo) '**Lekola gore barutwana ba kgona go**' ka nako ya mešongwana ya go hlahlwa ke morutiši.
- ◆ Bontšha maloko a sehlopha sa gago puku ya tlhokomelo ya morutwana wa gago.
- ◆ Šiedišanang ka go bolela ka tšwelopele ya morutwana. O be o hlokometše mabokgoni afe a dipalo? O tseba bjang? (Morutwana o dirile le go bolela eng?)
- ◆ Hlaloša ka fao o rekhotilego tshedimošo ye Kotareng ya 3: Mohlala wa Tekolo.
- ◆ O kgonne go phethagatša mokgwa wa pharologantšho mo go ruteng le go ithuta ka phapošing ya gago. Ge go le bjalo, bjang?

Tekolo ka Mphatong wa R

Ka Mphatong wa R tekolo e direlwa go tšea diphetho ka ga tsela ye kaonekaone ya go thekga tllhabologo ya morutwana yo mongwe le yo mongwe. Ka nako ya mošomo wa go hlahlwa ke morutiši, mešongwana ya barutwana ka moka le mešongwana ye mengwe ya lenanephethagatšo la tšatši ka tšatši, o tla ba le menyetla ya go hlokomela barutwana le go kwešiša tšwelopele ya bona. Tshedimošo yeo e swanetše go hlahlwa peakanyo ya go ruta le go ithuta go ya pele.

Ditafola tša kelotšweledi ka gare ga SEPHOLEKE le *Dipukutlhalo tša Mešongwana* tša Lenaneo la Dipalo di theilwe go diteng tše di rutilwego kotareng ye nngwe le ye nngwe gomme di ka dirišwa go akaretša tšwelopele ya morutwana yo mongwe le yo mongwe mo kotareng.

Lemoga gore o swanetše go hlokomela mabokgoni le maitshwaro gantši gore o kgone go rekhota dipatrone tša tllhabologo sebaka mo nakong ye telele.

Session 2: The guiding principles of teaching maths in Grade R

1 hour

Throughout the Maths Programme training, we have referred to the guiding principles of teaching maths in Grade R and how these are incorporated into daily classroom practice. Some of the principles are easier to identify and implement than others. As teachers we need to be constantly aware of how, where and when we are using these principles in our classrooms.



Activity 4

The facilitator will assign one of the guiding principles of teaching maths in Grade R to your group. You will receive a picture of this principle.

1. In your group, discuss the following questions:
 - ◆ What is your understanding of this principle ‘in action’?
 - ◆ Does the Maths Programme make it possible to incorporate this principle in your daily teaching?
 - ◆ Now that you have implemented the Maths Programme for three terms, what are your reflections on this principle?
 - ◆ How would your teaching be affected if this principle was absent from your classroom approach?
2. Paste the picture onto a sheet of flipchart paper. Write your comments below the picture so that you can share these with the whole group.

Thuto ya 2: Ditheo tša go ruta dipalo Mphatong wa R

Iri e 1

Ka nako ya tlhahlo ya Lenaneo la Dipalo, re šupeditše ditheo tša go ruta dipalo ka Mphatong wa R le ka fao di tsenywago katišong ya ka phapošing tšatši ka tšatši. Go bonolo go hlatha le go phethagatša tše dingwe tša ditheo. Bjalo ka barutiši re hloka go dula re lemoga gore re diriša ditheo tše bjang, kae le gona neng ka diphapošing tša rena.



Mošongwana wa 4

Monolofatši o tlo abela sehlopha sa gago se setee sa ditheo tša go ruta dipalo ka Mphatong wa R. Le tlo fiwa seswantšho sa setheo seo.

1. Ka sehlopha, ahlahlang dipotšišo tše di latelago:
 - ◆ Le kwešiša setheo se bjang ge 'se šoma'?
 - ◆ Na Lenaneo la Dipalo le kgontšha go tsenya setheo se ge le ruta tšatši ka tšatši?
 - ◆ Bjale ka ge le phethagaditše Lenaneo la Dipalo dikotareng tše tharo, le nagana eng ka setheo se?
 - ◆ Na go ruta ga lena go be go tlo amega bjang ge nkabe le sa diriša setheo se ka diphapošing tša lena?
2. Kgomaretšang seswantšho se letlakaleng la pampiri ya tšhate ya go phetla. Ngwalang ditshwayatshwayo ka tlase ga seswantšho gore le di abelane le sehlopha ka moka.



1. The context principle. Learning takes place in meaningful and appropriate situations.



2. The activity principle. Learners should be directly involved in the learning-teaching process.



8. The practice principle. Learning is consolidated through practising new skills and knowledge.



7. The inclusivity principle. Learning takes place in an environment where everyone is welcomed, included, treated fairly, respected and can participate.

THE EIGHT PRINCIPLES OF GRADE R MATHS



3. The play principle. Children learn best in free-play and guided-play activities.



6. The guidance principle. Learning takes place when teachers guide learners in developing new knowledge.



5. The interaction principle. Learning takes place when there is communication and sharing of ideas.



4. The level principle. Learners pass through various levels of understanding and development.



1. **Setheo sa dikamano/ sebaka.** Go ithuta go kgatha tema sebakeng sa maleba sa mohola.



2. **Setheo sa mošongwana.** Barutwana ba kgathe tema mošomong wa go ruta le go ithuta.



8. **Setheo sa itlwaetša.** Go ithuta go akaretša Go ikatiša ka mabokgoni le tsebo ye mpsha.



7. **Setheo sa boakaretši.** Go ithuta go phethega ka tlase ga seemo sa go amogelana, akaretšana, lokologa, hlomphana gomme se hlohleletša go kgatha tema.

8
DITHEO TŠE SESWAI TŠA
GO ITHUTA GRADE R MATHS



3. **Setheo sa dipapadi.** Dipapadi tša go lokologa le tša go laolwa di thuša bana go ithuta.



6. **Setheo sa tlhahlo.** Thuto le tsebo e mpsha e phethagala ge barutiši ba hlahla barutwana.



5. **Setheo sa tswalano.** Dikamano le dipoledišano di thuša barutwana go ithuta.



4. **Setheo sa kgato ya maleba.** Barutwana ba ithuta ka dikgato le phihlelelo ya kgolo ya monagano le kwešišo.

Session 3: Introducing numbers 10 and 0

1 hour

Introducing number 10

The ten numerals used in our place value number system are 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. These numerals are used to represent units (ones) and to represent an infinite number of values, for example:

- ◆ tens
- ◆ hundreds
- ◆ thousands, and so on.

Learners in the Foundation Phase need to understand that the same numeral can be used to represent different values, depending on the position of the numeral in a number. For example, in each of the numbers below '3' has a different value:

- ◆ in 3, its value is 'three'
- ◆ in 31, its value is 'thirty'
- ◆ in 349, its value is 'three hundred'.

Place value is a difficult concept for learners to understand. Researchers have found that many learners up to the age of eight think that the '1' in 15 means 'one'.

In Grade 1 learners explore the base ten number system, working with numbers from 11 onwards. They represent these numbers with groups of tens and single ones (units). When they work with numbers 11–19, they begin to understand that in a number like 14, the numeral 1:

- ◆ does not mean 1
- ◆ represents 10 ones
- ◆ therefore, is also 1 ten (1 group of ten).

They also understand that the numeral 4 in 14, represents 4.

DID YOU KNOW?

In the Foundation Phase, learners talk about 'tens' and 'units' as 'groups of ten' and single 'ones'. They represent two-digit and three-digit numbers using grouping models and expanding number cards.

Thuto ya 3: Go tsebiša dinomoro 10 le 0

Iri e 1

Go tsebiša nomoro 10

Dinomoro tše lesome tša go dirišwa go kemapalo ya rena ke 0, 1, 2, 3, 4, 5, 6, 7, 8 le 9.

Dinomoro tše di emela dipalohlokatekanelo (botee) le go emela boleng bja dinomoro tša go se felele, mohlala:

- ◆ masome
- ◆ makgolo
- ◆ dikete, bjalo le bjalo.

Barutwana ba Kgato ya Motheo ba hloka go kwešiša gore nomoro e tee e ka dirišwa go emela boleng bja go fapana, go ya ka boemo bja nomoro. Mohlala, nomorong ye nngwe le ye nngwe ya ka tlase ga '3' e na le boleng bja go fapana:

- ◆ ka go 3, boleng bja yona ke 'tharo'
- ◆ ka go 31, boleng bja yona ke 'masometharo'
- ◆ ka go 349, boleng bja yona ke 'makgolotharo'.

Go bothata go barutwana go kwešiša lereo la kemapalo. Banyakišiši ba hweditše gore barutwana ba bantši go fihla ka ba mengwaga ye seswai ba nagana gore '1' ka go 15 e emetše 'tee'.

Ka Mphatong wa 1 barutwana ba hlohlomiša mokgwatesimale, ba šoma ka dinomoro go thoma ka 11 go ya pele. Ba emela dinomoro tše ka dihlopha tša masome le tše tee (dipalohlokatekanelo). Ge ba šoma ka dinomoro 11–19, ba thoma go kwešiša gore nomorong ya go swana le 14, nomoro 1:

- ◆ ga e emele 1
- ◆ e emela botee bja 10
- ◆ ka fao, ke lesome le le-1 (sehlopha se 1 sa lesome).

Ba kwešiša le gore nomoro 4 ka go 14, e emela 4.

NA O BE O TSEBA?

Ka Kgatong ya Motheo, barutwana ba bolela ka 'masome' le 'dipalohlokatekanelo' bjalo ka 'dihlopha tša lesome' le 'ditee' tše tee. Di emela dinomoro tša palotee-pedi le palotee-tharo di diriša dimotlele tša dihlopha le mongwalopalokatološo.

We do not introduce place value in Grade R. The focus in this grade is on understanding the value of the numbers 0–10 and on building a strong number concept within this range. If learners have a good concept of the numbers to 10, this knowledge can be extended in Grade 1 and other grades.



Activity 5

IMPORTANT!

This activity is for the development of your own knowledge and enrichment. It is not appropriate for Grade R learners. Do NOT introduce this activity in Grade R.

Use the counters, sticks and number cards provided to represent the following numbers:

14 31 22 43

1. Represent each number using counters: make groups of ten and single ones.
2. Represent each number using sticks and string: make bundles of ten and single ones.
3. Label the bundles with the correct number cards.
4. Talk about how many groups of ten and how many ones each number has.
5. Discuss the value of each numeral.
6. Which apparatus do you think was more appropriate for representing the concepts of 'groups of ten' ('tens') and 'ones'? Explain your answer.

7. What do you notice about the value of the numerals in the numbers you represented with the number cards?

Ga re tsebiše kemapalo ka Mphatong wa R. Ka mphatong wo go nepišwa kwešišo ya dinomoro 0–10 le go aga mareo a dinomoro tše ka go a tiišetša. Ge morutwana a kwešiša mareo a dinomoro go fihla ka 10, tsebo ye e ka katološwa ka Mphatong wa 1 le ka mephatong ye mengwe.



Mošongwana wa 5

BOHLOKWA!

Mošongwana wo ke wa go hlabolla tsebo ya gago le go e humiša. Ga se wa swanela barutwana ba Mphato wa R. O SE tsebiše mošongwana wo ka Mphatong wa R.

Diriša dibaledi, dikotana le dikarata tša dinomoro tše di abilwego go emela dinomoro tše di latelago:

14 31 22 43

1. Emela nomoro ye nngwe le ye nngwe ka dibaledi: dira dihlopha tša lesome le tša go ba tee.
2. Emela nomoro ye nngwe le ye nngwe ka dikotana le lenti: dira dihlopha tša lesome le tša go ba tee.
3. Efa dihlopha maina ka dikarata tša dinomoro tša go nepagala.
4. Bolelang gore nomoro ye nngwe le ye nngwe e na le dihlopha tša lesome tše kae le tša go ba tee tše kae.
5. Ahlaahlang boleng bja nomoro ye nngwe le ye nngwe.
6. O nagana gore ke sedirišwa seo se loketšego go emela mareo a 'dihlopha tša lesome' ('masome') le 'a tee'? Hlaloša karabo ya gago.

7. O lemoga eng ka boleng bja dinomoro tše o di emetšego ka dikarata tša dinomoro?

Grade R learners **do not need to understand place value**. They do need to:

- ◆ understand the value (the 'how muchness') of numbers 0–10
- ◆ understand the different combinations of numbers up to 10
- ◆ understand that even though 10 is made up of the numerals 1 and 0, it is NOT $1 + 0$ and it has its own value ('how muchness')
- ◆ understand and be able to represent the different values of 1, 0 and 10.



Activity 6

1. In your group, discuss ideas for teaching the number 10 in your Grade R classroom. Include the use of different representations.

2. Present your ideas to the whole group.

Introducing number 0

In Grade R, learners need to understand that zero is a number and the number symbol for it is '0'.

Young children find the concept of 'emptiness' difficult to understand. When learners are faced with an empty plate, container, box or bag they will often use words such as 'no more', 'all gone', 'nothing left', 'none' or 'empty' to describe the situation. Teachers should accept these correct descriptions, but should also introduce the word 'zero'. The word 'zero' should be used consistently, even when counting down or backwards, e.g., when counting backwards from four: 'four, three, two, one, zero'. The symbol '0' should be placed on the number washing line. The 0 number cards should be used to represent that an object (such as a plate, tub, lid, box) is empty.

Barutwana ba Mphato wa R **ga ba hloke go kwešiša kemapalo**. Ba hloka go:

- ◆ kwešiša boleng ('bokaakang') bja dinomoro 0–10
- ◆ kwešiša go kopanywa ga dinomoro go fihla ka 10
- ◆ kwešiša gore le ge 10 e dirwa ke dinomoro 1 le 0, GA SE 1 + 0 gomme e na le boleng bja yona ('bokaakang')
- ◆ kwešiša le go kgona go emela boleng bja go fapana bja 1, 0 le 10.



Mošongwana wa 6

1. Ka sehlopha, ahlaahlang kgopolo ya go ruta nomoro 10 ka phapaošing ya Mphato wa R. Le akaretše tirišo ya dikemedi tša go fapana.

2. Begela sehlopha ka moka dikgopolo tša gago.

Go tsebiša nomoro 0

Ka Mphatong wa R, barutwana ba swanetše go kwešiša gore lefeela ke nomoro gomme leswao la nomoro ke '0'.

Bana ba bannyane ba swara bothata go kwešiša lereo la 'go se be le selo'. Ge barutwana ba lebeletše poleiti, sekotlelo, lepokisi goba mokotla wa go se be le selo ba diriša mantšu a bjalo ka 'ga e sa le gona', 'sepetše ka moka', 'gase gwa šala selo', 'ga go selo' goba 'ga go na selo' go hlaloša maemo. Barutiši ba swanetše go amogela ditlhalošo tše tša go nepagala, efela ba be ba tsebiše lentšu 'lefeela'. Lentšu 'lefeela' le swanetše go dirišwa ka mehla, le ge go balelwa tlase goba morago, mohl, ge o balela morago go thoma go nne: 'nne, tharo, pedi, tee, lefeela'. Leswao la '0' le swanetše go bewa mothalopalong. Dikarata tša dinomoro tša 0 di swanetše go dirišwa go emela gore selo (bjalo ka poleiti, seswaro, sekhurumelo, lepokisi) ga se na selo.



Video 2

1. Watch the video of a teacher introducing and consolidating the concept of zero.
 - ◆ What do you see happening?
 - ◆ How was the concept of zero introduced?
 - ◆ What did the learners do and say?
 - ◆ What was the role of the teacher?
 - ◆ What was the benefit of using a variety of activities to teach the concept?

2. Write down your observations.



Bideo ya 2

1. Bogela bideo ya morutiši a tsebiša le go matlafatša lereo la lefeela.
 - ◆ O bona go direga eng?
 - ◆ Lereo la lefeela le tsebišitšwe bjang?
 - ◆ Ba dirile eng le gona ba rileng?
 - ◆ Morutiši o be a bapala karolo efe?
 - ◆ Mohola wa go diriša mešongwana ya go fapana ge o ruta lereo ke ofe?

2. Ngwala tše o di bonego.

Session 4: Planning for teaching

1½ hours

This workshop session prepares participants for implementing Term 4 Weeks 1–3. By this stage of the year, the teacher will have noticed distinct differences between learners' levels of progress. Term 4 builds on the content of Terms 1, 2 and 3. 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 Grade 1.



Activity 7

1. In your group, complete the planning templates for Term 4 Weeks 1–3 (Appendix A).
2. Discuss the following questions:
 - ◆ How is the week structured?
 - ◆ How does the content build on previous lessons?
 - ◆ Do the whole class activities successfully create opportunities for the discussion and exploration of new knowledge?
 - ◆ 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?
 - ◆ How could you prepare additional activities to support learners who have not yet mastered a particular skill?
 - ◆ Suggest some ways to extend learning opportunities for advanced learners.
 - ◆ How could you work with a colleague to prepare for each week?

Thuto ya 4: Go beakanyetša go ruta

Iri e 1½

Thuto ye ya thutofatlhošo e beakanya batšeakarolo gore ba phethagatše Kotara ya 4 Dibeke tša 1–3 Ka nako ye ya ngwaga, morutiši o tla be a lemogile diphapano magareng ga maemo a tšwelopele barutwaneng. Kotara ya 4 e aga go diteng tša Dikotara tša 1, 2 le 3. 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 Mphato wa 1.



Mošongwana wa 7

1. Ka sehlopha, tlatšang dithempoleiti tša peakanyo tša Kotara ya 4 Dibeke tša 1–3 (Mamatletšo ya A).
2. Ahlaahlang dipotšišo tše di latelago:
 - ◆ Beke e beakantšwe bjang?
 - ◆ Diteng di agwa godimo ga dithuto tša go feta bjang?
 - ◆ Na mešongwana ya barutwana ka moka e hlama menyetla ya poledišano le tlhohlomišo ya tsebo ya mpsha ka katlego?
 - ◆ 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?
 - ◆ O ka beakanya bjang mešongwana ya tlaleletšo go thekga barutwana bao ba sa tšwago ba kwešiša mabokgoni a itšego?
 - ◆ Šišinya mekgwa ya go katološa menyetla ya go ithuta ya barutwana ba go kwešiša kudu.
 - ◆ O ka šoma bjang le modirišanimmogo go beakanyetša beke ye nngwe le ye nngwe?

Closing activities

30 minutes



Activity 8

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.

- ◆ I learnt _____

- ◆ I did not like _____

- ◆ I enjoyed _____

- ◆ I now understand _____

- ◆ I'm still not clear about _____

- ◆ I would like more information on _____

Share your reflections with the whole group.



Take back to school task

1. Use *Activity Guide: Term 4* to plan and implement Term 4 Weeks 1–3 of the Maths Programme.
2. 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.
3. Make notes of what worked well, what did not work well and how you resolved any challenges during your implementation of Term 4 Weeks 1–3.
4. Bring your learner observation book and the notes you made when reflecting on each day's teaching to the next workshop.

Evaluation

Complete the Evaluation Form.



Mošongwana wa 8

Go naganiša ka thutofatlhošo: Tšea metstso ye mmalwa ba naganiša ka letšatši. Phetla *Pukutšhomo ya Motšeakarolo* go ikgotša tšeo di akareditšwego. Ngwala dikgopolo tša gago.

- ◆ Ke ithutile _____
- ◆ Ga se ke rate _____
- ◆ Ke ipshinne ka _____
- ◆ Bjale ke kwešiša _____
- ◆ Ga ke kwešiše _____
- ◆ Ke nyaka tshedimošo ye ntši ka ga _____

Abelana le sehlopha ka moka ka ga tše o nagananišago ka tšona.



Mošomo wo o tlo boelago le wona sekolong

1. Diriša *Pukutlhahlo ya Mešongwana: Kotara ya 4* go beakanya le go phethagatša Kotara ya 4 Dibeke tša 1–3 tša Lenaneo la Dipalo.
2. 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.
3. Ngwala dinoutse ka ga di šomilego gabotse, tše di sa šomago gabotse le ka fao o šomanego le ditlholo ge o phethagatša Kotara ya 4 Dibeke tša 1–3.
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.

Tekolo

Tlatša Foromo ya Tekolo.

APPENDIX A: TERM 4 WEEKLY PLANNING TEMPLATE

Term 4: 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: KOTARA YA 4 THEMPOLEITI YA PEAKANYO YA BEKE KA BEKE

Kotara ya 4: 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 4: 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 4: 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 4: 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 4: 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 10 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 10

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?
