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GROWING GAUTENG TOGETHER

IsiXhosa/English

INkqubo yeMathematika yokuPhucula yeBanga R Grade R Mathematics Improvement Programme



INdibano yoCweyo 9 • Workshop 9
Incwadi yokuSebenzela yoMthathinxaxheba • Participant's Workbook

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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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Overview

Purpose

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

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

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

Learning outcomes

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

Workshop content

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

Amagqabantshintshi

Injongo

Le yeylethoba kwezilishumi elinambini iindibano zocwego zeNkqubo yeMathematika yokuPhucula yeBanga R (iNkqubo yeMathematika) neyinxalenye yeProjekthi yeBanga R yokuPhucula yeMathematika noLwimi yeSebe leMfundu laseGauteng (Gauteng Department of Education (GDE)).

Injongo yale ndibano yocwego kukuncedisa ootitshala ukuba baphumeze iNkqubo yeMathematika eziklasini zabo. Abathathinxaxheba bazakuba nethuba lokucamngca ngokuphumeza kwabo iNkqubo yeMathematika baze baxoxe ngocwangciso, ukufundisa nokuhlola kwabo. Bazakuphinda baqwalasele nenkqubela yabafundi, ukukhula komfundi ngamnye kunye neemfuno zokufunda. Abathathinxaxheba bazakucamngca ngeendlela ezifanelekileyo zokuhlola ezizezokurekhoda inkqubela yomfundi. Indibano yocwego iphonononga umxholo weKota 3 iiVeki 7–10 kunye nokuphunyezwa kwawo eklasini.

Ubhekiso kwiiNkalo zomXholo weMathematika weBanga R luthathwe *kwiNkcazeloyePolisi yeKharityhulam nokuHlola (CAPS): IBanga R iMathematika (idrafti yokugqibela)*, 2011, iSebe leMfundu esiSiseko, yaseMzantsi Afrika.

Iziphumo zokufunda

- ◆ Ukuthetha ngokuphunyezwa kweKota 3 iiVeki 4–6
- ◆ Ukuphonononga iindlela ezisekelwe ekudlaleni zokuxhasa ukufundiswa kwemathematika kwiBanga R
- ◆ Ukumilisela ingqiqo yengqikelelomanani ekwiNkalo yoMxholo waMananani, iiOpareyshini noLwalamano baze baqhagamshelanise oku nokuphunyezwa kwemathematika kwiklasi yeBanga R
- ◆ Ukumilisela ingqiqo yohlolo olufanelekileyo kwiBanga R
- ◆ Ukucamngca ngeengxaki nokufumana izisombululo zokuphumeza iNkqubo yeMathematika
- ◆ Ukuceba umxholo weNkqubo yeMathematika oza kufundiswa kwiKota 3 iiVeki 7–10

Umxholo wendibano yocwego

- ◆ Ukuvula nocamngco (1 iyure)
- ◆ Iseshoni 1: Amanani, iiOpareyshini noLwalamano (1 iyure)

ITI

- ◆ Iseshoni 2: Amanani, iiOpareyshini noLwalamano (ziyaqhubeke) (1 iyure)
- ◆ Iseshoni 3: Ubalo kwiBanga R (1 iyure)

ISIDLO SASEMINI

- ◆ Iseshoni 4: Ukucwangcisela ukufundisa (1½ iiyure)
- ◆ Imisebenzi yokuqukumbela (30 imizuzu)

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.

Ukuvula nocamngco

1 iyure

Ucamngco luquka ukucinga nokuthetha ngamava akho kwanoko ukufundileyo. Cinga ngeendibano zocweyo zeMathematika osele uyile kuzo uze ugqibezele izivakalisi eziboniswa ngumbhexeshi.

Ucamngco ngokuphunyezwa

Umsebenzi ekubuyelwa nawo esikolweni othathwe kwiNdibano yoCweyo 8, ubufuna ukuba wenze oku kulandelayo:

- ◆ Sebenzisa *isiKhokelo semiSebenzi: Ikota 3* ukucwangcisa nokusebenza kwiKota 3 iiVeki 4–6 zeNkubo zeMathematika.
- ◆ Bhala izimvo zakho encwadini oyisebenzisayo ukugcina inkqubela yomfundu ngamnye (incwadi yoqwalaselolomfundu), uze usebenzise uluhlu lwengqwalasela phantsi ko-**'Qwalasela ukuba abafundi bayakwazi uku'** ngesihlandlo ngasinye semisebenzi ekhokelwa ngutitshala ukuze ukukhokele ingqwalasela kwanamanqaku owenzayo.
- ◆ Yenza amanqaku ngoko kusebenze kakuhle, okungasebenzanga kakuhle nendlela ohlangabezene ngayo nemingeni ngethuba lakho lokuphumeza iKota 3 iiVeki 4–6.

Kwimisebenzi elandelayo sebenzisa incwadi yakho yoqwalaselolomfundu kunye namanqaku owenzileyo xa ubucamngca ngosuku ngalunye lokufundisa.



Umsebenzi 1

1. Kwiqela lakho, yabelanani ngezinto enithe naphumelela kuzo kwanemingeni yokuphumeza iNkubo yeMathematika iKota 3 iiVeki 4–6. Yabelana ngeendlela zokuphucula ukufundisa nokufunda kwimingeni othe wayibalula.

2. Xoxani ngendlela olusebenzise ngayo uluhlu loqwalaseloku**'Qwalasela ukuba abafundi bayakwazi uku'** (kwibhokisi eneliso) ngexesha layo ngaminye imisebenzi ekhokelwa ngutitshala.
Bonisa amalungu eqela lakho incwadi yakho yoqwalaselolomfundu.
Khetha umfundi omnye uze uxoxe ngoqwalaselolwakho ngenqubela yalo mfundi.

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?

- Bhalani amanqaku angundoqo engxoxo yenu kwiphepha lefliptshathi. Nikani ingxelo ngengxoxo yenu kwiqela elikhulu.



Ividiyo 1

Bukela ividiyo katitshala osebenza neqela elincinci ngexesha lomsebenzi okhokelwa ngutitshala kwiKota 3 iVeki 6. Okona sigxile kuko kuqwalasel o lwale ndibano yocweyo yindlela angenelela ngayo utitshala kwimisebenzi yamanani.

Qwalasela indlela utitshala asebenza ngayo kule misebenzi mithandathu. Qaphela:

- indlela azibeka ngayo iingxaki
 - isigama asisebenzisayo xa ebuza imibuzo
 - indlela awondlala ngayo umsebenzi ngamnye
 - imibuzo ayibuzayo ukukhokela abafundi.
-
-
-
-
-
-
-



Umsebenzi 2

Bhekisa kumsebenzi okhokelwa ngutitshala (amaphepha 114–117) kwiVeki 6 yesiKhokelo semiSebenzi: Ikota 3.

- Xoxa ngendlela owuqhube ngayo lo msebenzi okhokelwa ngutitshala eklasini yakho.
-
-
-

- Ingaba uye wahlangabezana nemingen? Ukuba kunjalo, uyisombulule njani?
-
-
-

Session 1: Numbers, Operations and Relationships

1 hour

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

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

Oral counting

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.

Isehoni 1: Amanani, iiOpareyshini noLwalamano

1 iyure

Kwiindibano zocweyo ezingaphambili sixoxe ngeNkalo yoMxholo waManani, iiOpareyshini noLwalamano. Kule iseshoni sizakuqwalasela kwakhona izihloko ezahlukileyo zenani size solule ingxoxo yethu ukuze siyiqonde banzi ikhonsepsti yenani. Sizakuhlola le miba yenani ilandelayo size siziqhagamshelanise nenqubo yaseklasini:

- ◆ ukubala ngomlomo
- ◆ ukusabthayiza
- ◆ ukumela inani
- ◆ ukubala izinto
- ◆ amanani olandelelwano
- ◆ ukubala.

Ukubala ngomlomo

Abantwana bafunda ulandelelwano oluchanekileyo lwamagama amanani njengokuba bedlala, becula okanye bephinda izicengcelezo.

Njengoko sisazi, ukubala ngomlomo kuquka ukubiza amagama amanani ngolandelewano. Abafundi balandelelanisa amanani ngexesha lemisenbenzi yesiqhelo yokubala ngomlomo nangexesha lotshintsho. Iingoma, izicengcelezo kunye neentshukumo zenza ukuba ukubala ngomlomo kunike umdla ngeli lixa kufundwa ngolandelewano lwamanani. Bakube bekwazi abafundi ukuphinda ulandelelwano lwamanani ngolandelewano lokubala oluchanekileyo, baqalisa ukuthetha ngolwalamano phakathi kwamanani, umz. leliphi inani *elingaphambi, phakathi okanye emva* kwelinYE inani.



Umsebenzi 3

Kwiqela lenu, xoxani ngendlela le misebenzi ilandelayo ekukhuthaze ngayo ukufundwa kokulandeleta kwamagama okubala eklasini yakho:

- ◆ iingoma nezicengcelezo
- ◆ ucingo lokoneka amanani
- ◆ imizila yokux huma.



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?



Umsebenzi 4

Funda iinkcukacha ezikumaphepha 138–143 uze ujongo idayagram ephezulu kumaphepha 144–145 esiKhokelo seeKhonsepthi.

Kwiqela lenu, xoxani ngale miba yenani ilandelayo:

- ◆ ‘iintsingiselo’ ezahlukileyo zenani

- ◆ iiintlobo ezahlukileyo zenani

Abafundi beBanga R basebenza ikakhulu ngamanani apheleleyo 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 no10. (KwiBanga 1 oku kuyongezwa ukuya kutsho ku20 nangaphezulu.) Sigxila ekubaleni nasekumeleni amanani ngeendlela ezahlukileyo size sibonelele ngamathuba okuba abafundi basebenze ngamanani kwiimeko ezahlukileyo.

Ukusabhathayiza (Ukwazi isiphumo ungakhange ubale)



Umsebenzi 5

Qwalasela umbhexeshi. Qho etsheluzisa ikhadi, chaza ngokukhawuleza kangangoko unako ukuba ‘mangaphi’ amachokoza owabonayo.

1. Ingaba ubale ichokoza ngalinye nganye nganye na? Kutheni ungenzanga njalo?

2. Ucinga ukuba kuluncedo ngantoni ukubethelela isakhono sokusabhathayiza?

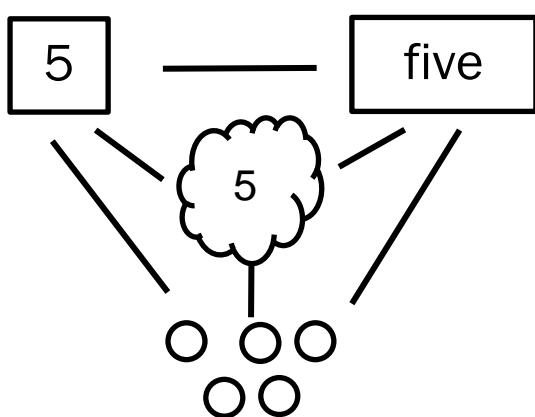
3. What activities that reinforce the ability to subitise have you used in your Term 1 and 2 maths sessions?

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.



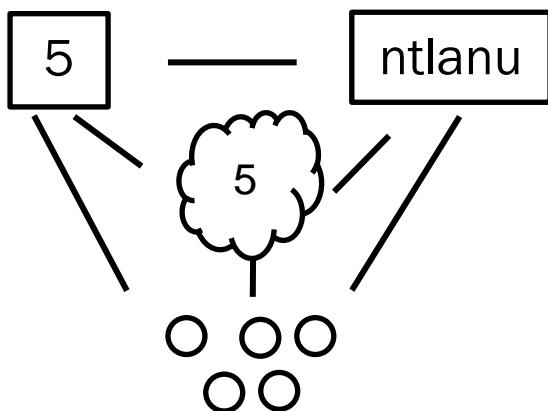
3. Yeyiphi imisebenzi ebethelela isakhono sokusabhathayiza oyisebenzisileyo kwiiseshoni zemathematika kwiKota 1 no2?

Bhekisa kumaphepha 144–147 *esiKhokelo seeKhonsepthi*.

Ukumela inani

Inani liyikhonsepthi engabambekiyo. Yimbono esentloko kuperha. Asiwaboni amanani, ngoko kufuneka sifumane iindlela ezahlukeneyo zokumela (zokubonisa) inani elo kubhekiswa kulo. Abafundi badinga ukwenza uqhagamshelwano phakathi kwembono yenani, umz., u5, kunye nokumelwa kwakhe okwahlukeneyo, njengengqokelela yezinto, isimboli, igama. Kukwafuneka baqonde ukuba xa sisithi, 'zingaphi' iilekese, izandi zokuqhwaba, izindlu, imihla yokuzalwa, njlnjl., untlanu usoloko ebhekisa kwinani elifanayo lezi zinto.

Abafundi kufuneka bayifake engqondweni into 'yobungakanani' okanye 'umlingano' wenani. Ukugqithisa le khonsepthi kubafundi, ootitshala kufuneka bayazise le mbono ngokusebenzisa izinto ezibambekayo, umzekelo, izixhobo zokubala. Ukuncedisa abafundi baqonde ingqikelelo yenani, kufuneka bazi ukuba inani lisenokuboniswa ngeendlela ezahlukileyo. Abafundi kukwafuneka benze uqhagamshelwano phakathi kokumelwa kwenani okwahlukileyo, umzekelo into, umfanekiso, isimboli negama.



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	

Isehoni 2: Amanani, iiOpareyshini noLwalamano (ziyaqhube)

1 iyure

Ukubala izinto

Ukubala ukuba ‘zingaphi’, abafundi badinga ukwazi ukuba into nganye kwiqela inegama lenani kwanokuba ubala into nganye kube kanye kuphela.

Mihlanu imigaqo yokubala echaza inkqubo yokufunda ukubala. Bakube abafundi bekuqondile oku kwaye bekwazi ukusebenzisa yomihlanu le migaqo yokubala, singatsho ukuba bayakwazi ukubala.



Umsebenzi 6

Funda iinkcukacha ezikumaphepha 148–151 *esiKhokelo seeKhonsepthi*.

1. Sebenzisa isixhobo osinikiweyo ukubonisa le migaqo njengoko ichaziwe *kwisiKhokelo seeKhonsepthi*.
2. Xoxa ngomgaqo ngamnye kwiqela lakho uze uzenzele amanqaku akho kule theyibhile ingezantsi ukucacisa ukuwuqonda kwakho umgaqo ngamnye.

Umgaqo wokuhambelana kwenye nenye	
Umgaqo wocwangco oluzinzileyo	
Umgaqo obonisa ubungakanani	
Umgaqo wokuthintela	
Umgaqo wocwangco olungahambelaniyo	

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.

Amanani olandelelwano

Sixoxile ngeentlobo zamanani akuchazelayo ukuba ‘zingaphi’. La abizwa ngokuba **ngamanani obungakanani**.

Akhona namanani abonisa indawo yento okanye umntu kuluhlu lolandelelwano. La wona abizwa ngokuba **ngamanani olandelelwano**.



Umsebenzi 7

Dwelisa izixhobo zokubala ezizizilwanyana etafileni yakho ngokwemiyalelo yombhexeshi. Phendula imibuzo yakhe emalunga nendawo ezikuyo izixhobo zokubala ezizizilwanyana.

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.

Isehoni 3: Ubalo kwiBanga R

1 iyure

Abafundi badinga ukuqonda ixabiso lamanani kunye nolwalamano phakathi kwawo ngaphambi kokuba benze iiopareyshini ezinjengokudibanisa nokuthabatha. Badinga ukwazi, umzekelo, untathu ‘ukangaphi’; u3 uza ngaphambi kuka4, emva kuka2, phakathi kuka2 no4; kwaye u3 ungaphezulu kuka2 ngesinye kwaye ungaphantsi kuka4 ngesinye.

Ukusebenzisa izixhobo zokubala, amaso okuhlela, amakhadi anamachokoza, kunye nomdlalo kahlukuhla uchithe kubonelela abafundi ngamathuba okuqonda ukuba amanani asenokwakhiwa okanye aqhekezwe. Ngale ndlela, kancinci kancinci bayayinakana into yokuba naliphi na inani lenziwe ngeendibani selwano zamanye amanani ezahlukenyero. Umzekelo, inani u5 lisenokwenziwa ngo:-

- ◆ 4 no1
- ◆ 1 no1 no1 no2
- ◆ 0 no5.

KwiBanga R, abafundi baphonononga iindlela ezahlukenyero zokwakha kwanokuqhekeza amanani, nokuwadibanisa kwanokuwathabatha besebenzisa izixhobo zokubala.



Umsebenzi 8

Funda iinkcukacha ezikumaphepha 154–156 *esiKhokelo seeKhonsepti*.

Cinga ngendlela ozisebenzise ngayo iimathiriyeli ekubonelelwe ngazo kwiNkqubo yeMathematika ukuncedisa abafundi baziqonde iiopareyshini zenani (ubalo) nolwalamano. Sebenzisa iimathiriyeli ukubonisa oku.

1. Abafundi bayiphonononga njani ikhonsepti yenani kwiNkqubo yeMathematika besebenzisa iimatheriyeli abazinikiweyo?
 2. Yeyiphi imibuzo onokuyibuza eza kukhokela ukufunda kwabo? (Jonga kwiphepha 157 *lesiKhokelo seeKhonsepti* ukufumana imizekelo yemibuzo.)
-
-
-

Lungiselelani ukunikezela ngengxoxo yenu kwiqela elikhulu.

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.

Ingxaki yamagama

Abafundi beBanga R badinga ukusombulula iingxaki zamagama ngomlomo eziquka ukudibanisa, ukuthabatha, nokwabelana ngokulinganayo kwanokubeka ngokwamaqela. Bakwadinga ukucacisa eyabo ingqiqo neendlela zokusombulula iingxaki ezakuhlukeneyo.

Nika abafundi ixesha elininzi uze ubavumele basebenzise izinto zokwenene (umz., izixhobo zokubala, iminwe, amaso okuhlela) ukusombulula iingxaki nokujonga iiimpendulo zabo.

Xa ubeka ingxaki yegama kubafundi, kubalulekile ukubakhuthaza ukuba:

- ◆ bafumane indlela yokusombulula ingxaki
- ◆ bacacise indlela abayisombulule ngayo ingxaki
- ◆ batsho ukuba kutheni becinga ukuba impendulo yabo ichanekile.

Imixholo yokudibanisa nokuthabatha isenokuvezwa njengeengxaki zamagama. Indlela ebekwe ngayo ingxaki yegama ibonisa indlela ekuzakuba lula okanye nzima ngayo ukuyisombulula. Kubalulekile ukusebenzisa isigama esicacileyo, esilula xa usondlala iingxaki zamagama.

KwiNdibano yoCweyo 6 siqwalasele ukubaluleka kokusetyenzisa kwesigama esicacileyo, esilula kwanokubuza imibuzo efanelekileyo ngexesha lemisenbenzi yokusombulula iingxaki. Siphinde saseka iingxaki zokwenene kwimixholo abasenokuyiqonda abafundi. KuMsebenzi 9, uza kuxoxa ngokusombulula iingxaki ngokuthe vetshe.



Umsebenzi 9

1. Jonga ezi ngxaki zamagama zingeantsi (iphepha 27).
 - ◆ Ungayisombulula njani ingxaki nganye?
 - ◆ Ucinga ukuba abafundi bakho beBanga R bazakukwazi ukuyisombulula ingxaki nganye?
 - ◆ Kutheni ezinye zezi ngxaki zinzima kunezinye?
 - ◆ Sebenzisa izixhobo zokubala ezisetafileni yakho ukubonisa indlela abafundi abaza kuzisombulula ngayo ezi ngxaki.

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

Dibanisa	Yahlukanisa
ULaylah uneelekese ezi6. UMalusi umnika ezinye ezi2. ULaylah uneelekese ezingaphi xa zizonke?	Bekukho iilekese ezi8. ULaylah utye za3. Zingaphi ezishiyekel uMalusi?
ULaylah uneelekese ezi5. Udinga zibe ngaphi ukuze abe nezi8?	ULaylah ebeneelekese ezi8. UMalusi utye ezinye. Kushiyek ezi4. Zingaphi iilekese ezityiwe nguMalusi?
ULaylah ebeneelekese anazo. UMalusi wamnika ezinye ezi2. Ngoku unezi8. Zingaphi iilekese ebenazo ekuqaleni?	ULaylah ebeneelekese anazo. Unike UMalusi za6. Ushiyek eekekese ezi2. Ebeneelekese ezingaphi ekuqaleni?

2. Bhala ingxaki yegama onokuyinika abafundi bakho beBanga R ibenye kwezi zilandelayo:

Ukudibanisa: $4 + 5 =$

Ukuthabatha: $7 - 3 =$

Ukwabelana ngokulinganayo kungashiyeki ntsalela: 8 kwabelwana ngaye phakathi kwabafundi aba4

Equal sharing with a remainder: 5 shared between 2 learners

Ukwabelana ngokulinganayo kushiyeweke intsalela: 5 kwabelwana ngaye phakathi kwabafundi aba2

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?

Isehoni 4: Ukucwangciselala ukufundisa

1½ iiyure

Le seshoni yendibano yocweyo ilungiselela abathathinxaxheba ukuba baphumeze iKota 3 iiVeki 7–10. Kwesi sithuba sonyaka, utitshala sele ekuqaphele ukwahlu ka okubonakalayo phakathi kwamazinga enkqubela yabafundi. Ikota 3 yakhela phezu komxholo weeKota 1 no2. Abanye abafundi bazakube bekulungele oku, ngeli lixa abanye besaza kudinga inkxaso kunye nokumanyaniselwa kwinkqubela. Kubalulekile ukucwangciselala kwanokukulungiselela oku kwahluka kwizakhono zabafundi ukuqinisekisa ukuba wonke umxholo nobuchule beMathematika yeBanga R wenziwe, kwanokuba abafundi bayilungele ngokwaneleyo iKota 4.



Ividiyo 2

Bukela ividiyo kositshala oxoxa ngendalela ahlangabezana ngayo noluhlu lwezakhono zabafundi eklasini yakhe. Mamela ukuba uthini na ngokucwangciselala kwanokuhlangabezana nomahluko phakathi kwemigangatho yezakhono zabafundi kunye nendalela alwenza ngayo ucwangciso lwakhe ukuze anike inkxaso kwiimfuno zomfundu ngamnye.

Bhala ezakho iimbono ngokufunda nokufundisa ngokwahlu kileyo eklasini yakho.



Umsebenzi 10

1. Kwiqela lakho, gcwalisani iithemplayithi zesicwangciso seKota 3 iiVeki 7–10 (Isingeniso A).
2. Iqela lakho liza kubonisa amanye amaqela isishwankathelo sengxoxo yesicwangciso salo. Qaphela ukuba amanqaku angundoqo engxoxo yenu kufuneka abhalwe kwiphepha lefliptshathi. Quka iimpendulo zale mibuzo ilandelayo:
 - ◆ Yeyiphi imingeni ocinga ukuba usenokuhlangabezana nayo ekuphumezeni iiVeki 7–10?
 - ◆ Ungawusombulula njani umngeni ngamnye kule uyibaluleyo ukuze uphumezo lube yimpumelelo?
 - ◆ Ingaba umsebenzi okhokelwa ngutitshala umnika njani utitshala amathuba okuhlola nokuxhasa abafundi?
 - ◆ Ingaba imisebenzi ezimeleyo yamaqela amancinci iyalinika ithuba elaneleyo lokuziqhelisa ulwazi olutsha nezakhono?

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.

Imisebenzi yokuqukumbela

30 imizuzu



Umsebenzi 11

Ucamngco ngendibano yocweyo: Thatha imizuzu embalwa ucamngce ngomhla. Tyhila kwiNcwadi yokuSebenzela yoMthathinxaxheba uzikhumbuze ngoko kwenziweyo. Bhala phantsi iingcamango zakho.

Yabelana neqela elikhulu ngeengcamngco zakho.



Umsebenzi ekubuyelwa nawo esikolweni

1. Sebenzisa *isiKhokelo semiSebenzi: Ikota 3* ukucwangcisa nokusebenza kwiKota 3 iiVeki 7–10 zeNkqubo zeMathematika.
2. Yenza amanqaku ngoko kusebenze kakuhle, okungasebenzanga kakuhle nendlela ohlangabezene ngayo nemingeni ngethuba uphumeza uKota 3 iiVeki 7–10.
3. Bhala izimvo zakho encwadini oyisebenzisela ukugcina inkqubela yomfundu ngamnye (incwadi yoqwalaselo lomfundu). Sebenzisa uluhlu lokuqwalasela luka-**'Qwalasela ukuba abafundi bayakwazi uku'** (ibhokisi eneliso) ngexesha lemisebenzi ekhokelwa ngutitshala ukukhokela uqwalaselo nezimvo zakho.
4. KwiNdibano yoCweyo elandelayo yiza nencwadi yakho yoqwalaselo lomfundu namanqaku owenzileyo xa ucamngca ngosuku ngalunye lokufundisa.
5. Yiza nekopi yeKota 3: Umzekelo weRekhodi yoHlolo oluQhubekayo (ethathwe *kwisiKhokelo semiSebenzi: Ikota 3*) kwindibano yocweyo elandelayo.

Uhlobo

Gwalisa iFomu yoHlolo.

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			

ISINGENISO A: ITHEMPLEYTHI YESICWANGCISO SEVEKI NEVEKI KWIKOTA 3

Ikota 3: Isicwangciso semiSebenzi: Iveki _____

INKALO YOMXHOLO:	
ISIHLOKO:	
YAZISA ULWAZI OLUTSHA: : ZIQHELISE:	
Imisebenzi yeklasi yonke	
Usuku 1	
Usuku 2	
Usuku 3	
Usuku 4	
Usuku 5	
Umsebenzi okhokelwa ngutitshala	
Imisebenzi yesitishi sokusebenzela (imisebenzi ezimeleyo yamaqela amancinci)	
Umsebenzi 1	
Umsebenzi 2	
Umsebenzi 3	
Umsebenzi 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			

Ikota 3: Isicwangciso semiSebenzi: IVEKI _____

INKALO YOMXHOLO:	
ISIHLOKO:	
YAZISA ULWAZI OLUTSHA:	
ZIQHELISE:	
Imisebenzi yeklasi yonke	Umsebenzi okhokelwa ngutitshala Imisebenzi yesitishi sokusebenzela (imisebenzi ezimeleyo yamaqela amancinci)
Usuku 1	Umsebenzi 1
Usuku 2	Umsebenzi 2
Usuku 3	Umsebenzi 3
Usuku 4	Umsebenzi 4
Usuku 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			

Ikota 3: Isicwangciso semiSebenzi: IVEKI _____

INKALO YOMXHOLO:				
ISIHLOKO:				
YAZISA ULWAZI OLUTSHA:				
ZIQHELISE:				
Imisebenzi yeklasi yonke	Umsebenzi okhokelwa ngutitshala	Imisebenzi yesitishi sokusebenzela (imisebenzi ezimeleyo yamaqela amancinci)	Umsebenzi 1	
Usuku 1			Umsebenzi 2	
Usuku 2			Umsebenzi 3	
Usuku 3			Umsebenzi 4	
Usuku 4				
Usuku 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		

Ikota 3: Isicwangciso semiSebenzi: IVEKI _____

INKALO YOMXHOLO:				
ISIHLOKO:				
YAZISA ULWAZI OLUTSHA:				
ZIQHELISE:				
Imisebenzi yeklasi yonke	Umsebenzi okhokelwa ngutitshala	Imisebenzi yesitishi sokusebenzela (imisebenzi ezimeleyo yamaqela amancinci)	Umsebenzi 1	
Usuku 1			Umsebenzi 2	
Usuku 2			Umsebenzi 3	
Usuku 3			Umsebenzi 4	
Usuku 4				
Usuku 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?

IFomu yokuHlola yeNdibano yoCweyo 9

1. Ingaba indibano yocweyo ifikelele koko ubukulindele?

2. Ufunde ntoni kule ndibano yocweyo ekuncede kakhulu?

3. Ingaba ikhona into ongakhange uyithande okanye obenobunzima bokuyiqonda?

4. Uzakukusebenzisa njani oko ukufundileyo apha kwiklasi yakho yeBanga R?

5. Ingaba unazo iingcebiso zokuphucula nangakumbi iindibano zocweyo?
