GAUTENG PROVINCE
EDUCATION
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GGT 2030
GROWING GAUTENG TOGETHER

IsiXhosa/English

INkqubo yeMathematika yokuPhucula yeBanga R
Grade R Mathematics Improvement Programme

INdibano yoCweyo 9 ● Workshop 9
IsiKhokelo somBhexeshi ● Facilitator's Guide

The Grade R Mathematics and Language Improvement Project is an initiative of the **Gauteng Department of Education** and its key partner, the **Gauteng Education Development Trust**.

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

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

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IProjekthi yeBanga R yokuPhucula yeMathematika noLwimi lilinge **leSebe leMfundo laseGauteng (Gauteng Department of Education)** kunye neqabane layo eliphambili, i**Gauteng Education Development Trust**.

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Overview

Purpose

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

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

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

Learning outcomes

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

Workshop content

- Opening and reflection (1 hour)
- Session 1: Numbers, Operations and Relationships (1 hour)

TEA

- Session 2: Numbers, Operations and Relationships (continued) (1 hour)
- Session 3: Calculation in Grade R (1 hour)

LUNCH

- Session 4: Planning for teaching (1½ hours)
- Closing activities (30 minutes)

Amagqabantshintshi

Injongo

Le yeyethoba kwezilishumi elinambini iindibano zocweyo zeNkqubo yeMathematika yokuPhucula yeBanga R (iNkqubo yeMathematika) neyinxalenye yeProjekthi yeBanga R yokuPhucula yeMathematika noLwimi yeSebe leMfundo laseGauteng (Gauteng Department of Education (GDE)).

Injongo yale ndibano yocweyo 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 yocweyo iphonononga umxholo weKota 3 iiVeki 7–10 kunye nokuphunyezwa kwawo eklasini.

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

Iziphumo zokufunda

- Ukuthetha ngokuphunyezwa kweKota 3 iiVeki 4–6
- Ukuphononongа 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 yocweyo

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

ITI

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

ISIDLO SASEMINI

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

Preparation

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

Materials

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

Ulungiselelo

- PPT ulwamkelo neziphumo
- Ziqhelanise nazo zonke ii-*PowerPoints* neevidiyo
- Funda:
  IsiKhokelo seeKhonsepthi, amaphepha 138–161
  IsiKhokelo semiSebenzi: Ikota 3, amaphepha 120–185
- Yiza nebhokisi yeposi
- Khumbuza abathathinxaxheba ukuba beze nesabo:
  IsiKhokelo seeKhonsepthi
  IsiKhokelo semiSebenzi: Ikota 2
  IsiKhokelo semiSebenzi: Ikota 3
  INcwadi yeePowusta
- Bhala ezi zivakalisi zilandelayo kwimicu yamaphepha amakhulu amane:
  Ndifunde …
  Andiyithandanga …
  Ngoku ndiyaqonda …
  Andikacacelwa yi-…
- Sikela iqela ngalinye imicu yephepha elinguA4.

Iimathiriyeli

- Iphepha lefliptshathi, iikhoki
- IPrestikhi
- *IKiti yeziXhobo* yeqela ngalinye

Opening and reflection **1 hour**

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

Facilitator's notes

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

Reflection on implementation

Facilitator's notes

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

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

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

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

Ukuvula nocamngco

1 iyure

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

Amanqaku ombhexeshi
♦ PPT: Iziphumo zokufunda zendibano yocweyo. ♦ Xhoma imicu yezivakalisi edongeni: - Ndifunde … - Andiyithandanga … - Ngoku ndiyaqonda … - Andikacacelwa yi-… ♦ Beka imicu yamaphepha anguA4 kwitafile nganye. Abathathinxaxheba babhala iimpendulo zabo zemicu yezivakalisi kule micu yamaphepha anguA4. Sebenzisa iPrestikhi ukuxhoma imicu yabo phantsi kwezivakalisi ezihambelana nayo. ♦ Xoxa ngamanqaku akwibhokisi yeposi kunye nezimvo ezicatshulwe kwindibano yocweyo engaphambili. Khumbuza abathathinxaxheba ukuba 'bapose' amanqaaku amatsha kunye nezimvo ngexesha lendibano yocweyo.

Ucamngco ngokuphunyezwa

Amanqaku ombhexeshi
♦ Khumbuza abathathinxaxheba ngo*Msebenzi ekubuyelwa nawo esikolweni* wasekupheleni kweNdibano yoCweyo 8. ♦ Thumela abathathinxaxheba **kuMsebenzi 1 no2** uze ufunde imiyalelo. Abathathinxaxheba benza imisebenzi ngokwamaqela abo. Amaqela aze abelane ngamanqaku angundoqo neqela elikhulu. ♦ Emva kweengxoxo zamaqela amancinci, thatha amanqaku kwiqela ngalinye. Shwankathela ngoko kube yimpumelelo kwanoko kube yimingeni uze uxoxe ngezinto ezinokuchaphazela ukuphunyezwa koku eklasini.

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 zeNkqubo zeMathematika.
- Bhala izimvo zakho encwadini oyisebenzisayo ukugcina inkqubela yomfundi ngamnye (incwadi yoqwalaselo lomfundi), 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 yoqwalaselo lomfundi kunye namanqaku owenzileyo xa ubucamngca ngosuku ngalunye lokufundisa.

Activity 1

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

_____
_____
_____

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

_____
_____
_____
_____
_____
_____

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

Video 1

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

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

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

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

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_____
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Umsebenzi 1

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

_____
_____
_____

2. Xoxani ngendlela olusebenzise ngayo uluhlu loqwalaselo ku**'Qwalasela ukuba abafundi bayakwazi uku-'** (kwibhokisi eneliso) ngexesha layo ngaminye imisebenzi ekhokelwa ngutitshala.
   Bonisa amalungu eqela lakho incwadi yakho yoqwalaselo lomfundi.
   Khetha umfundi omnye uze uxoxe ngoqwalaselo lwakho ngenkqubela yalo mfundi.

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

Ividiyo 1

IsiKhokelo semiSebenzi: Ikota 3, Iveki 6, Umsebenzi okhokelwa ngutitshala (amaphepha 114–117)

Bukela ividiyo katitshala osebenza neqela elincinci ngexesha lomsebenzi okhokelwa ngutitshala kwiKota 3 iVeki 6. Okona sigxile kuko kuqwalaselo 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.

_____
_____
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Activity 2

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

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

_____
_____
_____

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

_____
_____
_____

Facilitator's notes

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

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

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 **Umsebenzi 2**

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

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

_____
_____
_____

2. Ingaba uye wahlangabezana nemingeni? Ukuba kunjalo, uyisombulule njani?

_____
_____
_____

Amanqaku ombhexeshi

Bonisa ividiyo uze ukhokele ingxoxo esekelwe kwimisebenzi nemibuzo yemathematika. Ukuba abathathinxaxheba abawachazi la manqaku alandelayo, wongeze kwingxoxo.

- Imisebenzi mifutshane. Utitshala akalibazisi ngokungenasizathu xa egqithisa izixhobo okanye athethe nomnye wabafundi ixesha elide. Utshintsho luyakhawuleza kwaye utitshala uyayenza imisebenzi ebekiweyo ngexesha elisikelweyo.
- Imibuzo ebuziweyo kunye nesigama esisetyenzisiweyo sicacile kwaye asisidanga.
- Imisebenzi isekelwe kulwazi olusele lukho kwaye yongeza izimvo ezitsha.
- Ukumamela nokuqwalasela umfundi **ngamnye** kubonelela ngengqiqo ngenkqubela yakhe. Kukunceda ukwazi ukwalatha izakhono nezikhewu ezikhoyo kwizakhono kunye/okanye ukuqonda kwabo.

Session 1: Numbers, Operations and Relationships

1 hour

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

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

Oral counting

Facilitator's notes

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

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

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

Activity 3

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

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

Iseshoni 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 ikhonsepthi yenani. Sizakuhlola le miba yenani ilandelayo size siziqhagamshelanise nenkqubo yaseklasini:

- ukubala ngomlomo
- ukusabhathayiza
- ukumela inani
- ukubala izinto
- amanani olandelelwano
- ukubala.

Ukubala ngomlomo

Amanqaku ombhexeshi

- Ukubala ngomlomo kuquka ukubiza amagama amanani ngokulandelelana. Abafundi balandelelanisa amanani ngexesha lemisebenzi yesiqhelo yokubala ngomlomo nangexesha lotshintsho. Iingoma, izicengcelezo kunye neentshukumo zenza ukuba ukubala ngomlomo kunike umdla ngeli lixa kufundwa ngolandelelwano lwamanani. Bakube bekwazi abafundi ukuphinda ulandelelwano lwamanani ngolandelelwano lokubala oluchanekileyo, baqalisa ukuthetha ngolwalamano phakathi kwamanani, umz. leliphi inani eliza kuqala, phakathi okanye emva kwelinye inani.
- Khetha iqela libe linye eliza kubonisa ingxoxo yalo yo**Msebenzi 3**.

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

Njengoko sisazi, ukubala ngomlomo kuquka ukubiza amagama amanani ngolandelelwano. Abafundi balandelelanisa amanani ngexesha lemisebenzi yesiqhelo yokubala ngomlomo nangexesha lotshintsho. Iingoma, izicengcelezo kunye neentshukumo zenza ukuba ukubala ngomlomo kunike umdla ngeli lixa kufundwa ngolandelelwano lwamanani. Bakube bekwazi abafundi ukuphinda ulandelelwano lwamanani ngolandelelwano 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 kokulandelelana kwamagama okubala eklasini yakho:

- iingoma nezicengcelezo
- ucingo lokoneka amanani
- imizila yokuxhuma.

_____
_____
_____
_____
_____

Facilitator's notes

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

 **Activity 4**

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

In your group, discuss the following aspects of number:

- different 'meanings' of number

_____
_____
_____
_____

- different kinds of numbers

_____
_____
_____
_____

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

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Amanqaku ombhexeshi

- PPT: 'Iintsingiselo' zenani ezahlukileyo kunye neendidi ezahlukileyo zamanani.
- Xoxa 'ngeentsingiselo' ezahlukileyo zenani kunye neendidi ezahlukileyo zamanani, kunye noko inani ligxile kuko kwiBanga R.

Umsebenzi 4

Funda iinkcukacha ezikumaphepha 138–143 uze ujonge idayagram ephezulu kumaphepha 144–145 e*siKhokelo seeKhonsepthi*.

Kwiqela lenu, xoxani ngale miba yenani ilandelayo:

- 'iintsingiselo' ezahlukileyo zenani

_____
_____
_____
_____

- iintlobo 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.

Subitising

Facilitator's notes

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

Activity 5

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

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

_____
_____
_____
_____

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

_____
_____
_____
_____

Ukusabhathayiza (Ukwazi isiphumo ungakhange ubale)

Amanqaku ombhexeshi

- Sebenzisa amakhadi anamachokoza athathwe kwi*Kiti yeziXhobo*.
- Cela abathathinxaxheba ukuba bakuchazele ukuba 'mangaphi' abawabonayo njengokuba utsheluzisa ikhadi elinamachokoza ngalinye ngokukhawuleza:
  - Bonisa ikhadi elinamachokoza ama3.
  - Bonisa ikhadi elinamachokoza ama2.
  - Phakamisa la makhadi akhankanywe ngasentla uwamise elinye ecaleni kwelinye.
- Cacisa ukuba kuthetha ukuthini ukusabhathayiza (*IsiKhokelo seeKhonsepthi* amaphepha 144–147) uze uxoxe ngendlela esi sakhono esibanceda ngayo abafundi njengokuba befunda ngamanani:
  - Abafundi boyamanisa igama lenani neengqokelela ezincinci.
  - Abafundi banakana isambuku kwingqokelela (ukuya kuntlanu) bengabalanga.
  - Abafundi baqalisa ukunakana ukuba, umzekelo, 'untlanu nonye nguntandathu'.
  - Kwandisa ingqiqo yenani.
  - Abafundi bayaqonda ukuba inani lisenokuqhekezwa lize lakhiwe. (Ezi ndibaniselwano zenani zenza isiseko sokudibanisa.)
  - Kukhulisa ukunkqaya nokuzenzekela kweenyani ezingamanani.
- Xoxa ngemisebenzi yaseklasini ebethelela ukusabhathayisa. Oku kuquka:
  - imisebenzi yamakhadi anamachokoza
  - amaso okuhlela
  - imidlalo yamadayisi
  - iidomino
  - imisebenzi yokuhlukuhla uchithe.

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

Facilitator's notes

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

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

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

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

_____
_____
_____
_____

Bhekisa kumaphepha 144–147 *esiKhokelo seeKhonsepthi*.

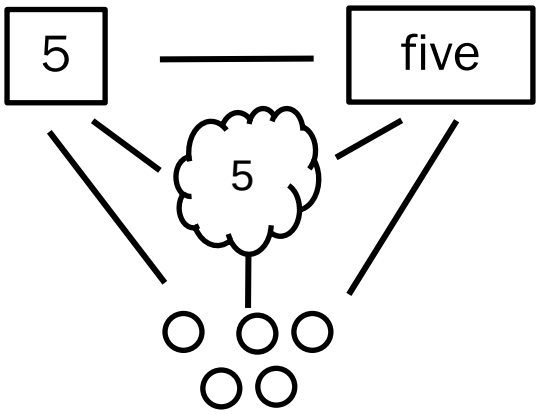
Ukumela inani

Amanqaku ombhexeshi

- PPT: Ukumelwa ngezilwanyana kwidayagram ekweli candelo kubonisa uqhagamshelwano phakathi kwenani kunye nokumelwa kwalo okwahlukileyo.
- Cacisa ingqikelelomanani njengoko ibonisiwe ngezantsi.
- Cacisa ukuba abafundi badinga ukuqonda icandelo ngalinye ukuze bakwazi ukwenza uqhagamshelwano phakathi kwawo.
  1. U‘5’ osembindini wedayagram linani u5, kwaye le yimbono engabambekiyo.
  2. Abafundi kufuneka bazi ukumela ikhonsepthi ka5 njengengqokelela, besebenzisa izinto eziphathekayo, njengezixhobo zokubala, ukumela inani u5.
  3. Abafundi kufuneka bafunde ukuba u‘5’ angabhalwa njengesimboli kwanokuba isimboli u5 nayo imele ingqokelela (yezixhobo zokubala).
  4. Abafundi kufuneka bafunde ukuba inani eliligama ‘untlanu’ lisenokubhalwa ukumela isimboli kunye nengqokelela.
  5. Okokugqibela, abafundi kufuneka benze uqhagamshelwano phakathi koku kumelwa okwahlukeneyo kukantlanu ukuze bayiqonde ngokupheleleyo ikhonsepthi.

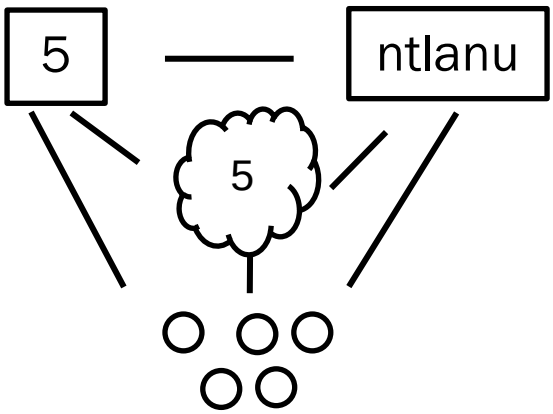
Inani liyikhonsepthi engabambekiyo. Yimbono esentloko kuphela. Asiwaboni amanani, ngoko kufuneka sifumane iindlela ezahlukeneyo zokumela (zokubonisa) inani elo kubhekiswa kulo. Abafundi badinga ukwenza uqhagamshelwano phakathi kwembono yenani, umz., u5, kunye nokumelwa kwakhe okwahlukeneyo, njengengqokelela 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.



Facilitator's notes

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



Amanqaku ombhexeshi

- Xoxa ngohlobo imbono yokumelwa ngeendlela ezininzi efuthela ngayo ukwaziswa kwenani ngebali kwiNkqubo yeMathematika.
- Khumbuza abathathinxaxheba ngendlela yesiqhelo esetyenziswayo ukufundisa inani ngalinye:
  - Ifrizi yenani nebali: yakha indlu ngokubonisa um/imifanekiso, inombolo yendlu, i/iibheli zokunkqonkqoza emnyango kunye nenani eliligama.
  - Ukutshatisa izinto, iisimboli zenani, amanani angamagama kunye namakhadi anamachokoza.

Session 2: Numbers, Operations and Relationships (continued)

1 hour

Counting objects

Facilitator's notes

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

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

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

Activity 6

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

1. Use the apparatus provided to demonstrate these principles as they are explained in the *Concept Guide*.

2. Discuss each principle in your group and make your own notes in the table below to explain your understanding of each principle.

One-to-one correspondence principle	
Stable order principle	

Iseshoni 2: Amanani, iiOpareyshini noLwalamano (ziyaqhubeka) **1 iyure**

Ukubala izinto

Amanqaku ombhexeshi
♦ Vumela imizuzu engama40 kweli candelo leSeshoni 2. ♦ PPT: Shwankathela imigaqo yokubala (*IsiKhokelo seeKhonsepthi* amaphepha 148–149). Yichaze nganye nganye. Le migaqo yokubala sisiseko sokufunda ukubala. Bakube abafundi bekwazi ukuzisebenzisa ezi ndlela, singatsho ukuba bayakwazi ukubala. Gxininisa kwelokuba abafundi kufuneka bakwazi ukubonisa yomihlanu imigaqo yokubala ngaphambi kokuba sithi bayakwazi ukubala. ♦ Cela abathathinxaxheba ukuba basebenzise izixhobo ezisetafileni ukubonisa ingqiqo yabo ngendlela nganye yokubala. ♦ Ukudibanisa, bonisa umgaqo ngamnye kwiqela lonke. ♦ Xoxa ngemisebenzi yemihla ngemihla yaseklasini ubethelela ukubalwa kwezinto ezenziwe ngabathathinxaxheba kwiKota 1 no2. ♦ Funda kwibhokisi ethi 'Ziqhelise' kwiphepha 151 le*siKhokelo seeKhonsepthi* ukucacisa indlela abaqhuba ngayo abafundi njengokuba befunda ukubala nokudibanisa amaqela ezinto.

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 e*siKhokelo seeKhonsepthi*.

1. Sebenzisa isixhobo osinikiweyo ukubonisa le migaqo njengoko ichaziwe kw*isiKhokelo 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	

Cardinal principle	
Abstraction principle	
Order-irrelevance principle	

Ordinal numbers

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

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

Facilitator's notes

- Allow 20 minutes for this section of Session 2.
- Participants select six animal counters from the *Resource Kit* and arrange these in a row, facing left.
- Ask these questions:
  - Which animal is first?
  - Which animal is second?
  - Where is the chicken placed?
  - Which animal is next?
  - What is the colour of the third animal?

  Note: Participants will have different arrangements of animals, so allow them to give answers according to the order of the animals in their arrangement.
- Ask participants to turn the animals so that they are facing right.
- Repeat the above questions.
- Discuss how ordinal numbers can be practised during daily routines and activities, e.g., while lining up or when doing outdoor races.
- Refer to the number washing line. Ask which number is *first*, *second*, *next to*, *before*.

Activity 7

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

_____

_____

_____

_____

Umgaqo obonisa ubungakanani	
Umgaqo wokuthintela	
Umgaqo wocwangco olungahambelaniyo	

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**.

Amanqaku ombhexeshi

- Vumela imizuzu engama20 kweli candelo leSeshoni 2.
- Abathathinxaxheba bakhetha izixhobo zokubala ezizizilwanyana zibe ntandathu kwi*Kiti yeziXhobo* baze bazidwelise, ziqubudile.
- Buza le mibuzo:
  - Sesiphi isilwanyana esiza kuqala?
  - Sesiphi isilwanyana sesibini?
  - Ibekwe phi inkukhu?
  - Sesiphi isilwanyana esilandelayo?
  - Unjani umbala wesilwanyana sesithathu?

  Qaphela: Abathathinxaxheba banodweliso olwahlukileyo lwezilwanyana, ngoko ke bavumele ukuba baphendule ngokolandelelwano lwezilwanyana abazidwelisileyo.
- Cela abathathinxaxheba ukuba baguqule izilwanyana zijonge ngasekunene.
- Phinda le mibuzo ingasentla.
- Xoxa ngendlela ekunokuqheliswa ngayo namanani olandelelwano ngexesha lesiqhelo lemihla ngemihla nelemisebenzi, umz., ngeli lixa udwelisayo okanye xa kusenziwa imidyarho yaphandle.
- Bhekisa kucingo lokoneka amanani. Buza ukuba leliphi inani eliza *kuqala, elesibini, elisecaleni kwe-, ngaphambi*.

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**

Facilitator's notes

- Discuss calculation in Grade R by summarising the text below.
- **Activity 8:** Give each small group a different kind of apparatus:
  - counters
  - structure beads
  - dot cards
  - Unifix blocks.

  Note: You will have more than one group with the same kind of apparatus.
- After each group has demonstrated, discuss the different ways learners find out about number combinations through building up and breaking down numbers.
- Point out that understanding numbers greater than 5 is based on number concepts learnt for numbers 5 and less. Reflect on how Terms 1 and 2 have provided experiences for learning about numbers 1–5. This forms the foundation for understanding numbers greater than 5.

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

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

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

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

Activity 8

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

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

Iseshoni 3: Ubalo kwiBanga R **1 iyure**

Amanqaku ombhexeshi

- Xoxa ngobalo kwiBanga R ngokushwankathela le tekisi ingezantsi.
- **Umsebenzi 8:** Nika iqela elincinci ngalinye isixhobo esahlukileyo:
  - izinto zokubala
  - amaso okuhlela
  - amakhadi anamachokoza
  - iibhloko ze*Unifix.*

  Qaphela: Uzakuba namaqela angaphezulu kwelinye anesixhobo esifanayo.
- Emva kokuba iqela ngalinye libonisile, xoxa ngeendlela ezahlukileyo abafundi abathi bafunde ngayo ngendibaniselwano yamanani ngokudibanisa nangokuqhekeza amanani.
- Chaza ukuba ukuqonda amanani angaphezu ko5 kusekelwe kwiingqikelelomanani ezifundiweyo zamanani u5 nangaphantsi. Hlomla kwindlela iKota 1 no2 ezibonelela ngayo ngamava okufunda ngamanani 1–5. Oku kusisiseko sokuqonda amanani angaphezu kuka5.

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 ngeendibaniselwano zamanye amanani ezahlukeneyo. Umzekelo, inani u5 lisenokwenziwa ngo-:

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

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

Umsebenzi 8

Funda iinkcukacha ezikumaphepha 154–156 e*siKhokelo seeKhonsepthi*.

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

1. How do learners explore the concept of number in the Maths Programme using the materials provided?

2. What questions could you ask that would guide their learning? (Refer to page 156 of the *Concept Guide* for examples of questions.)

_____
_____
_____
_____

Prepare to present your discussion to the whole group.

Word problems

Facilitator's notes

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

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

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

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

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

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

1. Abafundi bayiphonononga njani ikhonsepthi yenani kwiNkqubo yeMathematika besebenzisa iimatheriyeli abazinikiweyo?

2. Yeyiphi imibuzo onokuyibuza eza kukhokela ukufunda kwabo? (Jonga kwiphepha 157 le*siKhokelo seeKhonsepthi* ukufumana imizekelo yemibuzo.)

_____
_____
_____
_____

Lungiselelani ukunikezela ngengxoxo yenu kwiqela elikhulu.

Ingxaki yamagama

Amanqaku ombhexeshi

- Ngokufutshane hlomla ngeengxaki zamagama nemibuzo ekuxoxwe ngayo kwiNdibano yoCweyo 6. Cacisa ukuba xa sithetha ngeengxaki zamagama, sibhekisa kwimibuzo evulekileyo. Iingxaki zamagama okanye 'izibalo ezilibali' ziimeko/imixholo efunisa ukuba abafundi beBanga R basebenzise iindlela zokudibanisa, ukuthabatha, ukwabelana kwanokubeka ngokwamaqela.
- Kumaqela, abathathinxaxheba basombulula iingxaki zamagama eziku**Msebenzi 9**.
- Kwingxaki yegama nganye, xoxani ngeempendulo zabo kumbuzo lowo.
- Khumbuza abathathinxaxheba ukuba isigama esisetyenzisiweyo kufuneka sibe lula kwaye sicace. Ukudideka nobunzima obufunyanwa ngabafundi xa besombulula iingxaki zamagama kudla ngokubangelwa sisigama esisetyenzisweyo ukuchaza ingxaki, endaweni yokunqongophala kwengqiqo yemathematika.

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 iimpendulo 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.

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

 **Activity 9**

1. Look at the word problems below.

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

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

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

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

Umsebenzi 9

1. Jonga ezi ngxaki zamagama zingezantsi.

- 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.

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

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

Addition: 4 + 5 =

_____
_____
_____
_____

Subtraction: 7 – 3 =

_____
_____
_____
_____

Equal sharing without a remainder: 8 shared between 4 learners

_____
_____
_____
_____

Equal sharing with a remainder: 5 shared between 2 learners

_____
_____
_____
_____

Facilitator's notes

- PPT: The 'combine' and 'separate' table.
- In Grade R, most learners will solve problems using these strategies or techniques:
  - counting all
  - using counters or fingers to represent the collections being combined or separated.

  Very few learners will count on from the biggest number because this level of number knowledge is still being developed.
- Ask participants to share their examples with the whole group.

Ukudibanisa: 4 + 5 =

_____
_____
_____
_____

Ukuthabatha: 7 – 3 =

_____
_____
_____
_____

Ukwabelana ngokulinganayo kungashiyeki ntsalela: 8 kwabelwana ngaye phakathi kwabafundi aba4

_____
_____
_____
_____

Ukwabelana ngokulinganayo kushiyeke intsalela: 5 kwabelwana ngaye phakathi kwabafundi aba2

_____
_____
_____
_____

Amanqaku ombhexeshi

- PPT: Itheyibhile 'yokudibanisa' kunye 'nokwahlukanisa'.
- KwiBanga R, abafundi abaninzi baza kusombulula iingxaki besebenzisa ezi ndlela okanye amacebo:
  - ukubala zonke
  - ukusebenzisa izixhobo zokubala okanye iminwe ukumela iingqokelela ezidityaniswayo okanye ezahlukaniswayo.

  Bambalwa kakhulu abafundi abazakubala ukusuka kwelona nani likhulu kuba eli zinga lomgangatho wolwazi lwenani lisakhuliswa.
- Cela abathathinxaxheba ukuba babelane ngemizekelo yabo neqela lonke.

Session 4: Planning for teaching **1½ hours**

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

Facilitator's notes

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

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

Video 2

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

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

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

_____
_____
_____
_____
_____
_____
_____
_____

Iseshoni 4: Ukucwangcisela ukufundisa **1½ iiyure**

Le seshoni yendibano yocweyo ilungiselela abathathinxaxheba ukuba baphumeze iKota 3 iiVeki 7–10. Kwesi sithuba sonyaka, utitshala sele ekuqaphele ukwahluka 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 ukucwangcisela kwanokukulungiselela oku kwahluka kwizakhono zabafundi ukuqinisekisa ukuba wonke umxholo nobuchule beMathematika yeBanga R wenziwe, kwanokuba abafundi bayilungele ngokwaneleyo iKota 4.

Amanqaku ombhexeshi

Bonisa ividiyo uze uxoxe ngemingeni namathuba okufunda nokufundisa ngokwahlukileyo kwiBanga R. Ukuba abathathinxaxheba abawabaluli la manqaku alandelayo, wongeze kwingxoxo.

- Abafundi basenokwenza lo msebenzi ufanayo bonke, kodwa kungabuzwa imibuzo elula.
- Utitshala usenokubonelela ngezikhokelo kubafundi abathatha kade aze akhuthaze abo banobuchule bokuqonda msinya ukuba baxoxe ngezizathu zengqiqo yabo.
- Abafundi basenokubekwa ngokwezakhono zabo kumaqela ukulungiselela imisebenzi ethile baze baxutywe kweminye imisebenzi.
- Ukuqwalasela kwanokurekhodwa kwengqwalasela kubalulekile. Kunceda utitshala ukuba abe nokuqonda inkqubela yomfundi ngamnye kwanokwazi ukuba angamnceda njani na.

Ividiyo 2

Ividiyo 1 ihlelelwe ukuquka utitshala ethetha ngendlela ahlangabezana ngayo nokufundisa kwanokufunda ngokwahlukileyo kwanohlolo eklasini yakhe.

Bukela ividiyo katitshala oxoxa ngendlela ahlangabezana ngayo noluhlu lwezakhono zabafundi eklasini yakhe. Mamela ukuba uthini na ngokucwangcisela kwanokuhlangabezana nomahluko phakathi kwemigangatho yezakhono zabafundi kunye nendlela alwenza ngayo ucwangciso lwakhe ukuze anike inkxaso kwiimfuno zomfundi ngamnye.

Bhala ezakho iimbono ngokufunda nokufundisa ngokwahlukileyo eklasini yakho.

_____

_____

_____

_____

_____

_____

_____

_____

Facilitator's notes

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

Activity 10

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

Amanqaku ombhexeshi

- Hambahamba phakathi kwamaqela njengokuba abathathinxaxheba bexoxa ngokucwangcisa kwanokulungiselela ukufundisa kwiKota 3 iiVeki 7–10 ku**Msebenzi 10**. Bancedise ngokunika iingcebiso ngokuhlangabezana nemingeni.
- Iqela ngalinye labelana ngamanqaku alo engxoxo angundoqo neqela lonke.

Umsebenzi 10

1. Kwiqela lakho, gcwalisani iithempleyithi 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

Facilitator's notes

- **Workshop reflection:** Ask participants to take a few minutes to reflect on the day and to page through their *Participant's Workbook*. Ask them to jot down any questions or comments to share with the whole group.
  Ask individual participants to volunteer responses and write these on the flipchart.
- Encourage participants to add any comments and feedback not yet shared to the post box.
- **Take back to school task:** Read through this task. Ask if there is anything that is not clear and that requires more explanation.
- **Evaluation:** Hand out copies of the Workshop Evaluation Form and have participants complete the form.
- **Next workshop:** Give dates for the next workshop and close the workshop.

Activity 11

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

_____
_____
_____
_____
_____

Share your reflections with the large group.

Take back to school task

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

Imisebenzi yokuqukumbela **30 imizuzu**

Amanqaku ombhexeshi

- **Ucamngco ngendibano yocweyo:** Cela abathathinxaxheba ukuba bathathe imizuzu embalwa ukucamngca ngomhla baze batyhile kwi*Ncwadi yokuSebenzela yoMthathinxaxheba*. Bacele ukuba babhale phantsi nayiphi na imibuzo okanye iimbono abaza kwabelana ngazo neqela lonke.
  Cela abathathinxaxheba ngabanye ukuba bavolontiye ekuphenduleni imibuzo uze ubhale iimpendulo kwifliptshathi.
- Khuthaza abathathinxaxheba ukuba bongeze ezinye izimvo nengxelo ekungekabelwana ngayo kwibhokisi yeposi.
- **Umsebenzi ekubuyelwa nawo esikolweni:** Fundisisa lo msebenzi. Buza ukuba ikhona na into engacacanga efuna ukucaciswa banzi.
- **Uhlolo:** Gqithisa iikopi zeFomu yokuHlola yeNdibano yoCweyo uze ucele abathathinxaxheba ukuba bayigcwalise.
- **Indibano yocweyo elandelayo:** Chaza imihla yendibano yocweyo elandelayo uze uyivale indibano yocweyo.

Umsebenzi 11

Ucamngco ngendibano yocweyo: Thatha imizuzu embalwa ucamngce ngomhla. Tyhila kwi*Ncwadi 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 yomfundi ngamnye (incwadi yoqwalaselo lomfundi). 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 lomfundi namanqaku owenzileyo xa ucamngca ngosuku ngalunye lokufundisa.
5. Yiza nekopi yeKota 3: Umzekelo weRekhodi yoHlolo oluQhubekayo (ethathwe kwi*sisiKhokelo semiSebenzi: Ikota 3*) kwindibano yocweyo elandelayo.

Evaluation
Complete the Evaluation Form.

Uhlolo
Gcwalisa iFomu yoHlolo.

APPENDIX A: TERM 3 WEEKLY PLANNING TEMPLATE

Term 3: Activity Plan: Week ____

<table>
<tr><td colspan="5">CONTENT AREA:</td></tr>
<tr><td colspan="5">TOPIC:

INTRODUCE NEW KNOWLEDGE:

PRACTISE:</td></tr>
<tr><td colspan="2">Whole class activities</td><td>Teacher-guided activity</td><td colspan="2">Workstation activities (independent small group activities)</td></tr>
<tr><td>Day 1</td><td></td><td rowspan="6"></td><td>Activity 1</td><td rowspan="6"></td></tr>
<tr><td>Day 2</td><td></td><td>Activity 2</td></tr>
<tr><td>Day 3</td><td></td><td>Activity 3</td></tr>
<tr><td>Day 4</td><td></td><td>Activity 4</td></tr>
<tr><td>Day 5</td><td></td></tr>
</table>

ISINGENISO A: ITHEMPLEYTHI YESICWANGCISO SEVEKI NEVEKI KWIKOTA 3

Ikota 3: Isicwangciso semiSebenzi: Iveki ____

<table>
<tr><td colspan="5">INKALO YOMXHOLO:</td></tr>
<tr><td colspan="5">ISIHLOKO:

YAZISA ULWAZI OLUTSHA:

ZIQHELISE:</td></tr>
<tr><td colspan="2">Imisebenzi yeklasi yonke</td><td>Umsebenzi okhokelwa ngutitshala</td><td colspan="2">Imisebenzi yesitishi sokusebenzela (imisebenzi ezimeleyo yamaqela amancinci)</td></tr>
<tr><td>Usuku 1</td><td></td><td rowspan="5"></td><td>Umsebenzi 1</td><td rowspan="5"></td></tr>
<tr><td>Usuku 2</td><td></td><td>Umsebenzi 2</td></tr>
<tr><td>Usuku 3</td><td></td><td>Umsebenzi 3</td></tr>
<tr><td>Usuku 4</td><td></td><td>Umsebenzi 4</td></tr>
<tr><td>Usuku 5</td><td></td></tr>
</table>

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 ____

<table>
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<tr><td>Day 4</td><td></td><td>Activity 4</td></tr>
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</table>

Ikota 3: Isicwangciso semiSebenzi: Iveki ____

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<tr><td>Usuku 3</td><td></td><td>Umsebenzi 3</td></tr>
<tr><td>Usuku 4</td><td></td><td>Umsebenzi 4</td></tr>
<tr><td>Usuku 5</td><td></td></tr>
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Term 3: Activity Plan: Week ____

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<tr><td>Day 4</td><td></td><td>Activity 4</td></tr>
<tr><td>Day 5</td><td></td></tr>
</table>

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				

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?

_____
_____
_____
_____