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GROWING GAUTENG TOGETHER

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Uhlelo Lokuthuthukisa Izibalo Zebanga R Grade R Mathematics Improvement Programme



Umhlangano Wokucobelelana Ngolwazi 9 • Workshop 9
Umhlahandlela Wabadidiyeli • Facilitator's Guide

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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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Overview

Purpose

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

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

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

Learning outcomes

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

Workshop content

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

Ukubuka ngelibanzi

Inhloso

Lo owesishiyagalolunye emihlanganweni yokucobelelana ngolwazi yoHlelo Lokuthuthukiswa Kwezibalo zeBanga R eyishumi nambili, eyingxenye yoMnyango Wezemfundo waseGauteng (GDE) Uhlelo Lokuthuthukisa Izibalo neziLimi ZeBanga R.

Inhloso yalo mhlango wokucobelelana ngolwazi ukusiza othisha ukuthi baqhubeke nokusebenzisa Uhlelo Lwezibalo emakilasini abo. Ababambiqhaza bazothola ithuba lokucabanga ngokusebenzisa kwabo Uhlelo Lwezibalo futhi baxoxe ngokuhlela, ukufundisa nokuhlola kwabo. Bazobheka nenqubekelaphambili yomfundi futhi, izidingo zokuthuthuka komuntu ngamunye kanye nezokufunda nje-ke. Ababambiqhaza bazocabangisisa ngamasu afanele okuhlola okukhombisa inqubekelaphambili yomfundi. Umhlangano wokucobelelana ngolwazi uhlola ulwazi lukaThemu 3 Amasonto 7–10 kanye nokusetshenziswa kwalo ekilasini.

Ingxenye Yolwazi Yezibalwa zeBanga R ithathwe *Esitatimendeni Senqubomgomo Yohlelo Lwezifundo Nokuhlola (CAPS): Izibalo Zebanga R (Uhlaka Lokugcina)*, 2011, Umnyango Wemfundo Eyisisekelo, eNingizimu Afrika.

Imiphumela yokufunda

- ◆ Ukudlinza ngokusetshenziswa kweThemu 3 Amasonto 4–6
- ◆ Ukuhlola amasu asekelwe ekudlaleni okuxhasa ukufundisa izibalo kuBanga R
- ◆ Ukujulisa ukuqonda umqondo wenombolo kuNgxenye Yolwazi yeziNombolo, Izimpawu Kanye Nobudlelwane Bazo nokuxhumanisa lokhu nokusetshenziswa kwezibalo ekilasini leBanga R
- ◆ Ukujulisa ukuqonda kokuhlola okufanele kuBanga R
- ◆ Ukudlinza ngezinsalelo nokuthola izixazululo ekusebenziseni uHlelo LweziBalo
- ◆ Ukuklama ulwazi loHlelo LweziBalo oluzofundiswa kuThemu 3 Amasonto 7–10

Okuqukethwe komhlangano wokucobelelana ngolwazi

- ◆ Ukuvula nokuzindla (1 ihora)
- ◆ Iseshini 1: Izinombolo, Izimpawu Kanye Nobudlelwane Bazo (1 ihora)

ITIYE

- ◆ Iseshini 2: Izinombolo, Izimpawu Kanye Nobudlelwane Bazo (kuyaqhubeka) (1 ihora)
- ◆ Iseshini 3: Ukubala EBangani R (1 ihora)

ISIDLO SASEMINI

- ◆ Iseshini 4: Ukuhlelela ukufundisa (1½ amahora)
- ◆ Imisebenzi yokuvala (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

Ukulungiselela

- ◆ PPT ukwemukelwa kanye nemiphumela
- ◆ Zijwayeze ngawo wonke ama-PowerPoint namavidiyo
- ◆ Funda:
 - Umhlahlandlela Wokuqonda Isifundo*, amakhasi 138–161
 - Umhlahlandlela Wemisebenzi: Ithemu 3*, amakhasi 120–185
- ◆ Letha ibhokisi leposi
- ◆ Khumbuza ababambiqhaza ukuthi balethe:
 - Umhlahlandlela Wokuqonda Isifundo*
 - Umhlahlandlela Wemisebenzi: Ithemu 2*
 - Umhlahlandlela Wemisebenzi: Ithemu 3*
 - Ibhuku Lamaphosta*
- ◆ Bhala imisho elandelayo emidweshwini emine emikhulu yephepha:
 - Ngifunde ...
 - Azange ngikuthande ...
 - Manje sengiyaqonda ...
 - Angikaqondi kahle mayelana ...
- ◆ Sika imidweshu yamaphepha e-A4 yeqembu ngalinye.

Izinto zokusetshenziswa

- ◆ Iphepha leshadi eliphenywayo, amakhokhi
- ◆ Iphrestikhi
- ◆ *Ikhithi Yezinsiza* yeqembu 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 nokuzindla

1 ihora

Ukuzindla kuhlenganisa ukucabanga nokukhuluma ngokwenzeke kuwe nalokho okufundile. Cabanga ngemihlangano yokucobelelana ngolwazi lweZibalo oke waya kuyo bese uqedela imisho umdidiyeli ayikhombisayo.

Amanothi omdidiyeli

- ◆ PPT: Imiphumela yokufunda yomhlangano wokucobelelana ngolwazi.
- ◆ Beka imidweshu yemisho odongeni:
 - Ngifunde ...
 - Azange ngikuthande ...
 - Manje sengiyaqonda ...
 - Angikaqondi kahle mayelana ...
- ◆ Beka imidweshu yephepha ye-A4 etafuleni ngalinye. Ababambiqhaza babhala izimpendulo zabo emidweshwini yemisho emaphepheni angu-A4. Sebenzisa iphrestikhi ukubonisa imidweshu yabo ngaphansi kwemisho efanele.
- ◆ Xoxa ngokuphawulwa ebhokisini leposi kanye nembuyisambiko evela emihlanganweni yokucobelelana ngolwazi yaphambilini. Khumbuza ababambiqhaza ukuthi 'bapose' nanoma yikuphi ukuphawula okusha kanye nembuyisambiko ngesikhathi somhlangano wokucobelelana ngolwazi.

Ukudlinza nokuqalisa

Amanothi omdidiyeli

- ◆ Khumbuza ababambiqhaza ngo*Msebenzi obuyela nawo esikoleni* osekugcineni koMhlangano Wokucobelelana Ngolwazi 8.
- ◆ Bhekisa ababambiqhaza **kuMsebenzi 1** kanye **no-2** bese ufunda imiyalo. Ababambiqhaza baqedela imisebenzi amaqenjini abo. Amaqembu abe esabelana ngamaphuzu abalulekile neqembu elikhulu.
- ◆ Ngemva kwezingxoxo zamaqembu amancane, thatha ukuphawula eqenjini ngalinye. Fingqa impumelelo nezinselele bese uxoxa ngemiphumela yokusetshenziswa kwakho ekilasini.

Umsebenzi obuyela nawo esikoleni ovela kuMhlangano wokucobelelana Ngolwazi 8, ubudinga ukuthi wenze lokhu okulandelayo:

- ◆ Sebenzisa *Umhlahlandlela Wemisebenzi: Ithemu 3* ukuhlela nokwenza Ithemu 3 Amasonto 4–6 yoHlelo LweziBalo.
- ◆ Bhala imibono ebhukwini olisebenzisela ukulandelela inqubekelaphambili yomfundi ngamunye (ibhuku lokuqaphela abafundi), bese usebenzisa uhlu lokuqashelwe lokuthi '**Hlola ukuthi abafundi bayakwazi**' ngesikhathi saleyo naleyo misebenzi eholwa uthisha ukukuqondisa kulokho okuqaphela nokuphawula kwakho.
- ◆ Bhala amanothi ezinto ezisebenzeke kahle, ezingasebenzanga kahle kanye nokuthi uzixazulule kanjani izinkinga ngesikhathi sokwenza okunqunywe kuThemu 3 Amasonto 4–6.

Emisebenzini elandelayo sebenzisa incwadi yakho yokuqaphela umfundi kanye namanothi owenzile lapho uzindla ngokufundisa kosuku ngalunye.



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.



Umsebenzi 1

1. Eqenjini lakho, yabelana ngempumelelo kanye nangezinsalelo zakho ekusebenziseni uHlelo LweziBalo kuThemu 3 Amasonto 4–6. Yabelana ngamasu okuthuthukisa ukufundisa nokufunda ngezinsalelo ozihlonzile.

2. Xoxa ngokusebenzisa kwakho ingxenye ethi **'Hlola ukuthi abafundi bayakwazi uku-'** yohla lokuqaphela (ebhokisini lehlo) ngesikhathi somsebenzi ngamunye kweholwa nguthisha.
Khombisa amalungu eqembu lakho incwadi yakho yokuqaphela abafundi.
Khetha umfundi oyedwa bese uxoxa ngokuqaphela kwakho inqubekelaphambili yakhe.

3. Bhala ephepheni leshadi eliphenywayo amaphuzu asemqoka engxoxo yenu. Bikela iqembu elikhulu ngengxoxo yenu.



Ividiyo 1

Uhlahlandlela Wemisebenzi: Ithemu 3, Isonto 6, Umsebenzi oholwa nguthisha (amakhasi 114–117)

Buka ividiyo kathisha osebenza neqembu elincane labafundi ngesikhathi somsebenzi oholwa nguthisha kuThemu 3 Isonto 6. Esigxile kukho kwesikuqaphelayo kulo mhlango wokucobelelana ngolwazi ukuthi uthisha ungenelela kanjani emisebenzini yezinombolo.

Bheka ukuthi uthisha usebenza kanjani emisebenzini eyisithupha. Qaphela:

- ◆ ukuthi uzibeka kanjani izinkinga
- ◆ ulimi alusebenzisayo lapho ebuza imibuzo
- ◆ ukuthi uwuhlelela kanjani umsebenzi ngamunye
- ◆ imibuzo ayibuzayo ukuze ahole abafundi.



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.



Umsebenzi 2

Bhekisa kumsebenzi oholwa nguthisha (amakhasi 114–117) Isonto 6 ku*Mhlahlandlela Wemisebenzi: Ithemu 3*.

1. Xoxa ngokuthi uwuphathe kanjani nekilasi lakho lo msebenzi oholwa nguthisha.

2. Ngabe zikhona izinselelo ohlangabezene nazo? Uma zikhona, uzixazulule kanjani?

Amanothi omdidiyeli

Khombisa ividiyo ubuye uhole ingxoxo esuselwa emisebenzini nasemibuzweni yezibalo. Uma ababambiqhaza bengaphawuli ngala maphuzu alandelayo, engeze nawo engxoxweni.

- ◆ Imisebenzi mifushane. Uthisha akalibali ngokungenasidingo lapho enikeza izinto ezizosetshenziswa noma akhulume nomfundi oyedwa isikhathi eside kakhulu. Ukuguqukela kokunye kuyashesha futhi uthisha ulawula imisebenzi eyisithupha ngesikhathi asabelwe.
- ◆ Yomibili imibuzo ebuzwayo nolimi olusetshenzisiwe kucacile futhi kuyanemba.
- ◆ Imisebenzi yakhelwa olwazini lwaphambilini bese ikhulisa imiqondo emisha.
- ◆ Ukulalela nokuqaphela umfundi **ngamunye** kwenza ukuba uyiqonde inqubekelaphambili yakhe. Kukusiza ukuthi ulibone ikhono analo nezikhala ezikhona kulelo khono kanye/noma ekuqondeni kwakhe.

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.

Iseshini 1: Izinombolo, Izimpawu Kanye Nobudlelwane Bazo

1 ihora

Emihlangaweni yokucobelelana ngolwazi yaphambilini sixoxe ngeNgxenye Yolwazi yeZinombolo, Izimpawu Kanye Nobudlelwane Bazo. Kule seshini sizophinde sibuyekeze izihloko zezinombolo ezahlukene sibuye sandise ingxoxo yethu ukuze siwuzwe kabanzi umqondo wezinombolo. Sizohlola izimpawu ezilandelayo zezinombolo bese sizixhumanisa nokuzejwayeza kwasekilasini:

- ◆ ukubala ngomlomo
- ◆ ukubona isamba ungabalanga/ukuqagela
- ◆ ukumela inombolo
- ◆ ukubala izinto
- ◆ izinombolo ezisho isikhundla
- ◆ ukubala.

Ukubala ngomlomo

Amanothi omdidiyeli

- ◆ Ukubala ngomlomo kubandakanya ukusho amagama ezinombolo ngokulandelana. Abafundi balandelanisa izinombolo ngesikhathi semisebenzi yokubala ngomlomo okwejwayelekile nangesikhathi sokudlulela kokuthile. Amaculo, imilolozelo kanye neminyakazo kwenza ukubala ngomlomo kuthokozise ngenkathi kufundwa ukulandelana kwezinombolo. Uma abafundi sebengaphinda ukulandelana kwezinombolo ngendlela efanele yokubala, baqala ukukhuluma ngobudlelwano obuphakathi kwezinombolo, isib., ukuthi iyiphi inombolo engaphambili, ephakathi noma engemva kwenombolo enye.
- ◆ Khetha iqembu elilodwa elizokwethula ingxoxo yalo yo**Msebenzi 3**.

Izingane zifunda ukulandelana okufanele kwamagama ezinombolo ngenkathi zidlala, zicula, futhi ziphindaphinda imilolozelo.

Njengoba sazi, ukubala ngomlomo kubandakanya ukusho amagama ezinombolo ngokulandelana. Abafundi balandelanisa izinombolo ngesikhathi semisebenzi yokubala ngomlomo okwejwayelekile nangesikhathi sokudlulela kokuthile. Amaculo, imilolozelo kanye neminyakazo kwenza ukubala ngomlomo kuthokozise, kodwa kube kugxilwe ekulandelaneni kwezinombolo. Uma abafundi sebengaphinda ukulandelana kwezinombolo ngokulandelana kokubala okulungile, baqala ukukhuluma ngobudlelwano obuphakathi kwezinombolo, isib., ukuthi iyiphi inombolo *engaphambili*, *ephakathi* noma *engemva* kwenombolo enye.



Umsebenzi 3

Eqenjini lakho, xoxa ngendlela imisebenzi elandelayo ekhuthaze ngayo ukufunda ukubala ngamagama ngokulandelana ekilasini lakho:

- ◆ amaculo nemilolozelo
- ◆ ulayini wokweneka wezinombolo
- ◆ umzila wokugxuma.

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.

Amanothi omdidiyeli

- ◆ PPT: 'Izincazelo' ezahlukeni zezinombolo kanye nezinhlobo ezahlukeni zezinombolo.
- ◆ Xoxa 'ngezincazelo' ezahlukeni zezinombolo nezinhlobo ezahlukeni zezinombolo, kanye negxile kukho inombolo kuBanga R.



Umsebenzi 4

Funda ulwazi olusemakhasini 138–143 bese ubheka umdwebo ophezulu emakhasini 144–145 oMhlahlandlela Wokuqonda Isifundo.

Eqenjini lakho, xoxani ngalezi zinto ezilandelayo ngokuphathelele nenombolo:

- ◆ 'izincazelo' ezahlukeni zenombolo

- ◆ izinhlobo ezahlukeni zezinombolo

Abafundi abakuBanga R bafunda ikakhulukazi izinombolo eziphelele 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 no-10. (KuBanga 1 lokhu kwelulelwa kuma-20 kanye nangaphezulu.) Sigxila ekubaleni kanye nokungamela inombolo ngezindlela ezahlukeni bese sihlizeka ngamathuba okuthi abafundi babhekane ngqo nezinombolo ezingqikithini ezahlukeni.

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?

Ukubona isamba ungabalanga

Amanothi omdidiyeli

- ◆ Sebenzisa amakhadi anamachashazi avela ku*Khithi Yezinsiza*.
- ◆ Cela ababambiqhaza ukuthi bakutshela ukuthi 'kungaki' abakubonayo njengoba udlulisa ngokushesha ikhadi elinamachashazi ngalinye:
 - Khombisa ikhadi elinamachashazi ama-3.
 - Khombisa ikhadi elinamachashazi ama-2.
 - Bamba amakhadi angenhla elinye eceleni kwelinye.
- ◆ Chaza ukuthi kuyini ukuqagela isamba (*Umhlahlandlela Wokuqonda Isifundo* amakhasi 144–147) bese uxoxa ngokuthi leli khono lizisiza kanjani izingane ngesikhathi zifunda ngenombolo:
 - Abafundi bahlobanisa amagama ezinombolo namaqoqo amancane.
 - Abafundi babona isamba esiphelele eqoqweni (kuze kufinyelele kokuhlanu) ngaphandle kokubala.
 - Abafundi baqala ukubona ukuthi, isibonelo, 'okuhlanu kanye nokukodwa kwenza okuyisithupha'.
 - Lokhu kwakha into enomqondo ngezinombolo.
 - Abafundi bayaqonda ukuthi inombolo ingahlakazwa bese yakhiwa futhi. (Lokhu kuxutshwa kwezinombolo kwendlalela isisekelo samabhondi.)
 - Kwakha ukukhumbula kanye nokuzenzakalalelayo okungamaqiniso ngezinombolo.
- ◆ Xoxa ngemisebenzi yasekilasini egxilisa ukuqagela. Lokhu kubandakanya;
 - imisebenzi yamakhadi anamachashazi
 - ubuhlalu bokuhlela
 - imidlalo yamadayisi
 - amadomino
 - imisebenzi yokushukuzisa nokuhlakaza.



Umsebenzi 5

Qaphela umdidiyeli. Njalo nje lapho ekhombisa ikhadi ngokushesha, yisho ngokushesha ngendlela ongakwazi ukwenza ngayo ukuthi 'mangaki' amachashazi owabonayo.

1. Ngabe ubale ichashazi ngalinye ngalinye? Awukwenzanga ngani lokho?

2. Ngabe ucabanga ukuthi kusiza ngani ukugxilisa ikhono lokuqagela?

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. Yimiphi imisebenzi egxilisa ukwazi ukuqagela oyisebenzise kumaThemu 1 kanye no-2 amaseshini ezibalo?

Bhekisa emakhasini 144–147 oMhlahlandlela *Wokuqonda Isifundo*.

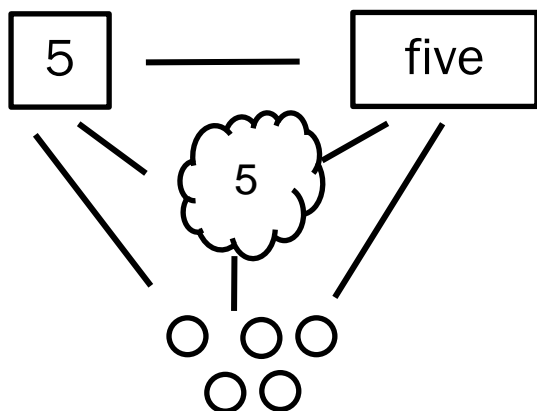
Ukumela inombolo

Amanothi omdidiyeli

- ◆ PPT: Umdwebo wokungathi kuyanyakaza kulesi sigaba esikhombisa ukuxhumana phakathi kwenombolo kanye nokumeleka kwayo okuhlukene.
- ◆ Chaza umqondo wenombolo njengoba kuchazwe ngemidati ngezansi.
- ◆ Chaza ukuthi abafundi badinga ukuqonda ingxenye ngayinye ukuze benze ukuxhumana phakathi kwazo.
 1. U-'5' ophakathi nendawo nomdwebo uyinombolo 5, kanti lokhu kuwumqondo wento engabambeki.
 2. Abafundi badinga ukwazi ukubeka okungamela umqondo woku-5 njengeqoqo, kusetshenziswa okubambekayo, njengezinto zokubala, ukuze kumele inombolo 5.
 3. Abafundi sebedinga ukufunda ukuthi u-'5' angabhalwa njengophawu kanti uphawu u-5 lubuye lumele iqoqo (lezinto zokubala).
 4. Abafundi babe sebedinga ukufunda ukuthi igama lenombolo 'okuhlani' lingabhalwa ukuze limele uphawu kanye neqoqo.
 5. Ekugcineni, abafundi badinga ukwazi ukuxhumana kwalokhu kumeleka okwehlukene kokuhlani ukuze bawuzwisise umqondo okubhekiswe kuwo.

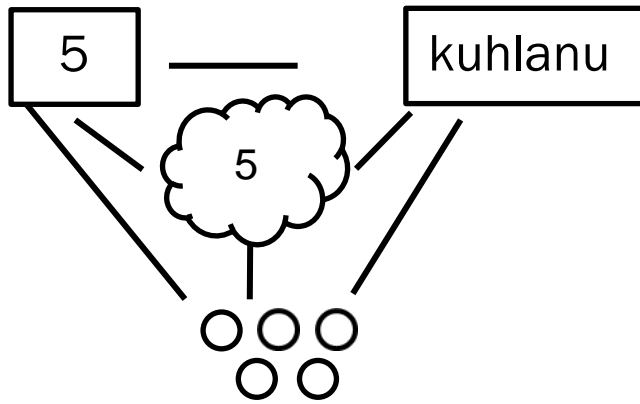
Inombolo wumqondo wokungathinteki. Lo umqondo osekhandalako. Asikwazi ukubona izinombolo, ngakho-ke kumele sithole izindlela ezahlukene zokungamela (ukukhombisa) inombolo okubhekiswe kuyo. Abafundi kumele bathole ukuxhumana komqondo wenombolo, isib., 5, kanye nokumeleka kwayo okwehlukene, njengeqoqo lezinto, uphawu, igama. Kumele baphinde baqonde ukuthi uma sithi 'mangaki' amaswidi, ukushaya izandla, izindlu, izinsuku zokuzalwa, njll., ukuthi kuhlanu kuhlale kukhomba isibalo esifanayo salezi zinto.

Abafundi kumele babuqondisise 'ubungaki' noma ubunani benombolo. Ukuze badlulisele lo mqondo kubafundi, othisha kumele bethule umqondo wokusebenzisa izinto eziphathekayo, isibonelo, izinto zokubala. Ukuze usize abafundi ukuthi bawuzwe umqondo wenombolo, badinga ukuqonda ukuthi izinombolo zingamelwa ngezindlela ezahlukene. Kudingeka futhi ukuthi abafundi bakwazi ukuxhumanisa phakathi kokumeleka okwehlukene kwezinombolo, izibonelo: into, isithombe, uphawu kanye 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.



Amanothi omdidiyeli

- ◆ Xoxa ngomqondo wokumeleka okwehlukahlukene okukhomba indlela yokwethula inombolo ngendaba oHlelweni Lwezibalo.
- ◆ Khumbuza ababambiqhaza ngendlela eyejwayelekile esetshenziselwa ukufundisa inombolo ngayinye:
 - Ifrizi yezinombolo kanye nendaba: yakha indlu ngokukhombisa isithombe/izithombe, inombolo yendlu, insimbi/izinsimbi zasemnyango kanye negama lenombolo.
 - Ukuqondanisa izinto, izimpawu zezinombolo, amagama ezinombolo kanye namakhadi anamachashazi.

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	

Iseshini 2: Izinombolo, Izimpawu Kanye Nobudlelwane Bazo (kuyaqhubeka)

1 ihora

Ukubala izinto

Amanothi omdidiyeli

- ◆ Nikeza imizuzu engama-40 kulesi sigaba seSeshini 2.
- ◆ PPT: Yenza iqoqa lemigomo yokubala (*Umhlahlandlela Wokuqonda Isifundo* ikhasi 148–149). Yethule ngamunye ngesikhathi esisodwa. Le migomo yokubala iyisisekelo sokufunda ukubala. Lapho abafundi sebekwazi ukusebenzisa le migomo, singasho ukuthi sebeyakwazi ukubala. Gcizelela ukuthi abafundi kudingeka ukuthi bakwazi ukukhombisa yonke yomihlanu imigomo yokubala ngaphambi kokuthi sithi sebeyakwazi ukubala.
- ◆ Cela ababambiqhaza ukuthi basebenzise izisetshenziswa ezisetafuleni ukuze bakhombise ukuqonda kwabo ngemigomo yokubala ngamunye umgomo.
- ◆ Ukuze uhlanganise konke, khombisa ukusebenza komgomo ngamunye eqenjini lonke.
- ◆ Xoxa ngemisebenzi yansuku zonke yasekilasini egxilisa izinto zokubala ezenziwe ababambiqhaza kuThemu 1 no-2.
- ◆ Funda ibhokisi elithi 'Zejwayeze' ekhasini 151 lo*Mhlahlandlela Wokuqonda Isifundo* ukuze uchaze ukubala kanye nokuhlanganisa amaqoqo ezinto.

Ukubala ukuthi '**kungaki**', abafundi badinga ukubona ukuthi into ngayinye eqoqweni inegama lenombolo nokuthi ubala into ngayinye kanye kuphela.

Kukhona imigomo yokubala emihlanu echaza inqubo yokufunda ukubala. Uma abafundi sebeqonda futhi sebengasebenzisa yonke le migomo emihlanu yokubala, siyakwazi ukusho ukuthi sebengabala.



Umsebenzi 6

Funda ulwazi emakhasini 148–151 o*Mhlahlandlela Wokuqonda Isifundo*.

1. Sebenzisa izisetshenziswa ezinikeziwe ukukhombisa le migomo njengoba ichaziwe ku*Mhlahlandlela Wokuqonda Isifundo*.
2. Xoxa ngomgomo ngamunye eqenjini lakho bese wenza amanothi akho ethebhuleni elingezansi ukuze uchaze ukuqonda kwakho umgomo ngamunye.

Umgomo wokukodwa okuqondene nokunye	
Umgomo wokuhleleka okuzinzile	

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.

Umgomo wenhloko	
Umgomo wokusengqondweni	
Umgomo wokuhleleka okungahambisani	

Izinombolo ezisho isikhundla

Sixoxe ngezinhlobo zezinombolo ezikutshela ukuthi 'kungaki'. Lezi zibizwa ngokuthi **izinombolo ezikhomba ubungako**.

Kukhona nezinombolo ezikhombisa isikhundla sento noma umuntu ochungechungeni noma ohlelweni. Lezi zibizwa ngokuthi **izinombolo ezisho isikhundla**.

Amanothi omdidiyeli

- ◆ Nikeza imizuzu engama-20 kulesi sigaba seSeshini 2.
- ◆ Ababambiqhaza bakhetha izinto zokubala zezilwane eziyisithupha ezithathwe ku*Khithi Yezinsiza* bese behlela lokhu ngokulandelana, kubheke ngakwesokunxele.
- ◆ Buza le mibuzo:
 - Yisiphi isilwane sokuqala?
 - Yisiphi isilwane sesibili?
 - Inkukhu ibekwe kuphi?
 - Yisiphi isilwane esilandelayo?
 - Uyini umbala wesilwane sesithathu?

Qaphela: Ababambiqhaza bazoba nokuhleleka kwezilwane okwahlukene, ngakho-ke bavumele ukuba banikeze izimpendulo ngokulandelana kwezilwane ngokuhlelwa kwazo.
- ◆ Cela ababambiqhaza ukuthi baguqule izilwane ukuze zibheke kwesokudla.
- ◆ Phinda imibuzo engenhla.
- ◆ Xoxa ngokuthi abafundi bangazeywayeza kanjani izinombolo ezisho isikhundla ngesikhathi sokude kwenziwa nemisebenzi yansuku zonke, isib., ngenkathi kumiwe emgqeni noma emidlalweni yangaphandle.
- ◆ Bhekisa kulayini wokweneka wezinombolo. Buza ukuthi iyiphi inombolo *yokuqala, yesibili, eseceleni, engaphambi*.



Umsebenzi 7

Hlela izinto zokubala zezilwane etafuleni lakho ngokuhambisana nemiyalo yomdidiyeli. Phendula imibuzo yakhe mayelana nesikhundla sezinto zokubala zezilwane.

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.

Iseshini 3: Ukubala EBangani R

1 ihora

Amanothi omdidiyeli

- ◆ Xoxa ngokubala kuBanga R ngokuqoqa umbhalo ongezansi.
- ◆ **Umsebenzi 8:** Nikeza iqembu ngalinye elincane uhlobo oluhlukile lwezisetshenziswa:
 - izinto zokubala
 - ubuhlalu bokuhlela
 - amakhadi anamachashazi
 - amabhulokhi axhume kayo.Qaphela: Uzoba neqembu elingaphezu kwelilodwa elinezisetshenziswa ezifanayo.
- ◆ Ngemva kokuba iqembu ngalinye selikukhombisile okuthile, xoxa ngezindlela ezahlukeneyo abafundi abangafunda ngazo ngezinhlanganisela zezinombolo ngokwakha nokuhlakaza izinombolo.
- ◆ Shono ukuthi ukuqonda izinombolo ezingaphezu koku-5 kusekelwe emqondweni wenombolo ofundelwe izinombolo ezi-5 nangaphansi. Cabangisisa ngokuthi Amathemu 1 no-2 ahlinzeke kanjani ngendlela yokufunda ngezinhlanganisela 1-5. Lokhu kwakha isisekelo sokuqonda izinombolo ezingaphezu koku-5.

Abafundi kudingeka baqonde inani noma isisindo sezinombolo kanye nobudlelwano phakathi kwazo ngaphambi kokuba benze imisebenzi efana nokuhlenganisa nokususa. Kudingeka bazi, ngokwesibonelo, ukuthi 'kungaki' okuthathu; oku-3 kuza ngaphambi koku-4, ngemva koku-2 naphakathi koku-2 noku-4; futhi oku-3 kungaphezu koku-2, kungokukodwa ngaphansi koku-4.

Ukusebenza ngezinto zokubala, ubuhlalu bokuhlela, amakhadi anamachashazi, kanye nomdlalo wokushukuzisa nokuhlakaza kunikeza amathuba okuba abafundi baqonde ukuthi izinombolo zingakhiwa noma zihlakazwe. Ngale ndlela, kancane kancane bayaqaphela ukuthi noma iyiphi inombolo yakhiwe ngezinhlanganisela eziningi ezihlukahlukene zezinye izinombolo. Isibonelo, inombolo 5 ingenziwa ngalokhu:

- ◆ 4 no-1
- ◆ 1 no-1 kanye no-1 no-2
- ◆ 0 no-5.

Ebangeni R, abafundi bahlola izindlela ezahlukeneyo zokwakha nokuhlakaza izinombolo, bese behlanganisa babuye basuse besebenzisa izinto zokubala.



Umsebenzi 8

Funda ulwazi emakhasini 154–156 oMhlahlandlela Wokuqonda Isifundo.

Cabanga ngendlela osebenzise ngayo izinto ezihlinzekwe oHlelweni Lwezibalo ukusiza abafundi baqonde imisebenzi yenombolo (ukubala) nobudlelwano. Sebenzisa izisetshenziswa ukuze ubonise lokhu.

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 baluhlola kanjani ulwazi lwenombolo oHlelweni Lwezibalo besebenzisa izisetshenziswa ezihlinzekiwe?
2. Yimiphi imibuzo ongayibuza engalawula ukufunda kwabo? (Bhekisa ekhasini 157 loMhlahlandlela Wokuqonda Isifundo ngokuphathelele nezibonelo zemibuzo.)

Lungiselela ukwethula ingxoxo yakho kulo lonke iqembu.

Izinkinga zamagama

Amanothi omdidiyeli

- ◆ Cabanga kafushane nje ngezinkinga zamagama kanye nemibuzo okuxoxwe ngayo kuMhlangano wokucobelelana ngolwazi 6. Chaza ukuthi uma sikhuluma ngezinkinga zamagama, asibhekise khona emibuzweni evulekile. Izinkinga zamagama noma 'izibalo zendaba' yizimo/izingqikithi ezidinga ukuthi abafundi beBanga R basebenzise amasu okuhlenganisa, ukususa, ukwabelana kanye nokubeka ngamaqembu.
- ◆ Emaqenjini, ababambiqhaza baxazulula izinkinga zamagama **kuMsebenzi 9**.
- ◆ Ngenkinga yegama ngayinye, xoxa ngezimpendulo zabo emibuzweni.
- ◆ Khumbuza ababambiqhaza ukuthi ulimi olusetshenziwe kufanele lube lula futhi lucace. Ukudideka nobunzima abafundi ababhekana nabo lapho bexazulula izinkinga zamagama kuvame ukuba umphumela wesakhiwo solimi esisetshenziselwa ukubeka inkinga, kunokungabi bikho kokuqonda izibalo.

Abafundi beBanga R badinga ukuxazulula ngomlomo izinkinga zamagama ezibandakanya okuhlenganisa, ukususa, nokwabelana ngokulinganayo nokubeka ngamaqoqo. Futhi kumele bakuchaze ukucabanga kwabo kanye nezindlela zokuxazulula izinkinga ezahlukene.

Nika abafundi isikhathi esiningi sokucabanga ubuye ubavumele basebenzise izinto zangempela (isib., izinto zokubala, iminwe, ubuhlalu bokuhlela) ukuxazulula izinkinga nokuhlola izimpendulo zabo.

Uma wethula inkinga yamagama kubafundi, kubalulekile ukubakhuthaza ukuba:

- ◆ bathole isu lokuxazulula inkinga
- ◆ bachaze ukuthi bayixazulule kanjani inkinga
- ◆ basho ukuthi kungani becabanga ukuthi impendulo yabo ilungile.

Kungethulwa izimo zokuhlenganisa nokususa okuvamile njengezinkinga zamagama. Indlela inkinga yegama ehlelwe ngayo, inquma ukuthi kulula noma kunzima kangakanani ukuyixazulula. Kubalulekile ukusebenzisa ulimi olucacile nolulula uma wethula izinkinga 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:

Emhlanganweni wokucobelelana ngolwazi 6 sibheke ukubaluleka kokusebenzisa ulimi olucacile, olulula nokubuza imibuzo efanele ngesikhathi semisebenzi yokuxazulula izinkinga. Siphinde saklama izinkinga zamagama zangempela ezimweni abafundi abangakwazi ukuhambisana nazo. KuMsebenzi 9, uzoxoxa ngokuxazulula inkinga ngemidati yakhona.



Umsebenzi 9

1. Bheka izinkinga zamagama ngezansi.
 - ◆ Ungayixazulula kanjani inkinga ngayinye?
 - ◆ Ucabanga ukuthi abafundi bakho beBanga R bazoyixazulula kanjani inkinga ngayinye?
 - ◆ Kungani ezinye zalezi zinkinga zinzima kunezinye?
 - ◆ Sebenzisa izinto zokubala ezisetafuleni lakho ukuze ubonise ukuthi abafundi bazozixazulula kanjani izinkinga.

Hlanganisa	Hlukanisa
ULaylah unamaswidi ayi-6. UMalusi umnika ama-2 ngaphezulu. Ngabe uLaylah unamaswidi amangaki uma esewonke?	Kunamaswidi ayi-8. ULaylah udla amaswidi ama-3. Mangaki asalele uMalusi?
ULaylah unamaswidi ama-5. Udinga ukuba namanye amangaki ukuze abe nayi-8?	ULaylah unamaswidi ayi-8. UMalusi udla amanye awo. Kusele ama-4. Udle amangaki uMalusi?
ULaylah ubenamaswidi. UMalusi umnika ama-2 ngaphezulu. Manje usenayi-8. Ekuqaleni uLaylah ubenamangaki?	ULaylah ubenamaswidi. Unike uMalusi amaswidi ayi-6. Unamaswidi ama-2 asele. Ekuqaleni ubenamaswidi amangaki?

2. Bhala inkinga yegama ongayethula kubafundi bakho beBanga R ngalokho ngakunye kokulandelayo:

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.

Ukuhlanganisa: $4 + 5 =$

Ukususa: $7 - 3 =$

Ukwabelana ngokulinganayo ngaphandle kwensalela: oku-8 kwabelwa abafundi aba-4

Ukwabelana ngokulinganayo kube nensalela: oku-5 kwabelwa abafundi aba-2

Amanothi omdidiyeli

- ◆ PPT: Ithebhula elithi 'hlanganisa', 'hlukanisa'.
- ◆ KuBanga R, abafundi abaningi bazoxazulula izinkinga besebenzisa lawa masu noma izindlela:
 - ukubala konke
 - ukusebenzisa izinto zokubala noma iminwe ukumela amaqoqo ahlanganisiwe noma ahlukaniwe. Bambilwa kakhulu abafundi abazobala kusuka enombolweni enkulu ngoba leli zinga lolwazi lwezombolo lisathuthukiswa.
- ◆ Cela ababambiqhaza ukuthi babelane ngezibonelo zabo neqembu 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.

Iseshini 4: Ukuhlelela ukufundisa

1½ amahora

Le seshini yomhlangano wokucobelelana ngolwazi ilungiselela ababambe iqhaza ukuthi basebenzise okutholakala kuThemu 3 Amasonto 7–10. Ngalesi sigaba sonyaka, uthisha uzobe eseqaphela umehluko onhlobonhlobo phakathi kwamazinga okuqhubekela phambili kwabafundi. Ithemu 3 yakhela kokuqukethwe olwazini lweThemu 1 no-2. Abanye abafundi bazobe sebekulunge lelokhu, kanti abanye bazodinga ukwesekwa nokuqinisa okwengeziwe ukuze bathuthuke. Kubalulekile ukuhlelela nokulungiselela lo mahluko ekwazini komfundi ukuqinisekisa ukuthi kwenziwe konke okuqukethwe olwazini namakhono eZibalweni zeBanga R, futhi abafundi bayilungele kahle Ithemu 4.

Amanothi omdidiyeli

Khombisa ividiyo bese nixoxa ngezinsalele namathuba okufundisa nokufunda okwehlukene eBangeni R. Uma ababambiqhaza bengakawasho la maphuzu alandelayo, wafake engxoxweni.

- ◆ Bonke abafundi bangenza umsebenzi ofanayo, kodwa kubuzwe imibuzo elula.
- ◆ Uthisha anganikeza inkombandlela eyengeziwe kubafundi abangasheshi ukubamba/ababuthakathaka, akhuthaze abafundi asebethuthukile ukuba baxoxe ngendlela abacabanga ngayo.
- ◆ Abafundi bangafakwa emaqenjini okukwazi ukwenza eminye imisebenzi kanye nasemaqenjini alabo abanamakhono axubile kweminye imisebenzi.
- ◆ Kubalulekile ukuqaphela nokubhala okuboniwe. Kusiza uthisha ukuba aqonde inqubekelaphambili yomfundi ngamunye nokwazi ukuthi kufanele abasize kanjani abafundi.



Ividiyo 2

Ividiyo 1 ihleliwe ukuze ibe nothisha okhuluma ngokuthi ukulawula kanjani ukufundisa nokufunda okuqondene nabathile nje nokuhlola ekilasini lakhe.

Bukela ividiyo yothisha exoxa ngendlela abhekana ngayo namazinga okusebenza abafundi ekilasini lakhe. Lalela ukuthi uthini ngokuhlelela nokulawula umehluko phakathi kwamazinga okwazi ukwenza okuthile kwabafundi nokuthi uqhuba kanjani ngokuphathelene nokuhlelela kwakhe ukuze asekele izidingo zomfundi ngamunye.

Qaphela imibono yakho ngokuphathelene nokufundisa nokufunda okuqondene nabathile ekilasini lakho.

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?

Amanothi omdidiyeli

- ◆ Hamba phakathi kwamaqembu njengoba abahlanganyeli bexoxa ngokuhlela nokulungiselela ukufundisa Ithemu 3 Amasonto 7–10 ku**Msebenzi 10**. Basize lapho benza iziphakamiso zokunqoba izinselele.
- ◆ Iqembu ngalinye liletha amaphuzu alo engxoxo abalulekile eqenjini lonke.



Umsebenzi 10

1. Qedelani ithempulethi yokuhlela yeThemu 3 Amasonto 7–10 (Isithasiselo A) eqenjini lenu.
2. Iqembu lenu lizokwethulela elinye iqembu imibono yokubuka ngelibanzi. Bhala ephepheni leshadi eliphenywayo amaphuzu asemqoka engxoxo yakho. Ufake nezimpendulo zale mibuzo elandelayo:
 - ◆ Yiziphi izinselele ozilindele ekusebenziseni okwaMasonto 7–10?
 - ◆ Ungazixazulula kanjani zonke lezi zinselele ukuze uphumelele ekusebenziseni lokho okunempumelelo?
 - ◆ Ngabe umsebenzi oholwa uthisha unikeza kanjani amathuba okuhlola kothisha kanye nokweseka kwabo abafundi?
 - ◆ Ngabe imisebenzi yokuzimela yamaqembu amancane yethula amathuba enele ukulolonga ulwazi olusha kanye namakhono?

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.

Amanothi omdidiyeli

- ◆ **Ukudlinza ngomhlangano wokucobelelana ngolwazi:** Cela ababambiqhaza ukuba bathathe imizuzu embalwa badlinze ngosuku lolo, bese bepheqa amakhasi e*Ncwadi Yokusebenzela Yababambiqhaza*. Bacele babhale phansi imibuzo abazokwabelana ngayo neqembu lonke. Cela ababambiqhaza ngamunye ukuthi banike izimpendulo bese ubhala lokhu eshadini eliphenywayo.
- ◆ Gqugquzela ababambiqhaza ukunezezela ngemibono kanye nembuyisambiko okungakabelwana ngako ebhokisini leposi.
- ◆ **Umsebenzi obuyela nawo esikoleni:** Funda lo msebenzi. Buza ukuthi kukhona yini okungacacile futhi okudinga incazelo eyengeziwe.
- ◆ **Ukuhlola:** Nikeza amakhophi eFomu Lokuhlola Lomhlangano Wokucobelelana Ngolwazi bese ucela ababambiqhaza ukuthi bagcwalise leli fomu.
- ◆ **Umhlangano wokucobelelana ngolwazi olandelayo:** Nikeza izinsuku zomhlangano wokucobelelana ngolwazi olandelayo bese uvala umhlangano wokucobelelana ngolwazi.



Umsebenzi 11

Ukudlinza ngomhlangano wokucobelelana ngolwazi: Thatha imizuzu embalwa udlinze ngosuku lolo. Phenya amakhasi e*Ncwadi Yokusebenzela Yababambiqhaza* ukuzikhumbuza ngokwenziwa. Bhala phansi noma iyiphi imibuzo noma imibono ukuze wabelane neqembu.

Yabela iqembu elikhulu imidlinzo yakho.



Umsebenzi obuyela nawo esikoleni

1. Sebenzisa *Umhlahandlela Wemisebenzi: Ithemu 3* ukuhlela nokwenza Ithemu 3 Amasonto 7–10 yoHlelo LweziBalo.
2. Bhala amanothi ezinto ezisebenzeke kahle, ezingasebenzanga kahle kanye nokuthi uzixazulule kanjani izinkinga ngesikhathi sokwenza okunqunywe kuThemu 3 Amasonto 7–10.
3. Bhala imibono ebhukwini olisebenzisela ukulandelela inqubekela phambili yomfundi ngamunye (ibhuku lokuqaphela abafundi). Sebenzisa uhlu lokuqaphela ingxenye ethi **'Hlola ukuthi abafundi bayakwazi uku-'** (ibhokisi lehlo) ngesikhathi semisebenzi eholwa uthisha ukuhola okuqaphelile kanye nemibono.
4. Letha ibhuku lokuqaphela labafundi bakho kanye namanothi owenze ngesikhathi udlinza ngokufundisiwe kosuku ngalunye emhlanganweni olandelayo wokucobelelana ngolwazi.
5. Letha ikhophi yeThemu 3: Isibonelo Irekhodi Lokuhlolwa Okuqhubekayo (kusuka ku*Mhlahandlela Wemisebenzi: Ithemu 3*) kuya kumhlangano wokucobelelana ngolwazi olandelayo.

Evaluation

Complete the Evaluation Form.

Ukuhlola

Gcwalisa iFomu Lokuhlola.

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				

ISITHASISELO A: ITHEMU 3 ITHEMPULETHI YOKUHLELA KWAMASONTO ONKE

Ithemu 3: Uhlelo Lomsebenzi: Isonto ____

INGXENYE YOLWAZI:				
ISIHLOKO:				
YETHULA ULWAZI OLUSHA:				
ZEJWAYEZE:				
Imisebenzi yekilasi lonke		Umsebenzi oholwa nguthisha	Imisebenzi yesiteshi sokusebenzela (imisebenzi yeqembu elincane elizimele)	
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				

Ithemu 3: Uhlelo Lomsebenzi: Isonto ____

INGXENYE YOLWAZI:				
ISIHLOKO:				
YETHULA ULWAZI OLUSHA:				
ZEJWAYEZE:				
Imisebenzi yekilasi lonke		Umsebenzi oholwa nguthisha	Imisebenzi yesiteshi sokusebenzela (imisebenzi yeqembu elincane elizimele)	
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				

Ithemu 3: Uhlelo Lomsebenzi: Isonto ____

INGXENYE YOLWAZI:				
ISIHLOKO:				
YETHULA ULWAZI OLUSHA:				
ZEJWAYEZE:				
Imisebenzi yekilasi lonke		Umsebenzi oholwa nguthisha	Imisebenzi yesiteshi sokusebenzela (imisebenzi yeqembu elincane elizimele)	
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				

Ithemu 3: Uhlelo Lomsebenzi: Isonto ____

INGXENYE YOLWAZI:				
ISIHLOKO:				
YETHULA ULWAZI OLUSHA:				
ZEJWAYEZE:				
Imisebenzi yekilasi lonke		Umsebenzi oholwa nguthisha	Imisebenzi yesiteshi sokusebenzela (imisebenzi yeqembu elincane elizimele)	
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 Lokuhlola Lomhlangano Wokucobelana Ngolwazi 9

1. Ngabe umhlangano wokucobelana ngolwazi uhlangabezene nalokho obukulindele?

2. Yini oyifundile kulo mhlangano wokucobelana ngolwazi ekusize kakhulu?

3. Ngabe kukhona ongakuthandanga noma okuthole kunzima ukukuqonda?

4. Uzokusebenzisa kanjani lokho okufundile ekilasini lakho leBanga R?

5. Ngabe unazo iziphakamiso zokuthuthukisa eminye imihlangano yokucobelana ngolwazi?
