



IsiXhosa/English

## INkqubo yeMathematika yokuPhucula yeBanga R Grade R Mathematics Improvement Programme



## **INdibano yoCweyo 7 ● Workshop 7**

Incwadi yokuSebenzela yoMthathinxaxheba • Participant's Workbook

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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- The R-Maths writing team: SDU staff and consultants.















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Ukwenziwa nokuveliswa kwezixhobo zoqeqesho nezegumbi lokufundela kwenziwe kwayimpumelelo ngezibele zenkxasomali ye**United States Agency for International Development** kwakunye ne**Zenex Foundation**.

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INkqubo yeMathematika yokuPhucula yeBanga R ilungiselelwe kwi*R-Maths*, yapapashwa okokuqala ngowama2017 yiSchools Development Unit, kwiYunivesithi yaseKapa. Ilungelo loshicilelo leR-Maths ligcinwe yiYunivesithi yaseKapa.

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### **Overview**

### **Purpose**

This is the seventh 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 observations. They will explore how the guiding principles of teaching maths in Grade R should inform their planning, teaching and assessment. They will also consider learner progress, and individual developmental and learning needs. The workshop explores the content for Term 3 Weeks 1–3 and its classroom implementation.

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

### **Learning outcomes**

- ◆ To reflect on the implementation of Term 2 Weeks 8–10
- To apply the Maths Programme principles in weekly planning
- ♦ To explore play-based strategies to support teaching maths in Grade R
- ♦ To identify potential barriers to learning
- ♦ To introduce perceptual and motor development
- ◆ To engage with the Maths Programme content of Term 3 Weeks 1–3 (Patterns, Functions and Algebra; Numbers, Operations and Relationships)

### **Workshop** content

<b>♦</b>	Opening and reflection	(30 minutes)
•	Session 1: Setting the scene	(30 minutes)
•	Session 2: Play-based teaching and learning	(1 hour)
TE	A	
•	Session 3: The Grade R maths learning environment	(30 minutes)
•	Session 4: Factors affecting maths learning	(30 minutes)
<b>♦</b>	Session 5: Perceptual and motor development	(1 hour)
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## Amagqabantshintshi

### Injongo

Le yeyesixhenxe kwezilishumi elinambini iindibano zocweyo zeNkqubo yeMathematika yokuPhucula yeBanga R (iNkubo yeMathematika), eziyinxalenye 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 lokucinga nzulu ngoko bakuqwalaseleyo. Baza kuhlola indlela imigaqo ekhokelayo yokufundisa imathematika kwiBanga R elufuthela ngayo ucwangciso, ukufundisa kwanokuhlolwa kwabo. Bazakuphinda baqwalasele nenkqubela yabafundi, ukukhula komfundi ngamnye kunye neemfuno zokufunda. Indibano yocweyo iphonononga umxholo kweKota 3 iiVeki 1–3 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 1 iiVeki 8–10
- ♦ Ukusebenzisa imigaqo yeNkqubo yeMathematika kwisicwangciso seveki neveki
- Ukuphonononga iindlela ezisekelwe ekudlaleni ngelinika inkxaso ekufundisweni kwemathematika kwiBanga R
- Ukwalatha oko kusenokuba yimiqobo yokufunda
- ♦ Ukwazisa ngophuhliso lwamalungu kunye nolwezihlunu
- ♦ Ukuziqhelanisa nomxholo weNkqubo yemathematika iKota 3 iiVeki 1–3 (IiPateni, iiFanshini neAljibhra; Amanani, iiOpareyishini noLwalamano)

### Umxholo wendibano yocweyo

<b>♦</b>	Ukuvula nocamngco	(30 imizuzu)
•	Iseshoni 1: Ukulungisa indawo	(30 imizuzu)
•	Iseshoni 2: Ukufunda nokufundisa okusekelwe ekudlaleni	(1 iyure)
ITI		
<b>♦</b>	Iseshoni 3: Ubume bemeko yendawo yokufundela imathematika	
	kwiBanga R	(30 imizuzu)
<b>♦</b>	Iseshoni 4: Imiba echaphazela ukufundwa kwemathematika	(30 imizuzu)
•	Iseshoni 5: Uphuhliso lokuqonda nolwezihlunu zomzimba	(1 iyure)
	D. O. G. A. G. P. M. M.	

ISIDLO SASEMINI

- ♦ Session 6: Planning for teaching
- ♦ Closing activities

(1½ hours) (30 minutes)

- ♦ Iseshoni 6: Ukucwangcisela ukufundisa
- ♦ Imisebenzi yokuqukumbela

(1½ iiyure)

(30 imizuzu)

## **Opening and reflection**

30 minutes

### The post box

Some of your issues and questions may not be addressed during this workshop. Write down any concerns or questions you may have during the workshop and post them in the post box. Your facilitator will make sure that these are addressed.

Here is the *Take back to school task* from Workshop 6.



### Take back to school task (Workshop 6)

- 1. Use *Activity Guide: Term 2* to plan and implement Weeks 8–10 of the Maths Programme.
- 2. Write an evaluation of what worked well, what did not work so well and what you could do differently to improve teaching and learning.
- 3. Bring the evaluation to the next workshop.

It is important for you to reflect on your teaching practices as this will help you to better understand why things happened as they did. You can find ways to do things differently and improve your teaching.

There will be many opportunities during these workshops to reflect on your successes and challenges with implementing the Maths Programme. We would like you to start the reflective process by spending a few minutes sharing your experiences of implementing Term 2 Weeks 8–10 based on the *Take back to school task*.

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1.	In your group, share your experiences of implementing Term 2 Weeks 8–10.

2. Share your successes and challenges with the large group.

## Ukuvula nocamngco

30 imizuzu

### Ibhokisi yeposi

Ezinye zeengxaki nemibuzo eninayo isenokungaphendulwa kule ndibano yocweyo. Bhala phantsi nazo naziphi na iinkxalabo okanye imibuzo osenokuba nayo ngeli xesha lendibano yocweyo uze uyifake kwibhokisi yeposi. Umbhexeshi uzakuqinisekisa ukuba iyaphendulwa.

Nanku Umsebenzi ekubuyelwa nawo esikolweni othathwe kwiNdibano yoCweyo 6.



### Umsebenzi ekubuyelwa nawo esikolweni (INdibano yoCweyo 6)

- 1. Sebenzisa *isiKhokelo semiSebenzi: Ikota 2* ukucwangcisa nokuphumeza iNkqubo yeMathematika kwiiVeki 8–10.
- 2. Bhala uphononongo lwezinto ezisebenze kakuhle, ezingaqhubanga kakuhle kwanento onokuyenza ukuphucula ukufundisa nokufunda.
- 3. Yiza nophononongo lwakho kwindibano yocweyo elandelayo.

Kubalulekile ukuba ucamngce ngeendlela ofundisa ngazo nanjengoko oku kuza kukunceda uqonde ngcono ukuba kutheni izinto zenzeke ngendlela ezenzeke ngayo. Usenokufumana iindlela zokwenza izinto ngokwahlukileyo uze uphucule indlela ofundisa ngayo.

Kuzakubakho amathuba aliqela okucamngca ngezinto ezibe yimpumelelo nezibe yimingeni ekuphumezeni iNkqubo yeMathematika kwezi ndibano zocweyo. Singathanda ukuba uqalise ngenkqubo yokubonakalisa ngokuthi uthathe imizuzu embalwa uze wabelane ngamava akho ekuphumezeni iKota 2 liVeki 8–10 ngokuphathelelene no*Msebenzi ekubuyelwa nawo esikolweni*.

<u>ი</u> .ი	Umsebenzi	
шш	Umsebenzi	1

	OHISEBERIZI I		
1.	Kwiqela lakho, yabelana ngamava akho okuphumeza iKota 2 IiVeki 8–10.		
	<del></del>		

2. Yabelana neqela elikhulu ngezinto ezibe yimpumelelo kwanemingeni.

## **Session 1: Setting the scene**

30 minutes

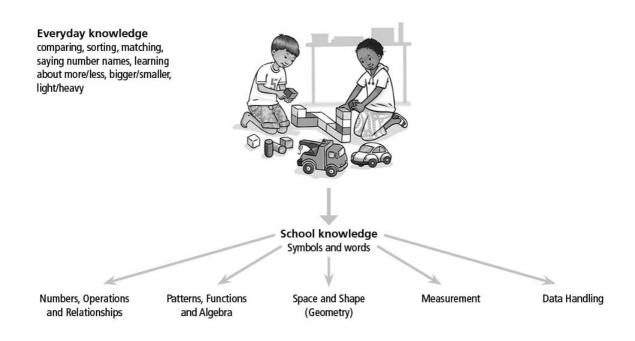
### Maths in the school context

It is important to provide maths' experiences for Grade R learners that relate to their everyday lives.

Read the **context principle** on pages 16–25 of the *Concept Guide*.

The **context principle:** Learning takes places daily in classroom and home situations (contexts) that are meaningful to learners.

Learners come to school with an understanding of the world around them that is based on their own experiences. This is called everyday knowledge. At school, children build on this. We call this school knowledge. Let's look at the diagram below and think more about how learners build on their everyday knowledge.



## Iseshoni 1: Ukulungisa indawo

30 imizuzu

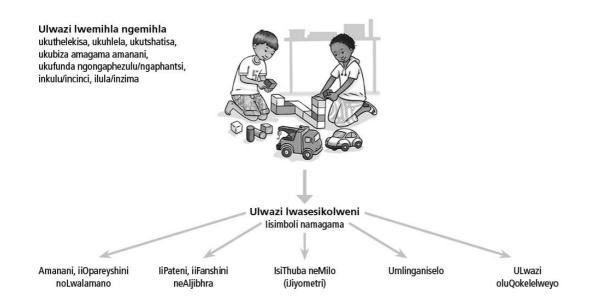
### Imathematika kumxholo wasesikolweni

Kubalulekile ukubonelela abafundi beBanga R ngamava emathematika aphathelelene nobomi babo bemihla ngemihla.

Funda **umgaqo womxholo** kumaphepha 16–25 esiKhokelo seeKhonsepthi.

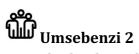
**Umgaqo womxholo:** Ukufunda kwenzeka imihla ngemihla eziklasini nasemakhayeni kwiimeko (kwimixholo) ezinentsingiselo kubafundi.

Abafundi beza esikolweni benengqiqo yelizwe elibangqongileyo nelisekelwe kumava abo. Oku kubizwa ngokuba lulwazi lwemihla ngemihla. Esikolweni, abantwana bakhela phezu koku. Oku sikubiza ngokuba lulwazi lwasesikolweni. Masijonge lo mfanekiso ungezantsi sicinge banzi ngendlela abafundi abathi basebenzele ngayo phezu kolwazi lwemihla ngemihla.





1.	What everyday knowledge have the learners in your class demonstrated?		
2.	How have you built on this knowledge in your daily maths programme at school?		



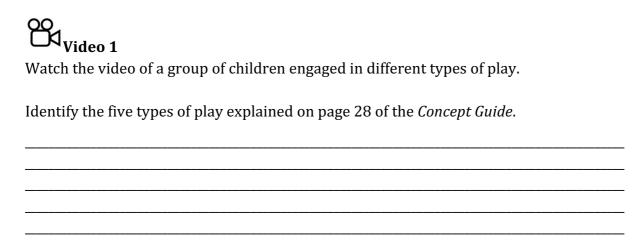
1.	Loluphi ulwazi lwemihla ngemihla oluthe lwaboniswa ngabafundi beklasi yakho?
2.	Usebenzele njani phezu kolu lwazi kwinkqubo yakho yemathematika yemihla ngemihla esikolweni?

## Session 2: Play-based teaching and learning 1 hour

The Curriculum and Assessment Policy Statement (CAPS): Grade R Mathematics, encourages a play-based, active approach to teaching and learning. This is in line with current research and understanding about how children learn. The Maths Programme supports the use of play to inform lesson planning and assessment.

The **play principle:** This principle promotes the idea that children learn best in freeplay and guided-play activities and encourages indoor and outdoor play-based activities.

Read the **play principle** on pages 28–33 of the *Concept Guide*.



### The play continuum

A continuum is a series of things that are slightly different from one another that lie somewhere between two different points.

Play inside and outside the classroom can take different forms, ranging from free play initiated and directed by the learners, to playful instruction that is initiated and directed by the teacher.

## Iseshoni 2: Ukufundisa nokufunda okusekelwe ekudlaleni 1 iyure

INgxelo yoMgaqo weKharityhulam noHlolo (iCAPS): IMathematika yeBanga R, ikhuthaza ngendlela yokufundisa nokufunda ngokukuko, esekelwe ekudlaleni. Oku kuhambisana nophando lwakamvanje kwanengqiqo yendlela abafunda ngayo abantwana. INkqubo yeMathematika ixhasa ukusetyenziswa kokudlala nezakuthi ifuthele isicwangciso sesifundo nokuhlola.

**Umgaqo wokudlala:** Lo mgaqo ukhuthaza uluvo lokuba abantwana bafunda ngcono xa bezidlalela nakwimisebenzi ekhokelwa kukudlala kwaye ikhuthaza ukuba kwenziwe imisebenzi yokudlala engaphakathi nephandle.

Funda **umgaqo wokudlala** kumaphepha 28–33 esiKhokelo seeKhonsepthi.

Nidiyo 1
Bukela ividiyo yeqela labantwana abazibandakanye kwiindidi zokudlala.
Chaza iindidi ezintlanu zokudlala ezicaciswe kwiphepha 29 lesiKhokelo seeKhonsepthi.

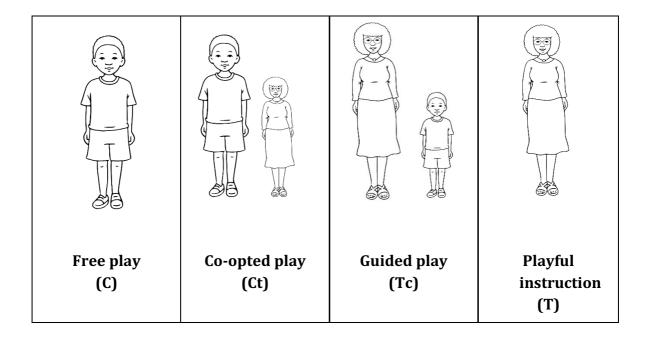
### Ukuqhubeka kokudlala

Inkqubeko luluhlu lwezinto ezahluke kancinci enye kwenye olufumaneka phakathi kweencam ezimbini ezahlukileyo.

Ukudlala kwangaphakathi okanye ngaphandle kweklasi kusenokulandela iindidi ezahlukileyo, ukusukela kukudlala okukhululekileyo okuqalwe kwaze kwakhokelwa ngabafundi, ukuya kumyalelo wokudlalisa oqalwe waze wakhokelwa ngutitshala.

A play-based approach to teaching and learning recognises that sometimes children learn best from free-play activities initiated and directed by the child without adult involvement. At other times children learn best from guided-play activities that are directed by the teacher for the whole class or in small groups.

The forms of play described below are closely related. Although they are illustrated as separate, very often one form of play changes into another form as the teacher and the children take on different roles.



### Free play (C)

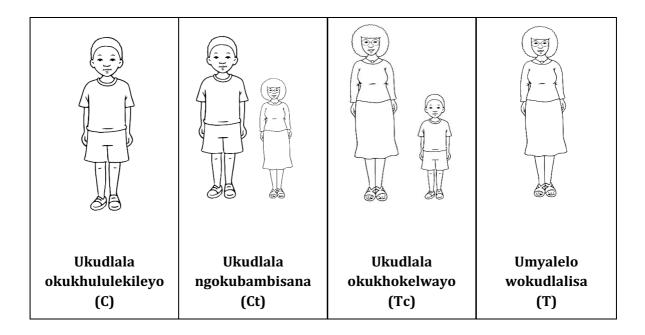
The child initiates and directs all of the play. The child decides and organises when, where, what and how to play, and who is playing. The teacher does not intervene or engage with the playing children. The teacher follows the direction set by the child.

### Co-opted play (Ct)

The child initiates and directs most of the play. The teacher occasionally intervenes in the children's play in order to extend the children's learning, e.g., by asking a question, making a suggestion or adding extra apparatus.

Indlela yokufunda nokufundisa esekelwe ekudlaleni iyithathele ingqalelo into yokuba ngamanye amaxesha abantwana bafunda ngcono kakhulu kwimisebenzi yokudlala okukhululekileyo eqalwe yaze yakhokelwa ngumntwana kungekho lubandakanyeko lwammntu mdala. Ngamanye amaxesha abantwana bafunda ngcono kakhulu kwimisebenzi eyimidlalo ekhokelwayo nethi iyalelwe ngutitshala kwiklasi yonke okanye kumaqela amancinci.

Iindidi zokudlala ezichazwe apha ngezantsi ziyelelene kakhulu. Nangona zizotywe njengezahlukileyo, emaxesheni amaninzi enye indlela yokudlala iye ikhokelele kwenye indlela njengokuba utitshala nabantwana bathi badlale iindima ezahlukileyo.



### Ukudlala okukhululekileyo (C)

Umntwana uqala aze akhokele umdlalo. Umntwana uthatha isigqibo aze ahlele ukuba umdlalo uza kudlalwa nini, phi, njani, kwanokuba ngubani ozakudlala. Utitshala akangeneleli okanye athethe nabantwana abadlalayo. Utitshala ulandela isikhokelo esibekwe ngumntwana.

### Ukudlala ngokubambisana (Ct)

Umntwana uqala aze awukhokele phantse wonke umdlalo. Utitshala umana ukungenelela kumdlalo wabantwana ngamaxesha athile ukuze ongezelele ekufundeni kwabantwana, umz., ngokubuza imibuzo, ukwenza iingcebiso okanye ongeze ezinye izinto zokudlala.

### Guided play (Tc)

The teacher initiates and directs most of the children's play by setting out specific activities, e.g., creative art, small group activities or an obstacle course. The children have some control because they can decide which activity they want to do or how they would like to do the activity.

### **Playful instruction (T)**

The teacher initiates and directs all the play. The teacher plans the activity with a particular teaching/learning purpose in mind, e.g., a story that teaches listening skills, matching counters to number symbols, or sorting shapes. The child follows the direction set by the teacher.

## Activity 3

In your group, discuss the following questions related to play.

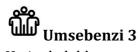
1. 	How does <i>free play</i> provide opportunities to extend learning?
2.	According to the play continuum, what is the difference between <i>guided play</i> and <i>playful instruction</i> ?
3.	<ul> <li>Look at the teacher-guided activity of pages 32–35 of <i>Activity Guide: Term 3</i>.</li> <li>◆ Discuss how the five activities are intentionally planned around a particular curriculum skill/concept.</li> </ul>

### Ukudlala okukhokelwayo (Tc)

Utitshala uqala aze akhokele phantse wonke umdlalo wabantwana ngokuthi enze imisebenzi ethile, umz., ubugcisa bokudlala, imisebenzi yamaqela amancinci okanye umzila wemiqobo. Abantwana banalo ulawulo oluthile kuba bayakwazi ukuthatha isigqibo malunga nokuba ngowuphi na umdlalo abawufunayo okanye indlela abangathanda ukuwenza ngayo umsebenzi lowo.

### Umyalelo wokudlalisa (T)

Utitshala uqala aze akhokele umdlalo. Utitshala ucwangcisa umsebenzi enenjongo ethile yokufundisa/yokufunda engqondweni, umz., ibali elifundisa izakhono zokumamela, ukutshatisa izixhobo zokubala neesimboli zamanani, okanye ukuhlela iimilo. Umntwana ulandela isalathiso esibekwe ngutitshala.



Kwiqela lakho, xoxani ngale mibuzo ilandelayo ephathelelene nomdlalo.

1.	ukufunda?
2.	Ngokwenkqubeko yokudlala, uyintoni umahluko phakathi ko <i>mdlalo okhokelwayo</i> kunye no <i>myalelo wokudlalisa</i> ?
3.	Jonga kumsebenzi okhokelwa ngutitshala kumaphepha 32–35 esiKhokelo semiSebenzi: Ikota 3.
	♦ Xoxa ngendlela imisebenzi emihlanu ecwangciswe ngayo ngabom ngokoyame kwisakhono/ikhonsepthi yekharityhulam ethile.

•	How does the teacher use questions to prompt the learners 'playfully' during the activities?
•	How does this assist the teacher with her observation for informal assessment?

•	ngexesha lemisebenzi?	
•	Oku kumncedisa njani utitshala kuqwalaselo lwakhe lohlolo olungekho sikweni?	

# **Session 3: The Grade R maths learning environment**

30 minutes

The Grade R maths learning environment should support learning through play. A well-planned teaching and learning programme should include a balance of all the different types of play activities.



Look at the photograph of a Grade R classroom.



1.	Think about what you know about how young children learn. Discuss whether the learning environment in the photograph is appropriate for Grade R.
2.	How could you improve this learning environment?

# Iseshoni 3: Ubume bemeko yendawo yokufundela imathematika kwiBanga R 30 imizuzu

Ubume bemeko yendawo yokufundela imathematika kwiBanga R kufanele bunike inkxaso yokufunda ngokudlala. Inkqubo yokufunda nokufundisa ecwangciswe ngobunono kufanele iquke iindidi ezahlukileyo zemisebenzi yokudlala.

## Umsebenzi 4

Jonga umfanekiso weklasi yeBanga R.



1.	Cinga ngoko ukwaziyo ngendlela abantwana abancinci abafunda ngayo. Xoxa ngokuba ingaba ubume bemeko yendawo yokufundela esemfanekisweni ilifanele na iBanga R.				
2.	Ungabuphucula njani ubume bemeko yale ndawo yokufundela?				

### 3. Evaluate your own learning environment.

Tick ✓

	TICK
Is the classroom inviting?	
Is the space organised so that learners can gather in large groups for whole class	
sessions, and also work in teacher-guided and other small group activities?	
Are there free choice activity areas where learners can choose their own	
activities, explore, investigate and solve problems?	
Are learners able to be active in their own learning, and explore things around	
them through their five senses?	
Are learners able to work together, and talk, listen and learn from one another?	
Are the materials placed so that learners can help themselves?	
Are learners able to move around freely from one activity to another?	
Are the daily programme, weather chart, posters and learners' work displayed at	
learners' eye level?	
How have you organised the maths environment? Do you have:	
a maths area	
number friezes	
the <i>Poster Book</i> displayed	
a Resource Kit	
tubs for each learner	
the learners' work displayed	
How have you integrated maths in the free choice activities? Do you have:	
construction toys	
books	
fantasy play	
☐ puzzles	
□art	
sand and water	
outdoor play	
educational games	
a collection of recycled materials, e.g. plastic tubs and lids	
Other:	
What challenges do you face in setting up your Grade R environment?	
Would you make any changes?	

3. Hlola ubume bemeko yendawo yakho yokufundela. Thikisha ✓ Ingaba inomtsalane iklasi? Ingaba ilungisiwe indawo ukuze abafundi bakwazi ukuhlala ndawonye kumaqela amakhulu kwiiseshoni zeklasi yonke, kwanokusebenza kwimisebenzi ekhokelwa ngutitshala kunye neminye yamaqela amancinci? Ingaba zikhona iindawo zemisebenzi yokuzikhethela apho abafundi benokukhetha eyabo imisebenzi, baphonononge, bahlole baze basombulule iingxaki? Ingaba abafundi bayakwazi ukuthatha inxaxheba ekufundeni kwabo, baze baphonononge izinto ezibangqongileyo besebenzisa izivo zabo ezintlanu? Ingaba abafundi bayakwazi ukusebenza ndawonye, bathethe, bamamele baze bafunde omnye komnye? Ingaba iimathiriyeli zibekiwe ngendlela abafundi abanokukwazi ukuzinceda ngazo? Ingaba abafundi bayakwazi ukuhambahamba ngokukhululekileyo ukusuka komnye umsebenzi ukuya komnye? Ingaba inkqubo yemihla ngemihla, itshati yemozulu, iipowusta kwanemisebenzi yabafundi ixhonywe ngendlela abafundi abakwaziyo ukuyibona? Ubulungise njani ubume bemeko yendawo yemathematika? Ingaba unayo: indawo yemathematika ∏ifrizi yamanani INcwadi yeePowusta exhonyiweyo ☐ *IKiti yeziXhobo* izikhongozeli zomfundi ngamnye imisebenzi yabafundi exhonyiweyo Uyibandakanye njani imathematika kwimisebenzi yokuzikhethela? Ingaba unazo: ☐ iithoyizi zokwakha ∏iincwadi imidlalo yelizwe lamaphupha iiphazili imizobo isanti namanzi indawo yokudlala ngaphandle imidlalo efundisayo ingqokelela yezinto ezisele zisebenzile, umz., izikhongozeli zeplastiki kunye neziciko Okunve: Yeyiphi imingeni onayo ekulungiseni ubume bemeko yendawo yakho yeBanga R? Ingaba ungakwazi ukwenza utshintsho?

## Session 4: Factors affecting maths learning

30 minutes

The **inclusivity principle:** All learners have a right to feel special, participate and be included in classroom activities and discussions. This includes children who have disabilities, behavioural issues or other barriers to learning.

### Barriers to learning maths

Many learners experience barriers to learning maths that are the result of a range of factors. Let's take a closer look at some of the barriers to learning that learners may experience. Look at Figure 29 on page 58 of the *Concept Guide*.

Activity 5  Make a list of the kinds of barriers that learners in your class are experiencing that impact on their learning.
With careful planning and in collaboration with families and other support people, learners with special developmental needs can participate fully in the Grade R programme.

## ůř

#### Activity 6

In your group, share your experiences about learners who are experiencing barriers to learning maths. Choose a learner who is not successfully coping with classroom tasks and activities. Attempt to answer these questions.

1.	What is the barrier to learning?

## Iseshoni 4: Imiba echaphazela ukufundwa kwemathematika 30 imizuzu

**Umgaqo woquko:** Bonke abafundi banelungelo lokuziva bekhethekile, lokuthatha inxaxheba baze babandakanywe kwimisebenzi nakwiingxoxo zaseklasini. Oku kuquka abantwana abanokhubazeko, iingxaki zokuziphatha okanye eminye imiqobo ekufundeni.

### Imiqobo ekufundeni imathematika

Abafundi abaninzi babanemiqobo ekufundeni imathematika ngenxa yezizathu eziliqela. Makhe siqwalasele eminye yemiqobo ekufundeni abafundi abasenokuba nayo. Jonga umfanekiso 29 kwiphepha 59 lesiKhokelo seeKhonsepthi.

Umsebenzi 5	
Yenza uluhlu lweendidi zemiqobo abanayo abafundi beklasi yakho echaphazela	
ukufunda kwabo.	
Ngocwangciso lobunono kwanangokusebenzisana neentsapho kunye nabanye abantu abanika inkxaso, abafundi abaneemfuno ezikhethekileyo zokukhula basenokuthatha inxaxheba ngokupheleleyo kwinkqubo yeBanga R.	
Umsebenzi 6	
Kwiqela lenu, yabelanani ngamava eninawo ngabafundi abafumana imiqobo ekufundeni imathematika. Khethani umfundi ongaqhubi kakuhle kwimisebenzi yaseklasini. Zamani ukuphendula le mibuzo.	
1. Uyintoni umqobo ekufundeni?	

2.	What are the learner's learning needs?
3.	What support is needed?
4.	What steps could you take to minimise the barrier to learning so that the learner can participate more successfully in Grade R maths?
5.	If you cannot identify the barrier, the learning needs or the support required, who could you consult?

Read some of the ways you can include all learners in the Grade R classroom on page 60 of the *Concept Guide*.

Remember that it is important to identify barriers to learning as early as possible so that a plan can be put in place to address a learner's individual developmental and learning needs. Your ongoing observations of learners' progress will help you recognise any potential gaps in their learning and also help you plan ways to address these.

2.	Ziintoni iimfuno zabafundi zokufunda?
3.	Yeyiphi inkxaso edingekayo?
4.	Ngawaphi amanyathelo onokuwathatha ekunciphiseni umqobo ekufundeni ukwenzela ukuba umfundi akwazi ukuthatha inxaxheba ngokuyimpumelelo kwimathematika yeBanga R?
5.	Ukuba awukwazi ukuwolatha umqobo, iimfuno zokufunda okanye inkxaso efunekayo, ngubani onokuthi uqhagamshelane naye?

Funda ezinye zeendlela onokubabandakanya ngazo abafundi kwiklasi yeBanga R kwiphepha 61 les*iKhokelo seeKhonsepthi*.

Khumbula ukuba kubalulekile ukwalatha imiqobo ekufundeni kusekutsha kangangoko ukuze ukwazi ukwenza isicwangciso sokuhlangabezana neemfuno zokobuqu zokukhula nezokufunda komfundi ngamnye. Ingqwalasela yakho eqhubekayo yenkqubela yomfundi izakukunceda ukwazi ukubona nazo naziphi na izithuba ezinokubakho ekufundeni kwabo ize ikuncede wenze isicwangciso seendlela onokuhlangabezana nazo ngayo.

## Session 5: Perceptual and motor development

1 hour

Perception develops through information that is gathered from the senses of touch, sight, smell, taste and hearing, and helps children to learn about the world. Motor development unfolds with perceptual development – as children use their motor skills to move through the environment, they gather information with their senses.

Perceptual and motor skills are very important for learning maths. They include:

- visual perception
- auditory perception
- tactile and kinaesthetic perception.

### Visual perception

Visual perception is the ability to use what the eyes see and to interpret this visual information. There are different categories of visual perceptual skills.

## Activity 7

The following are scenarios that illustrate visual perceptual skills in young children.

- 1. Read the information on visual perception on pages 64–67 of the *Concept Guide* and identify which visual perceptual skills the children below are practising.
  - ♦ Welekazi is playing in the fantasy play area. She looks for and finds her favourite red shoes amongst all the other shoes in the wardrobe.

◆ The teacher makes a pattern of different coloured beads on a string. Leah makes her own string of beads by repeating the pattern her teacher has made.

## Iseshioni 5: Uphuhliso lokuqonda nolwezihlunu zomzimba 1 iyure

Ukuqonda kuphuhla ngokufumana ulwazi oluqokelelwe kwizivo zokubamba, ukubona, ukujoja, ukungcamla nokuva kunceda abantwana bafunde ngehlabathi. Uphuhliso lwamalungu nezihlunu lutyhileka nokuphuhla kwengqiqo – njengokuba abafundi besebenzisa izakhono zezihlunu zomzimba ukuze baqhubeke kwindawo abakuyo, beqokelela ulwazi ngezivo zabo.

Izakhono zophuhliso lokuqonda nolwezihlunu zomzimba zibaluleke kakhulu ekufundeni imathematika. Ziquka:

- ♦ umbono wokubonwayo
- umbono wokuviwayo
- umbono wokubanjwayo neentshukumo zomzimba.

### Umbono wokubonwayo

Umbono wokubonwayo sisakhono sokusebenzisa oko kubonwa ngamehlo kwanokutolika ulwazi olubonwayo. Kukho iindidi ezahlukileyo zezakhono zombono wokubonwayo.



Oku kulandelayo ziimeko ezibonisa izakhono zombono wokubonwayo ebantwaneni abancinci.

- 1. Funda ulwazi olungombono wokubonwayo kumaphepha 64–67 esiKhokelo seeKhonsepthi uze walathe ukuba zeziphi izakhono zombono wokubonwayo abantwana abangezantsi abaziqhelanisa nazo.
  - ♦ UWelekazi udlala kwindawo yokudlala yelizwe lamaphupha. Ukhangela aze afumane isihlangu sakhe esibomvu asithanda kunene phakathi kwazo zonke izihlangu ezikhoyo ewodrophini.
  - ♦ Utitshala wenza ipateni yamaso anemibala eyahlukileyo kumsonto. ULeah wenza owakhe umsonto wamaso ngokuphinda ipateni eyenziwe ngutitshala wakhe.

2.	What are the kinds of activities you have done in your Grade R class that support these perceptual skills?
Aud	ditory perception litory perception is the ability to use what the ears hear and to interpret this itory information. There are different categories of auditory perceptual skills.
The	Activity 8 e following are scenarios that illustrate auditory perceptual skills in young children.
1.	<ul> <li>Read the information on auditory perception on page 68 of the <i>Concept Guide</i> and identify which auditory perceptual skills the children below are practising.</li> <li>◆ Raiz is playing in the noisy block area. Even though there are many other learners around him talking as they play, he can focus on what his teacher is asking him to do with the blocks.</li> </ul>
	◆ Thobeka listens to her teacher as she counts ten counters while placing them on the mat. Thobeka remembers what she has heard and repeats the order of the numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
2.	What are the kinds of activities you have done in your Grade R class that support these perceptual skills?

2.	Zeziphi iindidi zemisebenzi oyenzileyo kwiklasi yakho yeBanga R enika inkxaso kwezi zakhono zengqiqo?
Um ulw	nbono wokuviwayo bono wokuviwayo sisakhono sokusebenzisa oko kuviwa ngeendlebe kwanokutolika vazi oluviwe ngeendlebe. Kukho iindidi ezahlukileyo zezakhono zombono kuviwayo.
	Umsebenzi 8 u kulandelayo ziimeko ezibonisa izakhono zombono wokuviwayo ebantwaneni uncinci.
1.	<ul> <li>Funda ulwazi olungombono wokuviwayo kumaphepha 69 esiKhokelo seeKhonsepthi uze walathe ukuba zeziphi izakhono zombono wokuviwayo aba bantwana bancinci bangezantsi abaziqhelanisa nazo.</li> <li>◆ URaiz udlala kwindawo yebhloko enengxolo. Nangona bebaninzi abafundi abamngqongileyo abathethayo njengokuba bedlala, uyakwazi ukugxila koko utitshala wakhe amcela ukuba akwenze ngeebhloko.</li> </ul>
	◆ UThobeka umamele utitshala wakhe njengokuba ebala izixhobo zokubala ezilishumi ngeli lixa ezibeka emethini. UThobeka ukhumbula oko akuvileyo aze aluphinde udweliso lwamanani: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
2.	Zeziphi iindidi zemisebenzi oyenzileyo kwiklasi yakho yeBanga R enika inkxaso kwezi zakhono zengqiqo?

### Tactile and kinaesthetic perception

These two types of perception go hand in hand. Tactile perception is the ability to notice similarities and differences in the way things feel. Kinaesthetic perception is the ability to use body movements and muscle feelings. Together they provide the brain with information.

Activity 9	
How can we help learners develop their tactile and kinaesthetic perception?	

Refer to the other activity ideas on page 68 of the *Concept Guide*.

### Umbono wokubanjwayo noweentshukumo zomzimba

Ezi ndidi zimbini zemibono zihamba kunye. Umbono obambekayo sisakhono sokunakana ukufana nokwahluka kwindlela izinto ezivakala ngayo. Umbono wentshukumo sisakhono sokusebenzisa iintshukumo zomzimba kunye neemvakalelo zezihlunu. Zombini ezi zigqithisa ulwazi engqondweni.

Umsebenzi 9			
Singabanceda njani abafundi ukuba baphuhlise umbono wokubambekayo kunye nowentshukumo?			

Jonga kweminye imizekelo yemisebenzi kwiphepha 69 lesiKhokelo seeKhonsepthi.

## **Session 6: Planning for teaching**

1½ hours

It is important to plan and prepare thoroughly for each week. This will allow you to feel confident about what you are doing and help you to focus on teaching and working with the learners. As you have already experienced in Terms 1 and 2, the Maths Programme is carefully structured, and the maths content is presented in a progressive developmental sequence. It has been designed to ensure that all the Grade R Mathematics content and skills are covered and learners are well prepared for Grade 1. Teachers need to be cautious about selecting activities from different weeks and leaving other activities out.



### Activity 10

Your facilitator will assign each group either Week 1, 2 or 3 of Term 3 to focus on.

- 1. Look at page 18 of *Activity Guide: Term 3* to identify the Content Area Focus of your week.
- 2. Find the CAPS content for this Content Area on pages 114–137 of the *Concept Guide*.
- 3. Read the contents of your assigned week in *Activity Guide: Term 3*.
- 4. Complete the planning template in Appendix A to capture the focus of the whole class and small group activities. Discuss the following to guide your planning:
  - ♦ The key concepts that learners will be learning in this week
  - ♦ The topic
  - ♦ The new knowledge to be introduced
  - ♦ The skills from previous weeks to be practised
  - ♦ How learners will be taught and will learn during:
    - whole class activities
    - small group activities
      - o teacher-guided
      - o independent small groups (at the workstations).
- 5. Identify any potential challenges in implementing the activities for your assigned week. Propose suggestions to resolve or minimise these. Record your points on flipchart paper to share with the whole group.

## Iseshoni 6: Ukucwangcisela ukufundisa 1½ iiyure

Kubalulekile ukucwangcisa nokulungiselela kakuhle iveki neveki. Oku kuza kwenzeka uzive uzithemba koko ukwenzayo kuze kukuncede ugxile ekufundiseni nasekusebenzeni nabafundi. Njengoko sele ubonile kwiiKota 1 neyesi2, iNkqubo yeMathematika ihlelwe ngobunono, kwaye umxholo wemathematika unikelwa ngendlela yophuhliso oluqhubekayo. Ihlelwe ngendlela eqinisekisa ukuba wonke umxholo nezakhono zeMathematika yeBanga R uyenziwa kwanokuba abafundi balilungele iBanga 1. Ootitshala kufuneka bakulumkele ukukhetha imisebenzi kwiiveki ezahlukileyo babe beyishiya eminye.

## Umsebenzi 10

Umququzeleli wenu uzakunika iqela ngalinye oko lizakugxila kuko nokuba yiVeki 1, 2 okanye u3.

- 1. Jonga kwiphepha 19 les*iKhokelo semiSebenzi* uze ubalule iNkalo yoMxholo ekuGxininiswa kuyo kwiveki leyo.
- 2. Fumana umxholo kaCAPS wale Nkalo yoMxholo kumaphepha 114–137 wesiKhokelo seeKhonsepthi.
- 3. Funda imixholo yeveki eniyinikiweyo kwisiKhokelo semiSebenzi: Ikota 3.
- 4. Gcwalisa ithempleyithi yesicwangciso kwiSingeniso A uze ubonise oko kugxilwe kuko kwimisebenzi yeklasi yonke kunye neyamaqela amancinci. Xoxani ngale miba ilandelayo ukuze ukhokele isicwangciso sakho:
  - ♦ Iikhonsepthi ezingundoqo ezizakufundwa ngabafundi kule veki
  - ♦ Isihloko
  - ♦ Ulwazi olutsha oluzakwaziswa
  - Izakhono ekuzakuziqhelaniswa nazo ezicatshulwe kwiiveki ezidlulileyo
  - Indlela abafundi abazakufundiswa nabazakufunda ngayo ngexesha:
    - lemisebenzi yeklasi yonke
    - lemisebenzi yamaqela amancinci
      - o ekhokelwa ngutitshala
      - o eyamaqela amancinci azimeleyo (kwizitishi zokusebenzela).
- 5. Balula nayiphi na imingeni esenokubakho ekuphunyezweni kwemisebenzi yeveki oyabelweyo. Phakamisa iingcebiso zokuzisombulula okanye zokuzinciphisa. Bhala amanqaku akho kwiphepha lefliptshathi uze wabelane neqela lilonke.

## **Closing activities**

30 minutes



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

The facilitator will direct the groups to the sheets of paper on the walls. Each sheet will prompt you on how to comment.



### Take back to school task

- 1. Use the Term 3 Weekly Planning Template in Appendix A to plan and implement Term 3 Weeks 1–3 of the Maths Programme.
- 2. Document how you used the 'Check that learners are able to' observation list (in the eye box) during each of the teacher-guided activities.
- 3. Write an evaluation of what worked well, what did not work so well and what you could do differently to improve teaching and learning.
- 4. Bring your evaluation to the next workshop.

### **Evaluation**

Complete the Evaluation Form.

## Imisebenzi yokuqukumbela

30 imizuzu



**Ucamngo ngendibano yocweyo:** Thatha imizuzu embalwa ucamngce ngosuku. Tyhila *iNcwadi yokuSebenzela yoMthathinxaxheba* uzikhumbuza ngoko kwenziweyo.

Umbhexeshi uzakolatha amaqela emaphepheni asemadongeni. Iphepha ngalinye lizakukukhokela kwindlela omawuhlomle ngayo.

## 0

## Umsebenzi ekuzakubuyelwa nawo esikolweni

- 1. Sebenzisa iThempleyithi yeSicwangciso seVeki neVeki seKota ekwiSingeniso A ukucwangcisa uze uphumeze iKota 3 iiVeki 1–3 of seNkqubo yeMathematika.
- 2. Bhala indlela olusebenzise ngayo uluhlu lokuqwalasela oluthi '**Qwalasela ukuba abafundi bayakwazi uku-**' (kwibhokisi eneliso) ngexesha lomsebenzi ngamnye okhokelwa ngutitshala.
- 3. Bhala uhlolo loko kusebenze kakuhle, noko kungasebenzanga kakuhle kwanoko usenokwenza ngcono ukuphucula ukufundisa nokufunda.
- 4. Yiza nohlolo lwakho kwindibano yocweyo elandelayo.

### Uhlolo

Gcwalisa iFomu yoHlolo.

### APPENDIX A: TERM 3 WEEKLY PLANNING TEMPLATE

## Term 3: Activity Plan: Week \_\_\_\_ CONTENT AREA: TOPIC: **INTRODUCE NEW KNOWLEDGE:** PRACTISE: Whole class activities Teacher-guided activity **Workstation activities (independent small group activities)** Day 1 Activity 1 **Activity 2** Day 2 **Activity 3** Day 3 Day 4 **Activity 4** Day 5

### ISINGENISO A: ITHEMPLEYITHI YESICWANGCISO SEVEKI NEVEKI KWIKOTA 3

### Ikota 3: Isicwangciso semiSebenzi: Iveki \_\_\_\_

ikota 5: isicwangciso semisebenzi: iveki								
INKALO YOMXHOLO:								
ISIHLOKO:								
YAZISA ULWAZI OLUTSHA:								
ZIQHELISE:								
Imisebenzi yeklasi yonke	Umsebenzi okhokelwa ngutitshala	Imicahanzi vaciti	chi sokusahanzala (imisahanzi azimalayo					
innsedenzi yeriasi yonke	omsebenzi oknoketwa ngutitshala	Imisebenzi yesitishi sokusebenzela (imisebenzi ezimeleyo yamaqela amancinci)						
Usuku 1		Umsebenzi 1						
Usuku 2								
		Umsebenzi 2						
Usuku 3								
osunu s		Umsebenzi 3						
		Ullisebelizi 5						
Usuku 4								
Usuku 5		Umsebenzi 4						

## **Workshop 7 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 7

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?			