



**GAUTENG PROVINCE**  
EDUCATION  
REPUBLIC OF SOUTH AFRICA

**GGT 2030**  
GROWING GAUTENG TOGETHER

Setswana/English

# **Lenaneotokafatso la Dipalo tša Mophato R Grade R Mathematics Improvement Programme**



**Thutano 6 • Workshop 6  
Kaedi ya Mofathosi • Facilitator's Guide**

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

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

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

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



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Porojeke ya Lenaneotokafatso la Dipalo le Puo tsa Mophato wa R ke itshimololelo ya **Lefapha la Thuto la Gauteng (Gauteng Department of Education)** mmogo le badirisani ba bona ba botlhokwa, **Gauteng Education Development Trust**.

Tlhabololo le tthagiso ya didiriswa tsa katiso le phaposiborutelo ya Porojeke ya Lenaneotokafatso la Dipalo le Puo tsa Mophato wa R e kgonthitswe ke tshegetso ya **United States Agency for International Development** le **Zenex Foundation** ka matlole.

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**Schools Development Unit (SDU)** kwa **University of Cape Town (UCT)** ke badirisani ba setegeniki ba dipalo go Porojeke ya Lenaneotokafatso la Dipalo le Puo tsa Mophato wa R. SDU ke yuniti e e ka tlase ga School of Education sa UCT e e totileng tokafatso ya boporofesenele jwa barutabana mo Dipalong, Bonetetshing, Kitsokwalo/Puo le Dikgonotshelo go simolola ka Mophato R go fitlha ka Mophato 12. SDU e neelana ka thuto ka boithutedi jwa borutabana le dithutokhutshwe tse di dumeletsweng tsa UCT, tiro ya kwa sekolong, tthagiso ya dibukana le dipatlisiso go tshegetsa go ruta le go ithuta mo makaelong otlhe a Aforikaborwa.

#### DITEBOGO

Ditebogo di lebiswa segolobogolo go:

- Batlhankedi ba Lefapha la Thuto la Gauteng mo Lephatheng la Kharikhulamo, Bokaedi jwa Thuto ya Barutabana le Thuto e e Kgethegileng ka ntlha ya seabe sa bona go dirisa dibukana tseno tsa rona.
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- Setlhophla se se kwalang *R-Maths*: Badiri ba SDU le bagakolodi.



Porojeke ya Lenaneotokafatso la Dipalo tsa Mophato R le tserwe go tswa mo *R-Maths*, e phasaladitswe lwantlha ka 2017 ke Schools Development Unit, ya University of Cape Town. Tetlokhopi ya *R-Maths* e tshwerwe ke University of Cape Town.

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# Overview

## Purpose

This is the sixth 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 assist teachers with the implementation of the Maths Programme in their classrooms, especially the Content Areas covered in Term 2 Weeks 8–10. Participants will reflect on their ongoing assessment of learners' progress and will document developmental concerns related to the learners that may require special interventions and support. Participants will also reflect on teaching strategies that strengthen learners' problem-solving skills.

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 4–7
- ◆ To explore strategies to support teaching maths in Grade R
- ◆ To reflect on the Maths Programme's principles in the weekly plan
- ◆ To engage with the Maths Programme content of Term 2 Weeks 8–10 (Space and Shape (Geometry); Measurement; Numbers, Operations and Relationships)
- ◆ To apply knowledge of informal, continuous assessment to learning and teaching

## Workshop content

- ◆ Opening and reflection (1 hour)
  - ◆ Session 1: Space and Shape (Geometry) (1 hour)
- TEA
- ◆ Session 2: Measurement (1 hour)
  - ◆ Session 3: Numbers, Operations and Relationships (1 hour)
- LUNCH
- ◆ Session 4: Numbers, Operations and Relationships (45 minutes)
  - ◆ Session 5: Term 2 Assessment (1 hour)
  - ◆ Closing activities (15 minutes)

# Thadiso

## Maitlhomomo

Eno ke thutano ya borataro ya dithutano di le lesomepedi tsa Lenaneotokafatso la Dipalo tsa Mophato R, le e leng karolo ya Porojeke ya Lenaneotokafatso la Dipalo le Puo tsa Mophato wa R la Lefapha la Thuto la Gauteng (GDE).

Maitlhomomo a thutano eno ke go thusa barutabana go diragatsa Lenaneo la Dipalo mo diphaposiborutelong tsa bona, segolobogolo Dikaroloteng tse di dirilweng mo Kgweditharong ya 2 Dibeke 8–10. Batsayakarolo ba tlaa sedisisa tswelelo peleng e e tsweletseng ya tlhatlhobo ya barutwana mme ba tlaa kwala matshwenyego a kgolo a a amanang le barutwana ba ba ka tlhokang tsereganyo le tshegetso e e kgethegileng. Batsayakarolo gape ba tlaa sedisisa malepa a go ruta a a tiisang dikgono tsa barutwana tsa go rarabolola dipalo.

Metswedi ya Dikaroloteng tsa Dipalo tsa Mophato wa R di tserwe go tswa mo *Polelong ya Pholisi ya Kharikhulamo le Tlhatlhobo (PPKT): Dipalo tsa Mophato wa R (Lokwalo lwa Bofelo)*, 2011, Lefapha la Thutotheo, Aforika Borwa.

## Dipoelothuto

- ◆ Go sedisisa mo tiragatsong ya Kgweditharo 2 Dibeke 4–7
- ◆ Go tlhotlhomisa ditogamaano tsa go tshegetsa go ruta dipalo mo Mophatong wa R
- ◆ Go sedisisa melawana ya Lenaneo la Dipalo mo lenaneong la beke le beke
- ◆ Go lebelela diteng tsa Lenaneo la Dipalo la Kgweditharo 2 Dibeke 8–10 (Boalo le Popego (Jeometeri); Tekanyo; Dinomore, Ditiro le Dikamano)
- ◆ Go diragatsa kitso, tlhatlhobotsweledi e e sa tlhomamang mo go ithuteng le mo go ruteng

## Diteng tsa thutano

- ◆ Pulo le Tshedisiso (Ura e le 1)
  - ◆ Karolo 1: Boalo le Popego (Jeometeri) (Ura e le 1)
- TEE
- ◆ Karolo 2: Tekanyo (Ura e le 1)
  - ◆ Karolo 3: Dinomore, Ditiro le Dikamano (Ura e le 1)
- DIJOTSHEGARE
- ◆ Karolo 4: Dinomore, Ditiro le Dikamano (Metsotso e le 45)
  - ◆ Karolo 5: Tlhatlhobo ya Kgweditharo 2 (Ura e le 1)
  - ◆ Ditirwana tsa tswalelo (Metsotso e le 15)

## Preparation

- ◆ PPT welcome and outcomes
- ◆ Read:
  - Concept Guide*, pages 114–137
  - Activity Guide: Term 2*, pages 18–21 and pages 138–189
  - Appendix A: Term 2 Weekly Content Summary (Weeks 8–10)
- ◆ Remind participants to bring their *Concept Guide*, *Activity Guide: Term 2*, an example of their assessment of a learner and their evaluation notes from the *Take back to school* task from Workshop 5.
- ◆ Place a *Resource Kit* on each group's table.
- ◆ Cut out a set of shapes from Appendix B for each group. Place the shapes in a separate envelope for each group.

## Materials

- ◆ Flipchart paper, kokis
- ◆ A *Resource Kit* for each group
- ◆ A *Poster Book* for each group



## Ipaakanyo

- ◆ PPT kamogelo le dipoelo
- ◆ Buisa:  
*Kaedi ya Mogopolo*, ditsebe 114–137  
*Kaedi ya Ditirwana: Kgweditharo 2*, ditsebe 18–21 le ditsebe 138–189  
Mametlelelo A: Kgweditharo 2 Khutshwafatso ya Diteng tsa Beke le Beke (Dibeke 8–10)
- ◆ Gopotsa batsayakarolo go tla ka *Kaedi ya bona ya Mogopolo, Kaedi ya Ditirwana: Kgweditharo 2*, sekao sa tlhathobo ya morutwana le dintlha tsa bona tsa tshekatsheko go tswa mo tirwaneng ya bona e ba e busetsang kwa sekolong go tswa mo Thutanong 5.
- ◆ Baya *Kgetsana ya Didiriswa* mo tafoleng ya setlhophha se sengwe le se sengwe.
- ◆ Segololela setlhophha se sengwe le se sengwe sete ya dipopego go tswa mo Mametlelelong B. Tsenyetsa setlhophha se sengwe le se sengwe dipopego mo dienfolopong tse di aroganeng.

## Didiriswa

- ◆ Pampiri ya tšhatephetogi, dikhokhi
- ◆ *Kgetsana ya Didiriswa* ya setlhophha se sengwe le se sengwe
- ◆ *Buka ya Diphousetara* ya setlhophha se sengwe le se sengwe

# Opening and reflection

1 hour

## Facilitator's notes

- ◆ PPT: Open the session and read through the agenda and learning outcomes for the workshop.
- ◆ Ask participants to reflect on their implementation of Term 2 Weeks 4–7 of the Maths Programme and their observations and assessment of learners.
- ◆ Participants discuss the questions in **Activity 1** in small groups. Spend time with each group during the discussions, joining in where appropriate.

Here is the *Take back to school* task from Workshop 5.



### Take back to school task (Workshop 5)

1. Continue to use the Record of Continuous Assessments in *Activity Guide: Term 2* to assess your learners. Make use of your ongoing observation notes to build up evidence of what learners understand and can do.
2. Identify any concerns you have about individual learner's emerging grasp of maths concepts.
3. Bring copies of rubrics that you used for maths assessment to the next workshop.
4. Bring a completed assessment record for one learner to the next workshop.
5. Use *Activity Guide: Term 2* to plan and implement Weeks 4–7 of the Maths Programme, including creating a maths area with a focus on the concept for each week.
6. Make notes on what worked well, what did not work so well and what you could do differently to improve teaching and learning.



### Activity 1

1. In your groups, discuss your progress in implementing Term 2 Weeks 4–7.
  - ◆ What worked well (strengths)?
  - ◆ What did not work well (challenges)?
  - ◆ What could you do to improve teaching and learning in your classroom?

Record the main points of your discussion on flipchart paper to share with the other groups later.

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## Dintlha tsa mofatlhosi

- ◆ PPT: Bula karolo mme o buise lenanetema le dipoelothuto go ipaakanyetsa thutano.
- ◆ Kopa batsayakarolo go sedisisa tiragatso ya Kgweditharo 2 Dibeke 4–7 ya Lenaneo la Dipalo le dikelothoko le tlathlho ba barutwana.
- ◆ Batsayakarolo ba buisanela dipotso mo **Tirwaneng 1** mo ditlhopheng tse dinnye. Neela setlhopha se sengwe le se sengwe nako ka nako ya dipuisano, o tsena fa go le maleba.

Seno ke *Tirwana e o e busetsang kwa sekolong* go tswa mo Thutanong ya 5.



### Tirwana e o e busetsang kwa sekolong (Thutano ya 5)

1. Tswelera go dirisa Rekoto ya Ditlathobotsweledi mo *Kaeding ya Ditirwana: Kgweditharo 2* go tlathlho ba barutwana ba gago. Dirisa dintlha tsa gago tsa kelothoko e e tsweleng pele go kgobokanya bopaki jwa se barutwana ba se tlhaloganyang le se ba kgonang go se dira.
2. Tlhaola matshwenyego mangwe le mangwe a o nang le ona ka ga go tshwarelela megopolopalo ka gangwe go go itshupang ga morutwana ka esi.
3. Tlala ka dikhophi tsa diruburiki tse o di diriseditseng tlathlho ya dipalo kwa thutanong e e latelang.
4. Tlela morutwana a le mongwe rekoto ya tlathlho e e weditsweng kwa thutanong e e latelang.
5. Dirisa *Kaedi ya Ditirwana: Kgweditharo 2* go rulaganyetsa le go diragatsa Dibeke 4–7 tsa Lenaneo la Dipalo, go akaretsa go tlhama lefelo la dipalo le le totileng mogoplo wa beke nngwe le nngwe.
6. Kwala dintlha ka ga se se dirileng sentle, se se sa dirang sentle le gore o ka dirang ka tsela e e farologaneng go tokafatsa go ruta le go ithuta.



### Tirwana 1

1. Mo ditlhopheng tsa lona, buisanelang tswelelopele ya lona mo go diragatseng Kgweditharo 2 Dibeke 4–7.
  - ◆ Ke eng se se diregileng sentle thata (dithata)?
  - ◆ Ke eng se se sa diragalang sentle (dikgwetlho)?
  - ◆ Ke eng se o neng o tshwanetse go se dira go tokafatsa go ruta le go ithuta mo phaposiborutelong ya gago?

Rekota dintlha tsa bothokwa mo dipuisanong tsa gago ka ga pampiri ya tshatephetogi go arogana le ditlhopha tse dingwe kgantele.

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2. Discuss how successful you were in:
  - ◆ recording notes about individual learners after each teacher-guided activity in Weeks 4–7.
  - ◆ completing the Term 2: Record of Continuous Assessments on pages 190–193 of *Activity Guide: Term 2* for each learner.

Record the main points of your discussion on your flipchart paper.

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3. Discuss one learner's areas of success and/or difficulty and how you recorded these. Record the main points of your discussion on your flipchart paper.

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### Facilitator's notes

- ◆ Ask each group to share the main points from their discussion. Remind participants to only add points that other groups have not already mentioned.
- ◆ This discussion is intended to reflect on the process of capturing learners' progress over a period of weeks. Participants were asked to observe learners as they perform tasks in whole class and small group activities and to capture this information. The discussion is intended to help teachers recognise how to use the Record of Continuous Assessments to look for patterns of competence in the learners and to share the assessment tools and processes they use in their schools.

In the *Take back to school* task in Workshop 5 you were asked to bring copies of the learner assessment rubrics you use as part of the Maths Programme to this workshop. In Activity 2, your group will discuss these rubrics and how assessment information is captured and shared. In Session 5, we will discuss rubrics in more detail.



### Activity 2

1. In your groups, share examples of maths rubrics you have used as part of your assessment process.
2. Discuss how you capture the learners' progress on the SA-SAMS system and how this information is shared with parents.

Record the main points of your discussion on flipchart paper to share with the other groups later.

2. Buisanang ka ga gore o ne o atlegile go le kae:
  - ◆ go rekota dintlha ka ga barutwana ka nosi morago ga tirwana e e kaelwang ke morutabana mo Bekeng 4–7.
  - ◆ go feleletsa Kgweditharo 2: Rekoto ya Ditlhatlhobotsweledi mo ditsebeng 190–193 tsa *Kaedi ya Ditirwana: Kgweditharo 2* ya morutwana mongwe le mongwe.

Rekota dintlha tsa botlhokwa tsa dipuisano tsa lona mo pampiring ya gago ya tšhatephetogi.

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3. Buisanang ka ga moo morutwana mongwe o atlegileng le/kgotsa moo a nang le bothata gona le gore o rekotile tseno jang. Rekota dintlha tsa botlhokwa tsa puisano ya lona mo pampiring ya gago ya tšhatephetogi.
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### Dintlha tsa mofatlhosi

- ◆ Kopa setlhopha se sengwe le se sengwe go arogana dintlha tsa botlhokwa go tswa mo dipuisanong tsa bona. Gopotsa batsayakarolo go tlaletsa fela ka dintlha tse ditlhopha tse dingwe di iseng di di umake.
- ◆ Puisano eno e ikaeletse go sedisisa tsamao ya go kwala tswelolepele ya barutwana mo sebakeng sa dibeke. Batsayakarolo ba ne ba kopiwa go ela barutwana tlhoko fa ba dira ditirwana mo ditirwaneng tsa phaposiborutelo yotlhe le tsa ditlhopha tse dinnye le go rekota tshedimosetso eno. Puisano e ikaeletswe go thusa barutabana go lemoga gore o ka dirisa jang Rekoto ya Ditlhatlhobotsweledi go batla dipaterone tsa bokgoni mo barutwaneng le go aroganya didiriswa tsa tlhatlhobo le ditsela tse ba di dirisang kwa dikolong tsa bona.

Mo *Tirwaneng e o e busetsang kwa sekolong* mo Thutanong 5, o ne o kopilwe go tla ka dikhophi tsa diruburiki tsa tlhatlhobo ya barutwana e o e dirisang jaaka karolo ya Lenaneo la Dipalo mo thutanong eno. Mo *Tirwaneng 2*, setlhopha sa gago se tlaa buisana ka ga diruburiki tseno le gore tshedimosetso ya tlhatlhobo e tsentswe le go aroganngwa jang. Mo karolong 5, re tlaa buisana ka ga diruburiki ka botlalo.



### Tirwana 2

1. Mo ditlhophong tsa lona, aroganang dikao tsa diruburiki tsa dipalo tse lo di dirisitseng jaaka karolo ya lona ya tlhatlhobo.
2. Buisanang tebang le gore lo rekota jang tswelolepele ya barutwana mo matlhamaganyaneng a *SA-SAMS* le gore tshedimosetso eno e aroganngwa jang le batsadi.

Rekota dintlha tsa botlhokwa mo dipuisanong tsa lona mo pampiring ya tšhatephetogi go di aroganya le ditlhopha tse dingwe kgantele.

## Video 1

Watch the video of a teacher observing a group of learners completing a maths activity. Listen to her talking about how she observes and records her learners' progress and how she deals with their different levels of competence.

Discuss how you deal with learners who are not achieving success in the structured weekly plans, as well as those learners who exceed expectations.

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The **level principle**: Not all learners progress at the same speed. Some learners need more time to consolidate a skill or concept while others grasp ideas more quickly. The challenge for teachers is to accommodate learners at different levels and to adapt the weekly plan to provide support or extension activities where necessary.



### Facilitator's notes

- ◆ Discuss the need for a differentiated approach to teaching and why this is beneficial for all the learners in the class. Link the discussion to the **level principle**.
- ◆ Throughout this workshop make links to the **level principle** and differentiation strategies for dealing with learners who are not achieving success in the structured weekly plans, as well as those learners who exceed expectations.

## Video 1

Lebelela video ya morutabana a ela setlhopha sa barutwana tlhoko fa ba dira tirwana ya dipalo. Mo reetse a bua ka ga ka moo a elang tlhoko tswelelopele ya bona le go e rekota le ka moo a diranang ka teng le maemo a bona a a farologaneng a bokgoni.

Buisanang ka mokgwa o o dirang ka teng ka barutwana ba ba sa fitlheleleng katlego mo mananeong a a rulaganeng a beke le beke mmogo le barutwana ba ba dirang go feta ka mo ba solofetsweng go dira ka teng,

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**Molawana wa maemo:** Ga se barutwana botlhe ba ba tswelelang pele ka lebelo le le lekanang. Barutwana bangwe ba tlhoka nako e ntsi go tsolotanya kgono kgotsa mogopolo fa ba bangwe ba tshwarelela dikakanyo ka bonakonyana. Kgwetlho ya barutabana ya go akaretsa barutwana ba ba mo maemong a a farologaneng le go dira gore lenaneo la beke le beke le tlamele ka tshegetso kgotsa ditirwana tsa katoloso mo go tlhokagalang.



### Dintlha tsa mofatlhosi

- ◆ Buisanang ka ga tlhokego ya go ruta ka ditsela tse di farologaneng le gore seno se tswela barutwana botlhe mo phaposing mosola. Golaganya puisano eo le **molawana wa maemo**.
- ◆ Golaganya **molawana wa maemo** mo thutanong eno yotlhe le malepa a a farologaneng go dirana le barutwana ba ba sa fitlheleleng katlego mo mananeong a a rulaganeng a beke le beke mmogo le ba ba dirang go feta jaaka go solofetswe.

## Session 1: Space and Shape (Geometry) 1 hour

This workshop focuses on teaching the content of Term 2 Weeks 8–10. The focus of Term 2 Week 8 is Space and Shape (Geometry).

### Terms 1–4 Content overview: Space and Shape (Geometry)

Refer to the content overview for Space and Shape (Geometry) on pages 126–131 of the *Concept Guide* and complete Activity 3.

#### Facilitator's notes

- ◆ The aim of **Activity 3** is to highlight the content of CAPS and the extended content provided in the Maths Programme.
- ◆ Refer participants to pages 126–131 of the *Concept Guide*: follow directions (3.1) and crossing the midline (3.4).
- ◆ Draw participants' attention to the Week 8 content in the New knowledge box on page 138 of *Activity Guide: Term 2*.
- ◆ Remind participants of Space and Shape (Geometry) content covered in previous weeks.



# Karolo 1: Boalo le Popego (Jeometeri)

Ura e le 1

Thutano eno e tobile go ruta diteng tsa Kgweditharo 2 Dibeke 8–10. Se se lebeletsweng mo Kgweditharong 2 Beke 8 ke Boalo le Popego (Jeometeri).

## Dikgweditharo 1–4 Thadiso ya diteng: Boalo le Popego (Jeometeri)

Lebelela thadiso ya diteng tsa Boalo le Popego (Jeometeri) mo ditsebeng 126–131 tsa *Kaedi ya Mogopolo* mme o dire Tirwana 3.

### Dintlha tsa mofathosi

- ◆ Maikaelelo a **Tirwana 3** ke go bonalatsa diteng tsa PPKT le diteng tse di atolositsweng tse di neetsweng mo Lenaneong la Dipalo.
- ◆ Kopa batsayakarolo go lebelela ditsebe 126–131 tsa *Kaedi ya Mogopolo*: sala dikaelo morago (3.1) le go kgabaganya molagare (3.4).
- ◆ Kopa batsayakarolo go lebelela diteng tsa Beke 8 mo lebokosong la Kitso e ntšhwa mo tsebeng ya 139 ya *Kaedi ya Ditirwana: Kgweditharo 2*.
- ◆ Gopotsa batsayakarolo ka ga diteng tsa Boalo le Popego (Jeometeri) tse di lebilweng mo dibekeng tse di fetileng.

## Properties of shapes

Learners need many opportunities to compare and sort shapes according to their properties and to describe the similarities and differences of shapes.

### Facilitator's notes

- ◆ Hand out one set of shapes from Appendix B to each group.
- ◆ Ask participants to sort the shapes. Don't prompt them. Once they have sorted them, ask: *How did you sort the shapes?* Ask participants to explain why they sorted the shapes in this way.
- ◆ Now ask participants to sort the shapes in another way. Ask participants to explain why they sorted the shapes in this way.
- ◆ Make sure that the following sorting criteria are mentioned:
  - shape
  - size
  - number of sides
  - number of corners
  - straight or curved lines.
- ◆ Encourage participants to use the correct maths vocabulary to describe the properties of shapes, e.g. *sides, corners, lines*.



### Activity 4

The facilitator will give your group a set of shapes.

1. Sort the shapes.
2. Discuss why you sorted them in this way.
3. Sort the shapes in another way.
4. Discuss why you sorted them in this way.

## Term 2 Content Summary: Week 8

Refer to Appendix A: Term 2 Weekly Content Summary (Weeks 8–10). Read the content overview for Week 8: Space and Shape (Geometry) on page 20 of *Activity Guide: Term 2*.

The Space and Shape (Geometry) Content Area was also the focus of Term 2 Weeks 3 and 4. In previous workshops, you have discussed the Space and Shape concepts that need to be covered.

The Weekly Content Summary for Week 8 provides an overview of planning for the week: whole class activities, teacher-guided activities and workstation activities done in independent small groups.

## Diponagalo tsa dipopego

Barutwana ba tlhoka ditšhono tse dintsi go bapisa le go rulaganya dipopego ka tatelano go ya ka diponagalo tsa tsona le go tlhalosa ditshwano le dipharologano tsa dipopego.

### Dintlha tsa mofatlhosi

- ◆ Neela setlhopha se sengwe le se sengwe sete e le nngwe ya dipopego go tswa mo Mametlelelong B
- ◆ Kopa batsayakarolo go rulaganya dipopego. O seke wa ba tlhotlheletsa. Fa ba feditse, ba botse: *Lo rulagantse dipopego jang?* Ba kope go tlhalosa gore ke ka ntlha yang ba di rulagantse ka tsela e.
- ◆ Jaanong kopa batsayakarolo go rulaganya dipopego ka tsela e e farologaneng. Ba kope go tlhalosa gore ke ka ntlha yang ba di rulagantse ka tsela e.
- ◆ Netefatsa gore ditsela tse di latelang tsa go rulaganya di umakilwe:
  - popego
  - bogolo
  - palo ya mathakore
  - palo ya dikhutlo
  - methalo e e tlhamaletseng kgotsa e e digoro.
- ◆ Rotloetsa batsayakarolo go dirisa tlotlofoko e e nepagetseng ya dipalo go tlhalosa diponagalo tsa dipopego, sk. *mathakore, dikhutlo, methalo*.



### Tirwana 4

Mofatlhosi o tlaa neela setlhopha sa gago sete ya dipopego.

1. Rulaganya dipopego.
2. Tlhalosa gore ke ka ntlha yang o di rulagantse ka tsela e.
3. Rulaganya dipopego ka tsela e nngwe.
4. Tlhalosa gore ke ka ntlha yang o di rulagantse ka tsela e.

## Kgweditharo 2 Khutshwafatso ya Diteng: Beke 8

Lebelela Mametlelelo A: Kgweditharo 2 Khutshwafatso ya Diteng ya Beke le Beke (Dibeke 8–10). Buisa thadiso ya diteng tsa Beke 8: Boalo le Popego (Jeometri) mo tsebeng ya 21 ya *Kaedi ya Ditirwana: Kgweditharo 2*.

Karoloteng ya Boalo le Popego (Jeometri) le yona e ne e lebeleletse ke Kgweditharo 2 Dibeke 3 le 4. Mo dithutanong tse di fetileng, o buile ka megopolo ya Boalo le Popego e e tlhokang go ka lebelelwa.

Khutshwafatso ya Diteng ya Beke le Beke ya Beke 8 e neelana ka thadiso ya go rulaganyetsa beke yotlhe: ditirwana tsa phaposiborutelo yotlhe, ditirwana tse di kaelwang ke morutabana le ditirwana tsa seteišenetiro tse di dirilweng mo ditlhopheng tse dinnye tse di ikemetseng.

### Facilitator's notes

- ◆ The aim of **Activity 5** is for teachers to recognise the link between:
  - the CAPS content in the Term 1–4 content overview on pages 126–131 of the *Concept Guide*
  - the content overview on page 20 of *Activity Guide: Term 2*
  - Appendix A: Term 2 Weekly Content Summary (Weeks 8–10)
  - the daily activities in Week 8 of *Activity Guide: Term 2* (pages 138–153).
- ◆ In the whole group feedback session make sure that participants are familiar with the structure of and planning for the teaching of Week 8. Help them to identify the links between the suggested activities in *Activity Guide: Term 2* and the content overview. Link this discussion back to how the content of the week fits with CAPS.



### Activity 5

1. Take a few minutes to familiarise yourself with the Week 8 content in Appendix A: Term 2 Weekly Content Summary (Weeks 8–10).
2. Match this with the content on pages 138–153 of *Activity Guide: Term 2*. Identify how the whole class, teacher-guided and workstation activities link with the Week 8 content in Appendix A.

## Dintlha tsa mofatlhosi

- ◆ Maikaelelo a **Tirwana 5** ke gore barutabana ba lemoge kgolagano magareng ga:
  - diteng tsa PPKT mo thadisong ya diteng tsa Kgweditharo 1–4 mo ditsebeng tsa 126–131 mo *Kaeding ya Mogopolo*
  - thadiso ya diteng mo tsebeng ya 21 ya *Kaedi ya Ditirwana: Kgweditharo 2*
  - Mametlelelo A: Kgweditharo 2 Khutshwafatso ya Diteng ya Beke le Beke (Dibeke 8–10)
  - ditirwana tsa letsatsi le letsatsi mo Bekeng ya 8 ya *Kaedi ya Ditirwana: Kgweditharo 2* (ditsebe 138–153).
- ◆ Mo karolwaneng ya go neelwa ditlamorago ya setlhopha sotlhe, netefatsa gore batsayakarolo botlhe ba itse kagego le thulaganyo ya go ruta mo Bekeng 8. Ba thuse go tlaola kgolagano magareng ga ditirwana tse di tshikintsweng mo *Kaeding ya Ditirwana: Kgweditharo 2* le mo thadisong ya diteng. Golagana puisano eno le ka moo diteng tsa beke di tshwanelang PPKT ka teng.



### Tirwana 5

1. Tsaya metsotso e le mmalwa go itlwaetsa diteng tsa Beke 8 mo Mametlelelong A: Khutshwafatso ya Diteng tsa Beke le Beke tsa Kgweditharo ya 2 (Dibeke 8–10).
2. Nyalanya seno le diteng mo ditsebeng 138–153 tsa *Kaedi ya Ditirwana: Kgweditharo 2*. Lemoga ka moo phaposiborutelo yotlhe, ditirwana tse di kaelwang ke morutabana le tsa seteišenetiro di golaganang le diteng tsa Beke 8 mo Mametlelelong A.

# Session 2: Measurement

1 hour

The focus of Term 2 Week 9 is Measurement.

## Terms 1–4 Content overview: Measurement

Refer to the content overview for Measurement on pages 132–135 of the *Concept Guide*.

### Facilitator's notes

- ◆ The aim of **Activity 6** is to highlight the content of CAPS.
- ◆ Remind teachers that assessment in Grade R should be based on CAPS, and that the additional Maths Programme content is for enriching the teaching and learning experience.



### Activity 6

1. What Measurement concepts are covered in Term 2?

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2. What are the differences between the Maths Programme content and the CAPS content?

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### Directly comparing objects: length

In Term 1 of the Maths Programme the focus of the Measurement Content Area was time (day, night, days of the week, sequencing events, etc.) and the height chart. In Term 2 Week 9, the focus is on using non-standard units to measure and compare length.



### Activity 7

1. **Direct comparison**

Choose a partner to stand next to. The rest of your group members should compare your heights.

- ◆ Who is taller? \_\_\_\_\_
- ◆ Who is shorter? \_\_\_\_\_
- ◆ Find a third person who is taller than both of these people.

# Karolo 2: Tekanyo

Ura e le 1

Kgweditharo 2 Beke 9 e tobile Tekanyo.

## Dikgweditharo 1–4 Thadiso ya diteng: Tekanyo

Lebelela thadiso ya diteng tsa Tekanyo mo ditsebeng 132–135 tsa *Kaedi ya Mogopolo*.

### Dintlha tsa mofatlhosi

- ◆ Maikaelelo a **Tirwana 6** ke go bonalatsa diteng tsa PPKT.
- ◆ Gopotsa barutabana gore tlhatlhubo mo Mophatong wa R e tshwanetse ya bo e ikaegile ka PPKT, le gore diteng tsa tlaleletso tsa Lenaneo la Dipalo ke go humisa maitemogelo a go ruta le go ithuta.



### Tirwana 6

1. Ke megopolo efe ya Tekanyo e e lebilweng mo Kgweditharong 2?

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2. Dipharologano magareng ga diteng tsa Lenaneo la Dipalo le diteng tsa PPKT ke dife?

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### Go bapisa dilo ka tllhamalalo: boleele

Mo Kgweditharong 1 ya Lenaneo la Dipalo, Karoloteng ya Tekanyo e ne e tobile nako (motshegare, bosigo, malatsi a beke, go latedisanya ditiragalo, j.j.) le tšhate ya bogodimo. Mo Kgweditharong ya 2 Beke 9, go lebeletswe tiriso ya diyuniti tse di sa tllhomamang go lekanya le go bapisa boleele.



### Tirwana 7

1. **Papiso ka tllhamalalo**

Tlhopha molekane yo o ka emang fa thoko ga gagwe. Ditokololo tse dingwe tsothe tsa setlhopha sa gago ba bapise bogodimo jwa lona.

- ◆ Ke mang yo moleejana? \_\_\_\_\_
- ◆ Ke mang yo mokhutshwanyane? \_\_\_\_\_
- ◆ Batla motho wa boraro yo moleejana go na le batho ba babedi bano.

## 2. Using non-standard units of measurement

Choose three objects (e.g. a key, a cellphone, a purse).

- ◆ Use one of these items at a time to measure this *Participant's Workbook*.
  - ◆ Report your findings to the group.
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### Facilitator's notes

- ◆ Point out that the non-standard units used to measure the *Participant's Workbook* are not the same size. When participants compare their measurements (how many units, e.g. the key), they will recognise that the choice of the unit determines how many of a unit there are in the total number of units – so, the different objects used for measuring will result in a different number of units in the answer (total number of units), e.g. the *Participant's Workbook* measures 17 keys versus 4 cellphones.
- ◆ Make participants aware that the size of a non-standard unit can vary between people, e.g. one person may have a smaller cellphone than another. This will also result in a different total number of units.
- ◆ Observe participants as they measure and make sure that the non-standard unit is being used accurately (end-to-end).

### Term 2 Content Summary: Week 9

Refer to Appendix A: Term 2 Weekly Content Summary (Weeks 8–10). Read the content overview for Week 9: Measurement on page 20 of *Activity Guide: Term 2*.

Read the whole class activities for Week 9 on pages 154–165 of *Activity Guide: Term 2*.



## 2. Go dirisa diyuniti tse di sa tlhomamang tsa tekanyo

Tlhopha dilo tse tharo (sk. selotlolo, selefounu, sepatšhe).

- ◆ Dirisa e le nngwe ya dilwana tseno ka nako e le nngwe go lekanya *Bukatiro* eno ya *Batsayakarolo*.
  - ◆ Begela setlhopha diphithlelelo tsa gago.
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### Dintlha tsa mofatlhosi

- ◆ Supa gore diyuniti tse di sa tlhomamang tse di dirisediwang go lekanya *Bukatiro ya Batsayakarolo* ga di lekane ka bogolo. Fa batsayakarolo ba bapisa ditekanyo tsa bona (ke diyuniti di le kae, sk. selotlolo), ba tlaa lemoga gore tlhopho ya yuniti e na le seabe mo go itseng gore ke bokaakang jwa yuniti jo bo kae mo palogotlheng ya diyuniti –ka jalo, dilo tse di farologaneng tse di dirisiwang go lekanya di tlaa re neela palo e e farologaneng ya diyuniti mo karabong (palogotlhe ya diyuniti), sk. *Bukatiro ya Batsayakarolo* e lekanya dilotlolo di le 17 kgatlhanong le diselefounu di le 4.
- ◆ Itsise batsayakarolo gore bogolo jwa yuniti e e sa tlhomamang e ka farologana gareng ga batho, sk. mongwe o ka tswa a na le selefounu e nnyenyana go na le yo mongwe. Seno gape se tlaa re fitlhisa mo palogotlheng e e farologaneng ya diyuniti.
- ◆ Ela batsayakarolo tlhoko fa ba lekanya mme o netefatse gore yuniti e e sa tlhomamang e dirisitswe ka nepalogo (bokhutlo ka bokhutlo).

## Kgweditharo 2 Khutshwafatso ya Diteng: Beke 9

Lebelela Mametlelelo A: Kgweditharo 2 Khutshwafatso ya Diteng ya Beke le Beke (Dibeke 8–10). Buisa thadiso ya Diteng tsa Beke 9. Tekanyo mo tsebeng ya 21 ya *Kaedi ya Ditirwana: Kgweditharo 2*.

Buisa ditirwana tsa phaposiborutleo yotlhe tsa Beke 9 mo ditsebeng 154–165 tsa *Kaedi ya Ditirwana: Kgweditharo 2*.



### Activity 9

In your groups, discuss how length is taught during the whole class activities in Week 9.

1. What could you do if a learner is not yet able to compare and order objects according to length – long/longer and short/shorter by the end of Week 9?

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Focus on language, on practical activities. Provide more repetition, more discussion, more input from the teacher. Pair learner with a peer.

2. What could you do if some learners complete a workstation activity successfully quicker than planned?

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Prepare appropriate free choice activities. Give them a 'big' task to do e.g. use your shoe to measure one side of the classroom.



## Tirwana 9

Mo ditlhopheng tsa lona, buisanang ka ga moo boleele bo rutiwang ka teng ka nako ya ditirwana tsa phaposiborutelo yotlhe mo Bekeng ya 9.

1. O ne o ka dirang fa morutwana a sa kgone go bapisa le go rulaganya dilo ka go dirisa boleele – telele/telejana le khutshwane/khutshwanyane mo bofelong jwa Beke 9?

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Tota puo, ditirwana tsa tiragatso. Tlamela ka dipoeletso tse dintsinyana, dipuisano tse dintsinyana, ditshwaelo tse dintsinyana tsa morutabana. Dira gore morutwana a dire le molekane.

2. O ne o ka dirang fa barutwana bangwe ba dira tirwana ya seteišenetiro ka bonako ka katlego go feta ka moo go rulagantsweng ka teng?

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Baakanya ditirwana tse di maleba tse di dirwang ka tokologo. Ba neele tirwana e 'kgolo' gore ba e dire sk. Dirisa setlhako sa gago go lekanya letlhakore le lengwe la phaposiborutelo.

# Session 3: Numbers, Operations and Relationships

1 hour

The focus of Term 2 Week 10 is Numbers, Operations and Relationships.

## Terms 1–4 Content overview: Numbers, Operations and Relationships

The Numbers, Operations and Relationships Content Area was also the focus in Weeks 1, 2 and 5 of Term 2, and you discussed the number concepts that need to be covered in previous workshops. Look at the content overview for Numbers, Operations and Relationships on pages 114–123 of the *Concept Guide*.



### Activity 10

What number concepts still need to be covered in Term 2?

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### Problem solving

Teachers need to provide learners with many opportunities to solve problems so that they can apply their maths knowledge and skills in new contexts. All games and activities involve problem solving. Word problems in maths introduce a specific type of problem solving that involves solving addition, subtraction, multiplication and division problems. In Grade R learners solve addition and subtraction problems by counting and using concrete apparatus to help them find a solution. They use grouping and one-to-one sharing to solve multiplication and division problems.

The biggest challenge in presenting word problems to learners, is to ensure that there is appropriate questioning and use of language. When teachers present a word problem, they need to listen carefully to learners' responses and guide them to solve the problem using a strategy that is suitable for their level of understanding.

The posters in the *Poster Book* have been designed to provide learners with a set of pictures that relate to their lives and provide contexts for solving real-life problems.

In Week 10 Day 4 (page 180 of *Activity Guide: Term 2*), Poster 1 is used to encourage learners to solve problems that involve numbers 1–5.

# Karolo 3: Dinomore, Ditiro le Dikamano

Ura e le 1

Kgweditharo 2 Beke 10 e tobile Dinomore, Ditiro le Dikamano.

## Dikgweditharo 1–4 Thadiso ya diteng: Dinomore, Ditiro le Dikamano

Karoloteng ya Dinomore, Ditiro le Dikamano le yona e ne e tobilwe mo Dibekeng 1, 2 le 5 tsa Kgweditharo 2, mme e bile lo buisanetse megopolopalo e e tlhokang go lebiwa mo dithutanong tse di fetileng. Lebelela thadiso ya diteng tsa Dinomore, Ditiro le Dikamano mo ditsebeng 114–123 tsa *Kaedi ya Mogopolo*.



### Tirwana10

Ke megopolo efe ya dipalo e e tlhokang go lebiwa mo Kgweditharong ya 2?

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## Tharabololo ya dipalo

Barutabana ba tlhoka go neela barutwana ditšhono tse dintsi tota go rarabolola dipalo gore ba kgone go diragatsa kitso le dikgono tsa bona tsa dipalo mo makaelong a mašwa. Metshameko le ditirwana tsotlhe di akaretsa tharabololo ya dipalo. Dipalofoko mo dipalong di tlhagisa mofuta o o rileng wa tharabololo ya dipalo o o akaretsang dipalo tsa go rarabolola go tlhakanya, go ntsha, go atisa le go arola. Mo Mophatong wa R, barutwana ba rarabolola dipalo tsa go tlhakanya le go ntsha ka go bala le go dirisa didiriswa tse di tshwaregang go ba thusa go bona karabo. Ba dirisa go baya ka ditlhopho le karogano ya nngwe ka nngwe go rarabolola dipalo tsa go atisa le go arola.

Kgwetlho e kgolo mo go tlhagisetseng barutwana dipalofoko, ke go netefatsa gore go na le go botsa le tiriso ya puo go go maleba. Fa barutabana ba tlhagisa palofoko, ba tlhoka go reetsa ditsibogo tsa barutwana ka tlhoafalo le go ba kaela go rarabolola dipalo ka go dirisa malepa a a maleba le maemo a bona a go tlhaloganya.

Diphousetara mo *Bukeng ya Diphousetara* di diretswe go tlamela barutwana ka sete ya ditshwantsho tse di amanang le matshelo a bona le go tlamela ka makaelo a tharabololo ya dipalo tse di leng mo botshelong jwa leruri.

Mo Bekeng 10 Letsatsi 4 (tsebe 181 ya *Kaedi ya Ditirwana: Kgweditharo 2*), *Phousetara 1* e diriswa go rotloetsa barutwana go rarabolola dipalo tse di akaretsang dinomore 1–5.

## Facilitator's notes

- ◆ In **Activity 11** participants refer to Poster 1 to generate a series of appropriate number-related questions.
- ◆ These questions cover the following skills: comparing, matching, counting, addition, subtraction, grouping and equal sharing. They should involve a range of vocabulary. Remind participants that the focus of their questions should be on maths and that the language used should be clear and simple. Use the examples below to wrap up **Activity 11**.

### **Comparing/one-to-one correspondence (matching)**

- *Are there enough spoons for each bowl?*
- *How many more spoons do we need so that there is one spoon for each bowl?*
- *Are there more glasses on the top shelf or on the bottom shelf?*

### **Counting**

- *How many glasses are there in the cupboard?*
- *Are there enough chairs for the number of people in the kitchen?*

### **Addition**

- *There are four green apples and four red apples in the fridge. How many apples are there in the fridge?*
- *Thami has three blocks. There are four blocks on the floor. How many blocks are there altogether?*

### **Subtraction**

- *There are six eggs in the door of the fridge. Dad cooks four eggs. How many eggs will be left in the fridge?*
- *There are five mugs in the kitchen. Four mugs are white. How many mugs are yellow?*
- *There are eight apples in the fridge. Four apples are green. How many apples are red?*

### **Grouping**

- *Each child has two eyes. How many eyes would there be altogether on three children?*

### **Equal sharing**

- *There are three oranges in a bag. Three children share the oranges. How many oranges will each child get?*



## Activity 11

In your groups, refer to Poster 1. Think of appropriate word problems for each of these skills:

- ◆ comparing
- ◆ matching
- ◆ counting
- ◆ addition
- ◆ subtraction
- ◆ grouping
- ◆ equal sharing.

## Dintlha tsa mofatlhosi

- ◆ Mo **Tirwaneng 11** batsayakarolo ba lebelele Phousetara 1 go tlhama motselsetsele wa dipotso tse di malebana le dinomere.
- ◆ Dipotso tseno di akaretsa dikgono tse di latelang: go bapisa, go nyalanya, go bala, go tlhakanya, go ntsha, go baya ka ditlhopha le go aroganya ka go lekana. Di tshwanetse go akaretsa tlotlofoko ya mefuta. Gopotsa batsayakarolo gore dipotso tsa bona di tshwanetse go tota dipalo le gore puo e e dirisitsweng e nne bonolo mme e bile e tlhake. Dirisa dikao tse di fa tlase go konosetsa **Tirwana 11**.  
**Go bapisa/tsamaelano ya nngwe ka nngwe (go nyalanya)**
  - A sejana se sengwe le se sengwe se na le maswana a a lekanang?
  - Re tlhoka gape maswana a le makae gore sejana se sengwe le se sengwe se nne le leswana?
  - A go na le digalase tse di fetang mo šelofong e e fa godimo kgotsa e e fa tlase?**Go bala**
  - Go na le digalase di le kae mo khabotong?
  - A go na le ditulo tse di lekanetseng batho mo ntlwaneng ya boapeelo?**Go tlhakanya**
  - Go na le diapole tse ditala le tse nne tse dikhibidu mo setsidifatsing. Go na le diapole di le kae mo setsidifatsing?
  - Thami o na le diboloko di le tharo. Go na le diboloko di le nne mo bodilong. Go na le palogotlhe ya diboloko di le kae?**Go ntsha**
  - Go na le mae a le marataro mo lebating la setsidifatsi. Rre o apaya mae a le mane. Go tlaa sala mae a le makae mo setsidifatsing?
  - Go na le dikopi di le nne mo phaposing ya boapeelo. Dikopi di le nne di ditshweu. Ke dikopi di le kae tse di serolwana?
  - Go na le diapole di le robedi mo setsidifatsing. Diapole di le nne di ditala. Ke diapole di le kae tse dikhibidu?**Go bopa ditlhopha**
  - Ngwana mongwe le mongwe o na le matlho a mabedi. Go tlaa nna le palogotlhe ya matlho a le makae a bana ba le bararo?**Go arogana ka go lekana**
  - Go na le dilamune di le tharo mo kgetsaneng. Ngwana mongwe le mongwe o tlaa nna le diapole di le kae?



### Tirwana 11

Mo ditlhopheng tsa lona, lebelelang Phousetara1. Akanya ka ga mafokopalo a a maleba a kgono nngwe le nngwe ya dikgono tseno:

- ◆ go bapisa
- ◆ go nyalanya
- ◆ go bala
- ◆ go tlhakanya
- ◆ go ntsha
- ◆ go kgaoganya ka ditlhopha
- ◆ go arogana ka go lekana.

When you do word-problem activities with your learners, allow them to use their fingers or counters to help them solve the problems.

### Facilitator's notes

- ◆ In a whole group session ask for examples of questions for each of the categories. Write these on a flipchart for further discussion.
- ◆ Main point to discuss include:
  - The way that you structure the language in a word problem determines whether it is easy or difficult for the learners to understand and solve, e.g.:
    - \* *There are 10 sweets. I eat 4. How many are left?* (This uses a simple language structure.)
    - \* *I bought some sweets. I ate 6 sweets. There are 4 left. How many sweets did I buy?* (This uses a more difficult structure.)
  - Learners need to be exposed to different word-problem structures so that they are able to apply their skills and reasoning in different contexts.

One of the sections in Numbers, Operations and Relationships is, 'Solve problems in context'. In your groups, read the content overview for Term 2 for this section on page 120 of the *Concept Guide*. Then complete Activity 12.



### Activity 12

Reflect on Activity 11.

1. What concepts and skills are taught and learnt in the topic: Problem-solving techniques?

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Counting using concrete apparatus, i.e. counters, physical number ladder, ten structure beads.

2. What concepts and skills are taught and learnt in topic: Addition and subtraction?

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Use counters; orally solve problems.



Fa o dira ditirwana tsa dipalofoko le barutwana ba gago, ba letle go dirisa menwana kgotsa dibadi go ba thusa go rarabolola dipalo.

### Dintlha tsa mofatlhosi

- ◆ Mo karolong ya setlhophha sotlhe ba kope go go neela dikao tsa mofama o mongwe le o mongwe. Di kwale mo tshatephetoging go di buisanela gape.
- ◆ Ntlhakgolo e e tshwanetseng go buisanelwa e akaretsa:
  - Tsela e o rulaganyang puo ka yona mo dipalofokong di na le tshwaelo mo go reng a di bonolo kgotsa di popota go ka tlhologanngwa ke barutwana, sk.:
    - \* *Go na le dimonamone di le lesome. Ke ja di le nne. Go setse di le kae?* (Eno e dirisa kagego ya puo e e bonolo).
    - \* *Ke rekile dimonamone dingwe. Ke jele dimonamone di le 6. Go na le tse 4 tse di setseng. Ke ne ke rekile dimonamone di le kae?* (Eno e dirisa kagego e e popotanyana).
  - Barutwana ba tlhoka go tlhagisetwa dikagego tse di farologaneng tsa dipalofoko gore ba kgone go dirisa dikgono tsa bona le go ntsha mabaka mo makaelong a a farologaneng.

E nngwe ya dikarolo mo Dinomoreng, Ditiro le Dikamano ke, 'Rarabolola dipalo mo bokaelong'. Mo ditlhopheng tsa lona, buisetsang karolo eno thadiso ya diteng tsa Kgweditharo 2 mo tsebeng ya 121 ya *Kaedi ya Mogopolo*. Morago dira Tirwana 12.



### Tirwana 12

Sedisisa Tirwana 11.

1. Ke megopolo le dikgono dife tse di rutiwang le go ithutiwa mo setlhogong: Malepa a tharabololo ya dipalo?

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Go bala ka go dirisa didiriswa tse di tshwaregang, k.g.r. dibadi, dillere tsa dinomore tse di bonalang, dibagakago tse di lesome.

2. Ke megopolo le dikgono dife tse di rutiwang le go ithutiwa mo setlhogong: Go tlhakanya le go ntsha?

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Dirisa dibadi; tharabololo ya dipalo ka molomo.

## Estimation

Learners develop estimation skills and make a 'sensible' guess about 'how many objects' there are in a collection. During measurement activities, they estimate how heavy or how long something is, or how many cups will fill a jug before they do the actual measuring.

### Facilitator's notes

- ◆ Find two see-through containers (e.g. peanut butter jars). Fill one with eight small objects and the other with eight larger objects.
- ◆ Ask:
  - *How many objects do you think are in this jar?*
  - *How many objects do you think are in the other jar?*
  - *Do you think there are the same number of objects in each jar?*
  - *How can we find out which jar has more objects? (Count the objects.)*
- ◆ Remind participants that estimation is a reasonable guess. By showing the same number of objects in the bottles but using different-sized objects, learners are focusing on the number rather than the size of the object or the amount of space they fill in the container (volume).



### Activity 13

The facilitator will show you two jars. Estimate how many objects are in each jar and respond to her questions.

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Learners need to be able to use terms such as: *too few, too many, more than, enough, not enough, nearly, close to, about the same, just under, just over.*

Teachers can plan estimation activities that encourage learners to make sensible guesses about the quantity of a group of objects or the measurement of an object.

## Term 2 Content Summary: Week 10

Refer to Appendix A: Term 2 Weekly Content Summary (Weeks 8–10). Read the content overview for Week 10: Numbers, Operations and Relationships on page 20 of *Activity Guide: Term 2*.

## Tekanyetso

Barutwana ba nna le dikgono tsa tekanyetso le go fopholetsa go go 'utlwalang' ka ga gore go na le 'dilo di le kae' mo kokoanyong. Ka nako ya ditirwana tsa tekanyo, ba lekanyetsa gore selo se boima kgotsa se seleele go le kana kang, kgotsa gore ke dikopi di le kae tse di tlaa tlatsang jeke pele ga ba ka lekanyetsa ka nnete.

### Dintlha tsa mofatlhosi

- ◆ Batla ditshodi tse di bonalang (sk. ditshodi tsa pinabatha). Tlatsa e le nngwe ka dilo tse dinnye mme e nngwe o e tlatsa ka dilo tse robedi tse dikgolo.
- ◆ Botsa:
  - *O akanya gore setshodi seno se na le dilo di le kae?*
  - *O akanya gore setshodi se sengwe se na le dilo di le kae?*
  - *A o akanya gore go na le palo e e lekanang ya dilo mo setshoding se sengwe le se sengwe?*
  - *Re ka batlisisa jang gore ke setshodi sefe se se nang le dilo tse dintsi go feta? (Bala dilo.)*
- ◆ Gopotsa batsayakarolo gore tekanyetso ke go fopholetsa go go utlwalang. Ka go bontsha palo e e tshwanang ya dilo mo mabotlolong fela o dirisa dilo tsa bogolo jo bo farologaneng, barutwana ba tobile palo go na le bogolo jwa selo kgotsa bokaakang jwa sebaka se se se tsayang mo setshoding (volumo).



### Tirwana 13

Mofatlhosi o tlaa go bontsha ditshodi tse pedi. Lekanyetsa gore setshodi se sengwe le se sengwe se na le dilo di le kae mme o tsibogele potso ya gagwe.

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Barutwana ba tlhoka go bo ba kgona go dirisa mareo a etsa: *mmalwanyana thata, ntsi thata, go feta, lekana, go sa lekaneng, batlile, gaufi le, batlile go lekana, ka fa tlase, go se nene, kwa godimo go se nene.*

Barutabana ba ka rulaganya ditirwana tsa tekanyetso tse di rotloetsang barutwana go fopholetsa mo go utlwalang tebang le bokaakang jwa setlhopha sa dilo kgotsa tekanyetso ya selo.

## Kgweditharo 2 Khutshwafatso ya Diteng: Beke 10

Lebelela Mametlelelo A: Kgweditharo 2 Khutshwafatso ya Diteng ya Beke le Beke (Dibeke 8–10). Buisa Thadiso ya Diteng ya Beke 10: Dinomore, Ditiro le Dikamano mo tsebeng ya 21 ya *Kaedi ya Ditirwana: Kgweditharo 2*.



### Activity 14

1. What are the topics for Week 10?

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2. What new knowledge is introduced in this week?

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3. What skills from previous weeks are practised?

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Refer to the estimation activities in Week 10 (*Activity Guide: Term 2*, pages 174 (Day 1), 176 (Day 2) and 178 (Day 3)).



## Tirwana 14

1. Ditlhogo tsa Beke 10 ke dife?

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2. Ke kitso efe e ntšhwa e e tthagisiwang mo bekeng eno?

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3. Ke dikgono dife tse di diragadiwang go tswa mo dibekeng tse di fetileng?

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Lebelela ditirwana tsa tekanyetso mo Bekeng 10 (*Kaedi ya Ditirwana: Kgweditharo 2, ditsebe 175 (Letsatsi 1), 177 (Letsatsi 2) le 179 (Letsatsi 3)*).

# Session 4: Numbers, Operations and Relationships

45 minutes

The Maths Programme focuses on one main Content Area each week. You will have noticed that even though when the weekly Content Area Focus is not 'number', the number routines continue every day of each week. The reason for this is that repetition and practice are essential for consolidating the learners' developing number skills.

The whole class activities for each day of the week always start with three number routines:

- ◆ a song or rhyme
- ◆ oral counting
- ◆ counting objects.

These three number routines are planned to match the number range for each term.

## Facilitator's notes

- ◆ In **Activity 15**, participants will use *Activity Guide: Term 2* to find the daily number routines and complete the table. This is to highlight the fact that number routines are practised every day of each week regardless of the Content Area Focus and to show the progression in number range across the term.



### Activity 15

Find the Term 2 daily number routines in *Activity Guide: Term 2* and complete the table. Week 1 has been done for you.

| Week | Content Area Focus                    | Song or rhyme       | Oral counting | Counting objects        |
|------|---------------------------------------|---------------------|---------------|-------------------------|
| 1    | Numbers, Operations and Relationships | A rhyme from Term 1 | 1-10<br>5-1   | 1-5<br>(birthday chart) |
| 2    |                                       |                     |               |                         |

# Karolo 4: Dinomore, Ditiro le Dikamano

Metsotso e le 45

Lenaneo la Dipalo le tobile Karoloteng e kgolo e le nngwe mo bekeng e nngwe le e nngwe. O ka tswa o lemogile gore lefa Karoloteng e e Lebeletsweng ya beke le beke e sa toba 'nomore', moetlo wa dinomore o tswela pele letsatsi le letsatsi mo bekeng e nngwe le e nngwe. Lebaka ke gore poeletso le ikatiso di bothokwa go tsolotanya kgolo ya barutwana ya dikgono tsa dinomore.

Ditirwana tsa phaposiborutelo yotlhe tsa letsatsi le lengwe le le lengwe la beke di simolola ka moetlo wa dinomore di le tharo go le gale:

- ◆ pina kgotsa morumo
- ◆ go balela kwa godimo
- ◆ go bala dilo.

Meetlo e ya dinomore di le tharo e rulagantswe go nyalana le mofutapalo wa kgweditharo e nngwe le e nngwe.

## Dintlha tsa mofatlhosi

- ◆ Mo **Tirwaneng 5**, batsayakarolo ba tlaa dirisa *Kaedi ya Ditirwana: Kgweditharo 2* go batla moetlo wa dinomore ya letsatsi le letsatsi le go tlatsa papetla. Seno ke go bonalatsa ntlha ya gore meetlo ya dinomore e ikatisetswa letsatsi le letsatsi la beke e nngwe le e nngwe go sa kgathalasege gore go lebilwe Karoloteng e e Lebeletsweng efe le go bontsha tswelolepele mo mofutapalong go ralala kgweditharo.



## Tirwana 15

Batla meetlo ya dinomore ya letsatsi le letsatsi ya *Kgweditharo 2* mo *Kaeding ya Ditirwana: Kgweditharo 2* mme o tlatse papetla. O setse o diretswe ya Beke 1.

| Beke | Karoloteng e e Lebeletsweng  | Pina kgotsa morumo                | Go balela kwa godimo | Go bala dilo                         |
|------|------------------------------|-----------------------------------|----------------------|--------------------------------------|
| 1    | Dinomore, Ditiro le Dikamano | Morumo go tswa mo Kgweditharong 1 | 1-10<br>5-1          | 1-5<br>(tšhate ya malatsi a botsalo) |
| 2    |                              |                                   |                      |                                      |

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|----|--|--|--|--|
| 3  |  |  |  |  |
| 4  |  |  |  |  |
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| 6  |  |  |  |  |
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| 8  |  |  |  |  |
| 9  |  |  |  |  |
| 10 |  |  |  |  |

Having looked through the number content for Term 2, you will have noticed that the number routines are practised every day of each week regardless of the Content Area Focus and that the progression in number range increases across the term.



|    |  |  |  |  |
|----|--|--|--|--|
| 3  |  |  |  |  |
| 4  |  |  |  |  |
| 5  |  |  |  |  |
| 6  |  |  |  |  |
| 7  |  |  |  |  |
| 8  |  |  |  |  |
| 9  |  |  |  |  |
| 10 |  |  |  |  |

Morago ga go lebelela diteng tsa dinomere tsa Kgweditharo 2, o tshwanetse wa bo o lemogile gore meetlo ya dinomere e ikatisetswa letsatsi le letsatsi la beke e nngwe le e nngwe go sa kgathalesege go lebeletsweng Karoloteng e e Lebeletsweng efe le gore kgolo ya mefutapalo e oketsega go ralala kgweditharo.

# Session 5: Term 2 Assessment

1 hour

## Video 2

Watch the video of a teacher presenting word problems to a small group of learners.

Observe how each learner solves the problem. Notice how the teacher uses prompts when a learner has difficulty.

### Facilitator's notes

- ◆ PPT: Rubric with the 1–7 rating scale.
- ◆ Discuss how the descriptions in the rubric provide distinguishing assessment criteria for each rating code.

## Activity 16

Look at the rubric on page 106 of the *Concept Guide*.

In your groups, discuss how you would score each of the learners using this scale. Give reasons for your decisions based on the assessment criteria for each rating code.

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## Karolo 5: Tlhatlhubo ya Kgweditharo ya 2 Ura e le 1

### Video 2

Lebelela video ya morutabana a tlhagisetsa setlhopha se sennye sa barutwana dipalo tsa mafoko.

Ela tlhoko ka moo morutwana yo mongwe le yo mongwe a rarabololang palo ka teng. Ela tlhoko ka moo morutabana o neelang tlhotlheletso ka teng fa morutwana a na le bothata.

#### **Dintlha tsa mofatlhosi**

- ◆ PPT: Ruburiki ya sekalaseemo 1–7.
- ◆ Tlhalosa gore ditlhaloso tse di mo ruburiking di tlamela jang ka mokgwa wa go farologanya ditlhatlhubo go ya ka khoutu e nngwe le e nngwe ya seemo.

### Tirwana 16

Lebelela ruburiki mo tsebeng ya 107 ya *Kaedi ya Mogopolo*.

Mo ditlhopheng tsa lona, buisanelang gore lo ya go abela jang barutwana ba bangwe le ba bangwe maduo lo dirisa sekala se. Tshegetsang ditshwetso tsa lona ka mabaka lo ikaegile ka mekgwa ya ditlhatlhubo mo khoutung e nngwe le e nngwe ya seemo.

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# Closing activities

15 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.
- ◆ **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 17

**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 any questions or comments to share with the group.

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### Take back to school task

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 your evaluation to the next workshop.

### Evaluation

Complete the Evaluation Form.

## Dintlha tsa mofatlhosi

- ◆ **Tshedisiso ya thutano:** Kopa batsayakarolo go tsaya metsotso e le mmalwa go sedisisa ka ga letsatsi le go phetlha *Dibukatiro tsa Batsayakarolo*. Ba kope go kwala potso e nngwe le e nngwe kgotsa ditshwaelo go ka di arogana le setlhophha sotlhe.
- ◆ **Tirwana e o e busetsang kwa sekolong:** Buisa tirwana eno. Botsa gore a go na le sengwe se se sa tlhakang mme se tlhoka go tshalosiwa gape.
- ◆ **Tlhatlhobo:** Ntsha dikhophi tsa Foromo ya Tlhatlhobo ya Thutano mme o kope batsayakarolo go e tlatsa.
- ◆ **Thutano e e latelang:** Neela matlha a thutano e e latelang mme o khutlise thutano.



## Tirwana 17

**Tshedisiso ya thutano:** Tsaya metsotso e le mmalwa go sedisisa ka ga letsatsi. Phetlha *Bukatiro ya Batsayakarolo* ya gago go ikgopotsa se se dirilweng. Kwalang dipotso dingwe le dingwe kgotsa ditshwaelo tse lo ka di aroganang le setlhophha.

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## Tirwana e o e busetsang kwa sekolong

1. Dirisa *Kaedi ya Ditirwana: Kgweditharo 2* go rulaganyetsa le go diragatsa Dibeke 8-10 tsa Lenaneo la Dipalo.
2. Kwala tshekatsheko ya se o boneng se diregile sentle, se o bonnag se sa direga sentle le gore o ka dirang jang ka tsela e e farologaneng go tokafatsa go ruta le go ithuta.
3. Tlaya ka tshekatsheko ya gago kwa thutanong e e latelang.

## Tlhatlhobo

Tlatsa Foromo ya Tlhatlhobo.

## APPENDIX A: TERM 2 WEEKLY CONTENT SUMMARY (WEEKS 8-10)

### Term 2: Activity Plan

| Week 8  |  |  |                        |  |
|---|--|--|------------------------|--|
| <b>CONTENT AREA: SPACE AND SHAPE (GEOMETRY)</b>   |  |  |                        |  |
| <b>TOPIC: Properties of shapes – compare same and different, sort according to properties; position; orientation and views</b>  |  |  |                        |  |
| <b>INTRODUCE NEW KNOWLEDGE:</b> Follow direction and midline crossing   |  |  |                        |  |
| <b>PRACTISE:</b> Oral counting 1–20, counting backwards from 7, sequencing numbers 1–5, counting objects 1–7, reinforce number concept 1–5, what number comes before/after, practise using all shapes |  |  |                        |  |
| Whole class activities  |  | Teacher-guided activity  | Workstation activities |  |
| <b>Day 1</b>  | Forwards/backwards.  | Counting – show me 1–3, 5–7 counters.<br>Working with all taught shapes.<br>Midline crossing. Position – direction.<br>Forwards/backwards. | <b>Activity 1</b>      | Sorting activity – using cut-out shapes.<br>Make shapes using playdough and make a copy.<br>Masking tape shapes – learners follow shapes using blocks.<br>Match shapes using shape cards.      |
| <b>Day 2</b>  | Reinforce all shapes (I spy ...).                                  |  |                        |  |
| <b>Day 3</b>  | Shape game.  |  | <b>Activity 2</b>      |  |
| <b>Day 4</b>  | What can I do: Lost my ... (shape).                                |  | <b>Activity 3</b>      |  |
| <b>Day 5</b>  | Obstacle course (requires a big space/outdoors). Midline crossing. |  | <b>Activity 4</b>      |  |
| Week 9  |  |  |                        |  |
| <b>CONTENT AREA: MEASUREMENT</b>  |  |  |                        |  |
| <b>TOPIC: Length – compare and order objects using appropriate vocabulary to describe length</b>  |  |  |                        |  |
| <b>INTRODUCE NEW KNOWLEDGE:</b> Measuring and comparing length (long/short, longer/shorter, longest/shortest)   |  |  |                        |  |
| <b>PRACTISE:</b> Oral counting 1–20, counting backwards from 7, counting objects 1–7, estimation 1–7, tall/short  |  |  |                        |  |
| Whole class activities  |  | Teacher-guided activity  | Workstation activities |  |
| <b>Day 1</b>  | Longer/shorter (height).   | Longer than/shorter than.<br>Taller than/shorter than.<br>Measurement with everyday objects.   | <b>Activity 1</b>      | Shorter/longer (pre-cut strips of different length).<br>Wiggly worms (to make a poster shortest to longest).<br>Measure blocks using string.<br>Playdough and lined paper (different lengths). |
| <b>Day 2</b>  | Comparing lengths of ribbons.                                      |  |                        |  |
| <b>Day 3</b>  | Sorting objects by length (coloured paper strips).                 |  | <b>Activity 2</b>      |  |
| <b>Day 4</b>  | Height chart comparison (from Term 1).                             |  | <b>Activity 3</b>      |  |
| <b>Day 5</b>  | Height chart comparison (taller/shorter than you).                 |  | <b>Activity 4</b>      |  |

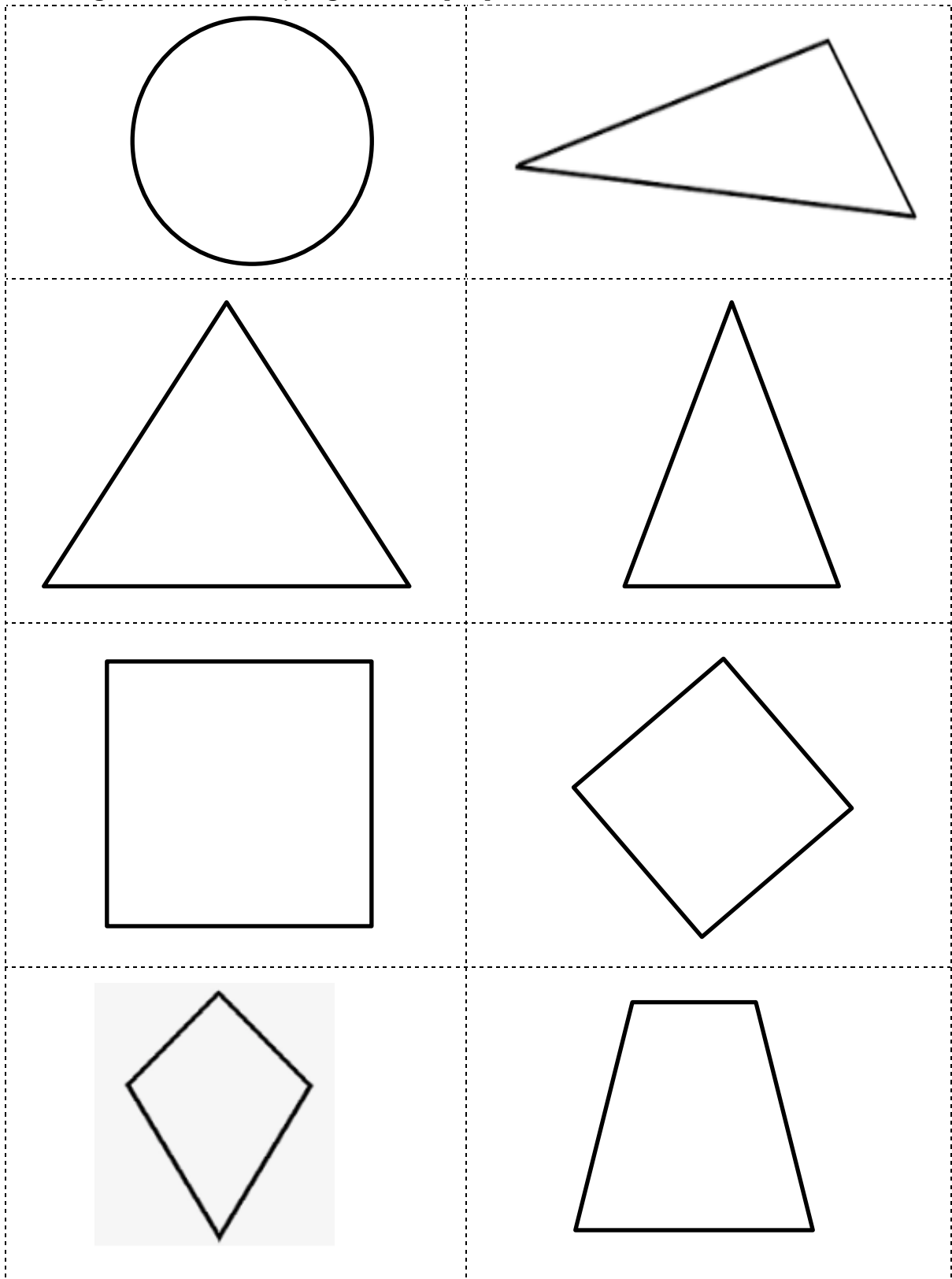
**MAMETLELELO A: KGWEDITHARO 2 KHUTSHWAFATSO YA DITENG TSA BEKE LE BEKE (DIBEKE 8-10)**

**Kgweditharo 2: Thulaganyo ya ditirwana**

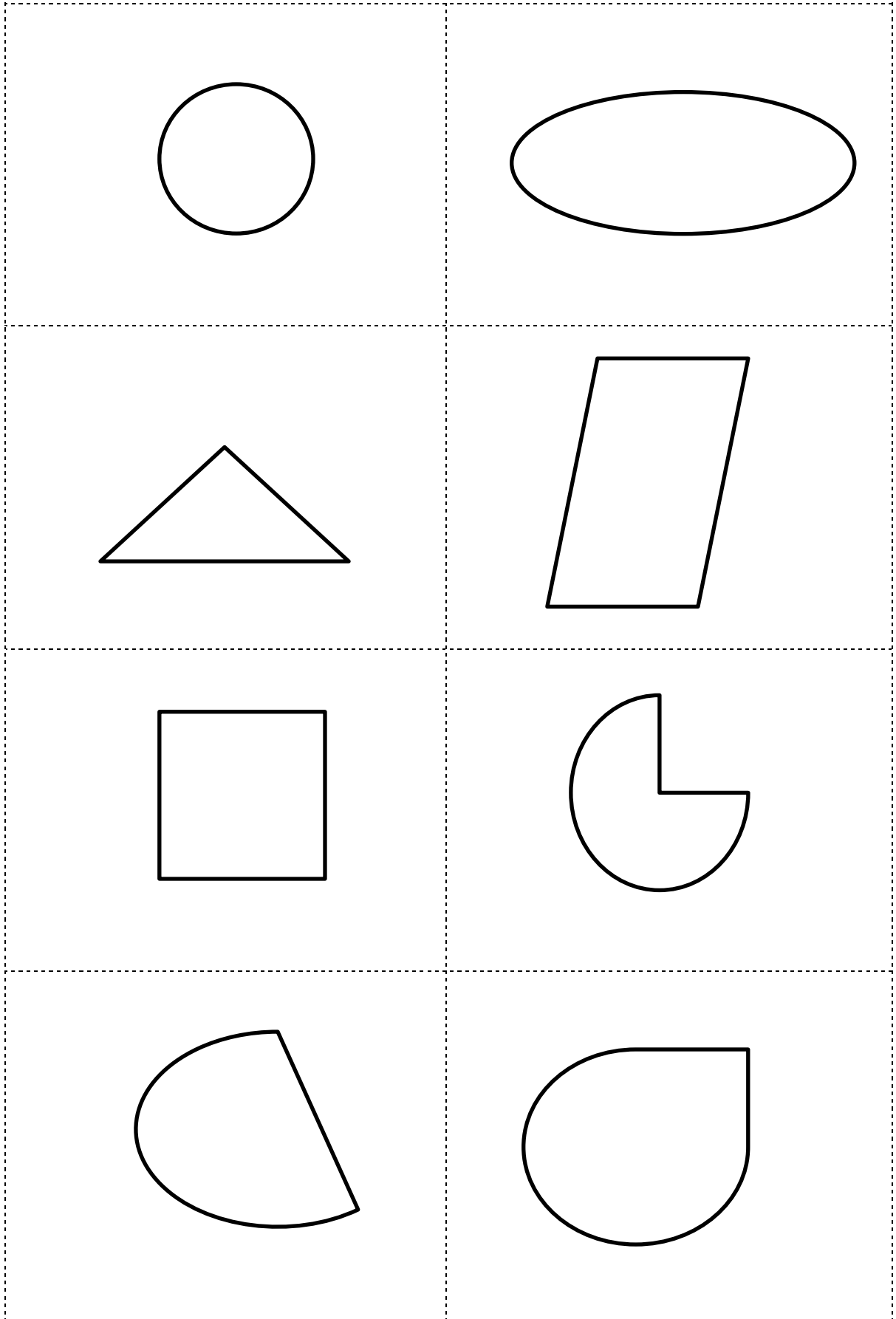
| <b>Beke 8</b>  |  |   |                                    |
|--|--|---|------------------------------------|
| <b>KAROLOTENG: BOALO LE POPEGO (JEOMETERI)</b>   |  |   |                                    |
| <b>SETLHOGO: Diponagalo tsa dipopego – bapisa tse di tshwanang le tse di farologaneng, rulaganya go ya ka dipongalao; boemo, tlwaetso le dipono</b>  |  |   |                                    |
| <b>TLHAGISA KITSO E NTŠHWA:</b> Latela kaelo le molagare wa kgabaganyo   |  |   |                                    |
| <b>IKATISE:</b> Go balela kwa godimo 1–20, go balela kwa morago go tloga ka 7, go latedisanya dinomere 1–5, go bala dilo 1–7, go gatelela mogopolopalo 1–5, ke nomere efe e e tlang pele/morago, ikatise ka go dirisa dipopego tsothle |  |   |                                    |
| <b>Ditirwana tsa phaposiborutelo yotlhe</b>  |  | <b>Tirwana e e kaelwang ke morutabana</b>   | <b>Ditirwana tsa Seteišenetiro</b> |
| <b>Letsatsi 1</b>  | Kwa pele/kwa morago.   | Go bala – mpontshe dibadi 1–3, 5–7.<br>Go dira ka dipopego tse di rutilweng.<br>Molagare wa kgabaganyo. Boemo– kaelo.<br>Kwa pele/kwa morago. | <b>Tirwana 1</b>                   |
| <b>Letsatsi 2</b>  | Gatelela dipopego tsothle (Ke ya setlhodi ...).                                |   | <b>Tirwana 2</b>                   |
| <b>Letsatsi 3</b>  | Motshameko wa dipopego.  |   | <b>Tirwana 3</b>                   |
| <b>Letsatsi 4</b>  | Nka dirang: Ke latlhegetswe ke (popego) ... ya me.                             |   | <b>Tirwana 4</b>                   |
| <b>Letsatsi 5</b>  | Sebakagoreletso (se tlhoka sebaka se setona/kwa ntle). Molagare wa kgabaganyo. |   |                                    |
| <b>Beke 9</b>  |  |   |                                    |
| <b>KAROLOTENG: TEKANYO</b>   |  |   |                                    |
| <b>SETLHOGO: Boleele –bapisa le go rulaganya dilo ka go dirisa tlotlofoko e e maleba go thalosa boleele</b>  |  |   |                                    |
| <b>TLHAGISA KITSO E NTŠHWA:</b> Go lekanya le go bapisa boleele (leele/khutshwane, leejana/khutshwanyane, leele go gaisa/khutshwane go gaisa)  |  |   |                                    |
| <b>IKATISE:</b> Go balela kwa godimo 1–20, go balela kwa morago go simolola ka 7, go bala dilo 1–7, tekanyetso 1–7, telele/khutshwane  |  |   |                                    |
| <b>Ditirwana tsa phaposiborutelo yotlhe</b>  |  | <b>Tirwana e e kaelwang ke morutabana</b>   | <b>Ditirwana tsa Seteišenetiro</b> |
| <b>Letsatsi 1</b>  | Leejana/khutshwanyane (bogodimo).  | Leejana go na le/khutshwanyane go na le.<br>Teleyenana go na le/khutshwanyane go na le.<br>Tekanyo ka dilo tse di tlwaelegileng.              | <b>Tirwana 1</b>                   |
| <b>Letsatsi 2</b>  | Go bapisa boleele jwa diribone.  |   | <b>Tirwana 2</b>                   |
| <b>Letsatsi 3</b>  | Go rulaganya dilo ka boleele (dimikana tsa pampiri e e mmalafaditsweng).       |   | <b>Tirwana 3</b>                   |
| <b>Letsatsi 4</b>  | Papiso ya bogodimo jwa ditšhate (go tswa mo Kgweditharong 1).                  |   | <b>Tirwana 4</b>                   |
| <b>Letsatsi 5</b>  | Papiso ya bogodimo jwa ditšhate (teleyenana/khutshwanyane go na le wena).      |   |                                    |

**APPENDIX B: SHAPES FOR SORTING/ MAMETLELELO B: DIPOPEGO LE GO  
RULAGANYA KA TATELANO**

Cut along the dotted lines./ Segololola o iphaphathile ka mothalo o o marontho.







# Workshop 6 Evaluation Form

1. Did the workshop meet your expectations?

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2. What did you learn in this workshop that helped you the most?

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3. Was there anything that you did not like or had difficulty understanding?

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4. How will you apply what you have learnt in your Grade R classroom?

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5. Do you have any suggestions for improving further workshops?

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## Foromo ya Tlhatlhubo ya Thutano 6

1. A thutano e kgonne go fitlhelela ditsholofelo tsa gago?

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2. Ke eng se o se ithutileng mo thutanong eno se se go thusitseng go gaisa?

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3. A go na le sengwe se o sa se ratang kgotsa se se neng se go thatafalela?

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4. O ya go diragatsa jang se o se ithutileng mo phaposiborutelong ya gago ya Mophato wa R?

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5. A go na le se o se tshikhinyang go ka thusa go tokafatsa dithutano tse di latelang?

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