



**GAUTENG PROVINCE**  
EDUCATION  
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GROWING GAUTENG TOGETHER

Sesotho/English

# **Lenaneo le Ntlafaditsweng la Mmetse la Kereiti ya R Grade R Mathematics Improvement Programme**



**Wekshopo ya 3 • Workshop 3  
Tataiso ya Motsamaisi • 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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Projeke ya Mmetse wa Kereiti ya R le Ntlatfatso ya Puo ke bohato ba pele ba **Lefapha la Thuto la Gauteng (Gauteng Department of Education)** le molekane wa lona wa sehlooho, **Gauteng Education Development Trust**.

Ntshetsopele le tlhahiso ya mehlodi ya thupelo le ya phaposi ya borutelo bakeng sa Projeke ya Mmetse wa Kereiti ya R le Ntlatfatso ya Puo di ile tsa tswelletswe ke tshehetso ka ditjhelete ya diprojeke e fanweng ke **United States Agency for International Development** le **Zenex Foundation**.

Projeke ya Mmetse wa Kereiti ya R le Ntlatfatso ya Puo e tsamaiswa ke **JET Education Services** mmoho le **Schools Development Unit** ya **UCT** le **Wordworks** jwaloka balekane ba setegeniki.

**Schools Development Unit (SDU)** ya **University of Cape Town (UCT)** ke molekane wa setegeniki wa mmetse bakeng sa Projeke ya Mmetse wa Kereiti ya R le Ntlatfatso ya Puo. SDU ke yuniti e kahara School of Education sa UCT e tsepameng ho ntshetsopele ya porofeshene ya matitjhere ho Mmetse, Saense, Tsebo ya ho Bala le ho Ngola/Puo le Bokgoni ba Bophelo ho tloha ho Kereiti ya R ho isa ho Kereiti ya 12. SDU e fana ka mangolo a botitjhere le a dithuto tse kgutshwane tse ananetsweng tsa UCT, mosebetsi o theilweng dikolong, ntshetsopele ya disebediswa le diphuputso bakeng sa ho tshehetsa ho ruta le ho ithuta dikarolong tsohle tsa Afrika Borwa.

## DITEBOHO

Diteboho tse kgethehileng ho:

- Baofisiri ba Botsamaisi ba Kharikhulamo, Botsamaisi ba Thuto ya Matitjhere le Botsamaisi ba Thuto e Kgethehileng ba Lefapha la Thuto la Gauteng, bakeng sa nyehelo ya bona ntlatfatsoeng ya disebediswa tsa rona tsa thuto.
- Baofisiri le matitjhere a Western Cape Education Department (WCED) ka nyehelo ya bona bakeng sa ho kenngwa tshehetsong ka katleho ha Grade R Mathematics Programme (*R-Maths*) mane Western Cape pakeng tsa 2016 le 2019.
- Sehlopha se ngolang sa *R-Maths*. Basebetsi le baeletsi ba SDU.



Lenaneo le Ntlatfaditsweng la Mmetse la Kereite ya R le ntlatfaditswe ho tloha ho *R-Maths*, e ileng ya phatlalatswa lekgetlo la pele ka 2017 ke Schools Development Unit, University of Cape Town. Tokelo ya kgatiso ya *R-Maths* e tshwerwe ke University of Cape Town.

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# Overview

## Purpose

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

The purpose of this workshop is to assist teachers to implement the Maths Programme in their classrooms. Participants will strengthen their understanding of the CAPS Content Areas covered in Weeks 6–9 of Term 1 and practise skills in mediating maths learning.

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 1 Weeks 3–5
- ◆ To apply the Maths Programme principles in weekly planning
- ◆ To explore strategies to support teaching maths in Grade R
- ◆ To engage with the Maths Programme content of Term 1 Weeks 6–9 (Patterns, Functions and Algebra; Space and Shape (Geometry); Measurement; Numbers, Operations and Relationships)
- ◆ To start to understand how learners' different interests and ability levels inform learning and teaching

## Workshop content

- |  |          |
|--|----------|
| ◆ Opening and reflection                           | (1 hour) |
| ◆ Session 1: Patterns, Functions and Algebra       | (1 hour) |
| TEA  |          |
| ◆ Session 2: Space and Shape (Geometry)            | (1 hour) |
| ◆ Session 3: Measurement                           | (1 hour) |
| LUNCH  |          |
| ◆ Session 4: Numbers, Operations and Relationships | (1 hour) |
| ◆ Session 5: Planning for teaching                 | (1 hour) |

# Tjhebokakaretso

## Sepheo

Ena ke ya boraro ya diwekshopo tse leshome le metso e mmedi tsa Lenaneo le Ntlafaditsweng la Mmetse la Kereiti ya R (Lenaneo la Mmetse), tse etsang karolo ya Lefapha la Thuto la Gauteng (GDE) Projeke ya Mmetse wa Kereiti ya R le Ntlafatso ya Puo.

Sepheo sa wekshopo ena ke ho thusa matitjhere ho kenya tshebetsong Lenaneo la Mmetse ka diphaposing tsa bona tsa borutelo. Bankakarolo ba tla matlafatsa kutlwisiso ya bona ya Dikarolo tsa Dikahare tsa SLTK tse etswang ka Dibeke tsa 6–9 tsa Kotara ya 1 le ho ikwetlisa bokgoni ba ho kena dipakeng ho ithuta mmetse.

Dintlha tse buwang ka Dikarolo tsa Dikahare tsa *Mmetse wa Kereiti ya R* di nkilwe ho *Setatemente sa Leano la Kharikhulamo le Tekanyetso (SLKT): Mmetse wa Kereiti ya R (Moralo wa Moshwelella)*, 2011, Lefapha la Thuto ya Motheo, Afrika Borwa.

## Diphetho tsa ho ithuta

- ◆ Ho shebisisa ho kenya tshebetsong ha Kotara ya 1 Dibeke tsa 3–5
- ◆ Ho sebedisa dintlhatheo tsa Lenaneo la Mmetse moralong wa beke le beke
- ◆ Ho sibolla mawa a ho tshehetsa ho ruta mmetse Kereiting ya R
- ◆ Ho sekaseka dikahare tsa Lenaneo la Mmetse tsa Kotara ya 1 Dibeke tsa 6–9 (Dipaterone, Ditshebetso le Aljebra; Sebaka le Sebopeho (Jeometri); Mometho; Dinomoro, Matshwao le Dikamano)
- ◆ Ho qala ho utlwisisa kamoo dithahasello tse fapaneng tsa baithuti le maemo a bona a bokgoni di susumetsang ho ithuta le ho ruta ka teng

## Dikahare tsa wekshopo

- ◆ Pulo le boikgopotso (Hora e 1)
  - ◆ Karolo ya 1: Dipaterone, Ditshebetso le Aljebra (Hora e 1)
- TEYE
- ◆ Karolo ya 2: Sebaka le Sebopeho (Jeometri) (Hora e 1)
  - ◆ Karolo ya 3: Mometho (Hora e 1)
- DIJO TSA MOTSHEARE
- ◆ Karolo ya 4: Dinomoro, Matshwao le Dikamano (Hora e 1)
  - ◆ Karolo ya 5: Ho etsa moralo bakeng sa ho ruta (Hora e 1)

## Preparation

- ◆ PPT welcome and outcomes
- ◆ Read:  
*Concept Guide*, pages 114–137  
*Activity Guide: Term 1*, pages 18–21  
Appendix A: Term 1 Weekly Content Summary
- ◆ Set out a Maths Programme *Resource Kit* on each group's table.

## Materials

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



## Tokisetso

- ◆ PPT kamohelo le diphetho

- ◆ Bala:

*Tataiso ya Mareo*, maqephe a 114–137

*Tataiso ya Diketsahalo: Kotara ya 1*, maqephe a 18–21

Sehlomathiso A: Kotara ya 1 Kakaretso ya Dikahare tsa Beke le Beke

- ◆ Hlophisa *Khiti ya Disebediswa* tsa Lenaneo la Mmetse tafoleng ya sehlopha ka seng.

## Disebediswa

- ◆ Pampiri ya fliptjhate, dikoki

- ◆ *Khiti ya Disebediswa* bakeng sa sehlopha ka seng

- ◆ *Buka ya Diphoustara* bakeng sa sehlopha ka seng

- ◆ *Khiti ya Disebediswa*: diboloko tsa makgetha

# Opening and reflection

1 hour

## Facilitator's notes

- ◆ PPT: Open the session and read through the agenda and learning outcomes for the workshop.
- ◆ Remind participants of the *Take back to school* task from the end of Workshop 2. Ask participants to reflect on this task and the implementation of Weeks 3–5 and to complete **Activity 1**.
- ◆ Groups share key points with the large group. Reflect on how assessment is continuous and that observations need to be ongoing.

Reflect on the implementation of the Maths Programme in your daily programme and complete the following activity in your group.



### Activity 1

1. Discuss your progress in implementing Weeks 3–5 and the *Take back to school* task from Workshop 2.
2. Share your photograph of the Space and Shape (Geometry) focus in the maths area.
3. How did you record your observations of each learner during the teacher-guided activity?
4. Which teaching principles are you more aware of in your classroom?



### Video 1

*Activity Guide: Term 1, Week 3, Day 2 #1, 2 and 3 (page 56)*

Watch the video of how the teacher uses a rhyme to practise counting and solving word problems.

Discuss how you managed this and other lessons that incorporated rhymes into counting activities.

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## Dinoutso tsa motsamaisi

- ♦ PPT: Bula kopano mme o bale lenanetsamaiso le diphetho tsa ho ithuta bakeng sa wekshopo.
- ♦ Hopotsa bankakarolo mosebetsi wa *Kgutlela le yona sekolong* ho tswa qetellong ya Wekshopo ya 2. Kopa bankakarolo ho ikgopotsa mosebetsi ona le ho kenngwa tshebetsong ha Dibeke tsa 3–5 le ho phethela **Ketsahalo ya 1**.
- ♦ Dihlotshwana di abelana dintlha tsa bohlokwa le sehlopha se seholo. Nahanisisang kamoo tekanyetso e tswellang ka teng le hore ditemoho di hloka ho ba tse tswellang.

Ikgopotseng ka ho kenngwa tshebetsong ha Lenaneo la Mmetse ho lenaneo la letsatsi le letsatsi la lona mme le phethele ketsahalo e latelang sehlotshwaneng sa lona.



### Ketsahalo ya 1

1. Buisanang ka kgatelopele ya lona ho kenya tshebetsong Dibeke tsa 3–5 le mosebetsi wa *Kgutlela le yona sekolong* ho tswa ho Wekshopo ya 2.
2. Abelana ka foto ya tsepamiso ya Sebaka le Sebopeho (Jeometri) ho sebaka sa mmetse.
3. O rekotile jwang ditemoho tsa hao tsa moithuti ka mong nakong ya ketsahalo e tataiswang ke titjhere?
4. Ke dintlhatheo dife tsa ho ruta tseo o di lemohileng haholo ka phaposing ya hao ya borutelo?



### Video ya 1

*Tataiso ya Diketsahalo: Kotara ya 1, Beke ya 3, Letsatsi la 2 #1, 2 le 3 (leqephe la 57)*

Shebellang video ya kamoo titjhere a sebedisang raeme ka teng ho ikwetlisetsa ho bala le ho rarolla mathata.

Buisanang ka kamoo le kgonneng ho etsa thuto ena le dithuto tse ding tse neng di kenyeletsa diraeme diketsahalong tsa ho bala.

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# Session 1: Patterns, Functions and Algebra

1 hour

## Facilitator's notes

- ◆ Explain that this workshop addresses the content of the Maths Programme Term 1 Weeks 6–9, and that the focus of Week 6 is on Patterns, Functions and Algebra.
- ◆ Refer participants to page 124 of the *Concept Guide*. Explain that the aim of **Activity 2** is to highlight the content of the Patterns, Functions and Algebra Content Area for Term 1.
- ◆ Ask participants to work in groups to complete **Activity 2**. Ask one person from each group to share their ideas.

This workshop focuses on teaching the following Maths Programme content: Term 1 Weeks 6–9. This session focuses on Term 1 Week 6: Patterns, Functions and Algebra.

## Term 1 Content overview: Patterns, Functions and Algebra

Refer to the Patterns, Functions and Algebra Content Area on page 124 of the *Concept Guide*.



### Activity 2

In your group, discuss:

1. What concepts are covered in Term 1?

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2. What are the differences between the content and the content from CAPS?

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Recognise the repeat in patterns.

Introduce language, e.g. What comes next? What comes before?

Create own pattern using physical objects, drawings, geometric patterns.

Explain own pattern (repeating rule).

# Karolo ya 1: Dipaterone, Ditshebetso le Aljebra

Hora e l

## Dinoutso tsa motsamaisi

- ◆ Hlalosa hore wekshopo ena e sebetsana le dikahare tsa Lenaneo la Mmetse Kotara ya 1 Dibeke tsa 6–9, le hore tsepamo ya Beke ya 6 e ho Dipaterone, Ditshebetso le Aljebra.
- ◆ Ere bankakarolo ba ye ho leqephe la 125 la *Tataiso ya Mareo*. Hlalosa hore sepheo sa **Ketsahalo ya 2** ke ho hlakisa dikahare tsa Karolo ya Dikahare ya Dipaterone, Ditshebetso le Aljebra bakeng sa Kotara ya 1.
- ◆ Kopa bankakarolo ho sebetsa ka dihlotshwana ho phethela **Ketsahalo ya 2**. Kopa motho a le mong ho tswa sehlotshwaneng ka seng ho abelana ka mehopolo ya bona.

Wekshopo ena e tsepame ntlheng ya ho ruta dikahare tse latelang tsa Lenaneo la Mmetse: Kotara ya 1 Dibeke tsa 6–9. Karolo ena e tsepama ho Kotara ya 1 Beke ya 6: Dipaterone, Ditshebetso le Aljebra.

## Kotara ya 1 Tjhebokakaretso ya dikahare: Dipaterone, Ditshebetso le Aljebra

Sheba Karolo ya Dikahare ya Dipaterone, Ditshebetso le Aljebra ho leqephe la 125 la *Tataiso ya Mareo*.



### Ketsahalo ya 2

Sehlotshwaneng sa lona, buisanang ka:

1. Ke mareo afe a kenyeleditsweng ho Kotara ya 1?

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2. Diphapang ke dife pakeng tsa dikahare tsena le dikahare tse ho SLTK?

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Elellwa phetapheto ho dipaterone.

Tsebisa puo, mohl. Ho latela eng kamora moo? Ho tla eng pele ho moo?

Etsa dipaterone tsa hao o sebedisa dintho tse tshirehang, metako, dipaterone tsa jeometri.

Hlalosa dipaterone tsa hao (molao wa ho phetapheta).

## Understanding patterns

### Facilitator's notes

- ◆ PPT: Refer groups to Poster 7 in the *Poster Book* and have them complete **Activity 3**.
- ◆ PPT: Give a definition of a pattern and a sequence, using the information below. Demonstrate these explanations.  
*A **pattern** describes the regular sequence of objects, pictures, movements, actions or events that are repeated in a predictable way.*  
*A **sequence** is the particular order in which objects, pictures, movements, actions or events follow each other.*

Developing an understanding of patterns is an important part of maths. Patterns are all around us and children encounter lots of patterns in their daily lives at home and at school.

Think about your own understanding of the Content Area: Patterns, Functions and Algebra and complete Activity 3 with your group.



### Activity 3

In your group, discuss:

1. What kinds of patterns might Grade R learners observe in their daily lives?

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Patterns in clothes, on buildings, in nature (e.g. flower, beehive).

### Facilitator's notes

- ◆ PPT: Pictures of patterns around us in our natural and built environment.
- ◆ Discuss how a sequence of items can be extended but that this won't necessarily create a pattern.
- ◆ Look at examples of where a sequence is repeated to create a pattern.

2. Look at Poster 7 in the *Poster Book*.

- ◆ What patterns do you see?

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- ◆ What is the pattern?

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Identify the 'repeat' part of the pattern.

Elements are repeated (unless it is an irregular pattern, e.g. bark on a tree, random patterns on paper or fabric).

## Ho utlwisisa dipaterone

### Dinoutso tsa motsamaisi

- ◆ PPT: Ere dihlotshwana di shebe Phoustara ya 7 ka hara *Buka ya Diphoustara* mme o re ba phethele **Ketsahalo ya 3**.
- ◆ PPT: Fana ka tthaloso ya paterone le tlhahlamano, o sebedisa tlhahisoleseding e ka tlase mona. Bontsha ditlhaloso tsena ka diketso.  
***Paterone** e hlalosa tatelano e tlwaelehileng ya dintho, ditshwantsho, metsamao, diketso kapa diketsahalo tse phetaphetwang ka tsela e elellwehang.*  
***Tatelano** ke tsela e itseng eo ka yona dintho, ditshwantsho, metsamao, diketso kapa diketsahalo di salanang morao.*

Ho ntshetsa pele kutlwisiso ya dipaterone ke karolo ya bohlokwa ya mmetse. Dipaterone di hohle moo re leng mme bana ba kopana le dipaterone tse ngata haholo maphelong a bona a kamehla lapeng le sekolong.

Nahana ka kutlwisiso ya hao ya Karolo ya Dikahare: Dipaterone, Ditshebetso le Aljebra mme o phethele Ketsahalo ya 3 mmoho le sehlotshwana sa hao.



### Ketsahalo ya 3

Sehlotshwaneng sa lona, buisanang ka:

1. Ke mefuta efe ya dipaterone eo baithuti ba Kereiti ya R ba ka e lemohang maphelong a bona a kamehla?

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Dipaterone tse diaparong, meahong, tlhahong (mohl. dipalesa, sehlaha sa dinotshi).

### Dinoutso tsa motsamaisi

- ◆ PPT: Ditshwantsho tsa dipaterone tse re potileng tikolohong ya rona ya tlhaho le ya meaho.
- ◆ Buisanang kamoo tatelano ya dintho e ka atoloswang ka teng empa sena ha se bolele hore se tla bopa paterone.
- ◆ Sheba mehlala ya moo tatelano e phetaphetwang ho bopa paterone.

2. Sheba Phoustara ya 7 ka hara *Buka ya Diphoustara*.

- ◆ O bona dipaterone dife?

- 
- ◆ Paterone ke efe?
- 

Hlwaya karolo e 'phetaphetwang' ya paterone.

Dintho di a phetaphetwa (ntle le ha e le paterone e sa tlwaelehang, mohl. lekgapetla la sefate, dipaterone tse se nang tatelano pampiring kapa leseleng).

- ◆ Can you repeat the pattern? Explain.

A **pattern** describes the regular sequence of objects, pictures, movements, actions or events that are repeated in a predictable way.

A **sequence** is the particular order in which objects, pictures, movements, actions or events follow each other.

## Identifying patterns

### Facilitator's notes

- ◆ Explain that in a regular pattern we can see how the elements in a pattern are repeated, and we can predict the order or sequence that the pattern will follow.
- ◆ PPT: Circles and squares repeated to form a pattern.
- ◆ Refer participants to the circle and square patterns in the *Participant's Workbook*. Use the questions that follow to demonstrate how we can see that the circle and square are repeated and use this to predict what the next shape will be.
- ◆ In the pattern below we can see that the circle and square are repeated, and we can predict that the next shape in the sequence will be a circle, followed by a square and so on.

In a regular pattern, we can see how the elements in the sequence are repeated. We can also predict the order or sequence of the elements and how they will be repeated to create a pattern. In the pattern below we can see that the circle and square are repeated and we can predict what the next shape in the sequence will be.



### Activity 4



1. Which shape is first?
2. Which shape is next?
3. What shape do you think will come after the last square?
4. How would you extend the pattern?

Repeating patterns are made up of a repeated sequence of elements, e.g. shapes, colours, sounds, objects, movements.



- ◆ Na o ka pheta paterone eo? Hlalosa.

**Paterone** e hlalosa tatelano e tlwaelehleng ya dintho, ditshwantsho, metsamao, diketso kapa diketsahalo tse phetaphetwang ka tsela e elellwehang.

**Tatelano** ke tsela e itseng eo ka yona dintho, ditshwantsho, metsamao, diketso kapa diketsahalo di salanang morao.

## Ho hlwaya dipaterone

### Dinoutso tsa motsamaisi

- ◆ Hlalosa hore pateroneng e tlwaelehleng re kgona ho bona kamoo dielemente tse pateroneng di phetaphetwang ka teng, mme re ka noha tlhahlamano kapa tatelano eo paterone e tlang ho e latela.
- ◆ PPT: Didikadikwe le dikgutlonnetsepa tse phetaphetwang ho bopa paterone.
- ◆ Ere bankakarolo ba shebe dipaterone tsa didikadikwe le dikgutlonnetsepa tse ka hara *Buka ya Mosebetsi ya Monkakarolo*. Sebedisa dipotso tse latelang ho bontsha kamoo re ka bonang hore sedikadikwe le kgutlonnetsepa di phetaphetwa ka teng mme re sebedise sena ho noha hore sebopeho se latelang e tla ba sefe.
- ◆ Pateroneng e ka tlase mona re kgona ho bona hore sedikadikwe le kgutlonnetsepa di a phetaphetwa, mme re ka noha hore sebopeho se latelang tlhahlamano eo e tla ba sedikadikwe, se latelwe ke kgutlonnetsepa jwalojwalo.

Pateroneng e tlwaelehleng, re kgona ho bona kamoo dielemente tse tatelanong di phetaphetwang ka teng. Hape re ka noha tlhahlamano kapa tatelano ya dielemente le kamoo di tlang ho phetaphetwa ka teng ho bopa paterone. Pateroneng e ka tlase mona re ka bona hore sedikadikwe le kgutlonnetsepa di a phetaphetwa mme re ka noha hore sebopeho se latelang tlhahlamano ena e tla ba sefe.



### Ketsahalo ya 4



1. Ke sebopeho sefe se tlang pele?
2. Ke sebopeho sefe se latelang?
3. Ke sebopeho sefe seo o nahanang hore se tla tla kamora kgutlonnetsepa ya ho qetela?
4. O ka atolosa paterone eo jwang?

Dipaterone tse iphetang di entswe ka tatelano e phetaphetwang ya dielemente, mohl. dibopeho, mebala, medumo, dintho, metsamao.

### Facilitator's notes

- ◆ PPT: Display the following sequence of attribute blocks:



yellow



red



blue



yellow

- ◆ Ask participants to look at the pattern and to use the attribute blocks on their tables to copy the sequence. Groups then complete **Activity 5**.

In the next activity, the facilitator will show you a sequence of shapes. You will use the attribute blocks on your table to copy this sequence and discuss how to extend this to create a pattern.



### Activity 5

1. What is the pattern?

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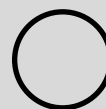
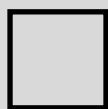
2. What is the repeating part of the sequence?

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### Facilitator's notes

- ◆ The point of this activity is to identify the repeating part of the sequence, i.e. the pattern. Does the pattern begin with the yellow square and end with the blue circle? Or does the pattern begin with the yellow square and end with the yellow square?
- ◆ Explain that learners need to be able to identify the pattern before they can extend or create their own pattern.
- ◆ Emphasise that teachers should always repeat the pattern at least twice before asking learners to extend it, for example:



- ◆ After these activities highlight the importance of introducing learners to patterns that have only one attribute that differs, e.g. shape, and providing them with a long enough repeat sequence (e.g. three repeats) so that they can work out the pattern.
- ◆ Ask participants for examples of the kinds of patterns that families might find in their own homes and communities (**context principle**).
- ◆ Reflect on how a learner's experience of everyday patterns is the starting point for understanding the concept of pattern (**level principle**).

### Dinoutso tsa motsamaiisi

- ♦ PPT: Bea pontsheng tatelano e latelang ya diboloko tsa makgetha:



tshehla



kgubedu



bolou



tshehla

- ♦ Kopa bankakarolo ho sheba pateroneng le ho sebedisa diboloko tsa makgetha tse ditafoleng tsa bona ho kopolla tatelano. Dihlotshwana jwale di phethela **Ketsahalo ya 5**.

Ketsahalong e latelang, motsamaiisi o tla le bontsha tatelano ya dibopeho. Le tla sebedisa diboloko tsa makgetha tse tafoleng ya lona ho kopolla tatelano ena mme le buisane ka kamoo le ka atolosang hona ho bopa paterone.



### Ketsahalo ya 5

1. Paterone ke efe?

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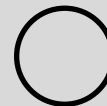
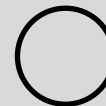
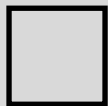
2. Ke karolo efe e iphetang ya tatelano?

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### Dinoutso tsa motsamaiisi

- ♦ Sepheo sa ketsahalo ena ke ho hlwaya karolo e iphetaphetang ya tatelano, k.h.r. paterone. Na paterone e qala ka kgutlonnetsepa e tshehla mme e qetella ka sedikadikwe se bolou? Kapa ebe paterone e qala ka kgutlonnetsepa e tshehla mme e qetella ka kgutlonnetsepa e tshehla?
- ♦ Hlalosa hore baithuti ba lokela ho kgona ho hlwaya paterone pele ba ka e atolosa kapa ba ipopela paterone ya bona.
- ♦ Hatella hore matitjhare a lokela ho dula a pheta paterone bonnyane habedi pele a kopa baithuti hore ba e atolose, ho etsa mohlala:



- ♦ Kamora diketsahalo tsena hlakisa bohlokwa ba ho tsebisa baithuti dipaterone tse nang le lekgetha le le leng feela le fapaneng, mohl. sebopeho, le ho ba fa phetapheto ya tatelano e telele ho lekaneng (mohl. diphetapheto tse tharo) ele hore ba tle ba iphumanele paterone.
- ♦ Kopa bankakarolo mehlala ya mefuta ya dipaterone tseo malapa a ka di fumanang dintlong tsa bona le metseng ya bona (**ntlhatheo ya tikoloho**).
- ♦ Shebisisa taba ya hore boitsebelo ba baithuti ba letsatsi le leng le le leng ke ntlha ya qaleho ya kutlwisiso ya lereo la paterone (**ntlhatheo ya mekgahlelo**).

Introduce learners to patterns that start with only one attribute that differs, e.g. shape, and provide enough items in the sequence so that learners can work out what the pattern is (the repeating part in the sequence).

It is important for teachers to provide a range of opportunities for learners to identify, copy and create different kinds of patterns using sounds, actions, objects and pictures.



## Video 2

*Activity Guide: Term 1, Week 6, Days 2, 3 and 4 (pages 104–111)*

Watch the video of the teacher setting up activities that provide opportunities for learners to create and discuss patterns.

Notice how the teacher guides the learners through questions and prompts to create a pattern. Write down the vocabulary that she and the learners using during these activities.

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Refer to pages 160–173 of the *Concept Guide* to read more about teaching Patterns, Functions and Algebra in Grade R. You will also find a list of appropriate questions and vocabulary for this Content Area.

The **level principle** says that learners are at different starting points in Grade R. Each learner's prior knowledge is the starting point for what they will learn. They can use what they know already to learn new maths concepts and skills.

Tsebisa baithuti dipaterone tse qalang ka lekgetha le le leng feela le fapaneng, mohl. sebopeho, mme o fane ka dintho tse lekaneng tatelanong ele hore baithuti ba kgone ho iphumanela hore ebe paterone ke efe (karolo e iphetaphetang tatelanong).

Ho bohlokwa ho matitjhere ho fana ka letoto la menyetla hore baithuti ba hlwaye, ba kopolle le ho bopa mefuta e fapaneng ya dipaterone ba sebedisa medumo, diketso, dintho le ditshwantsho.



## Video ya 2

*Tataiso ya Diketsahalo: Kotara ya 1, Beke ya 6, Matsatsi 2, 3 le 4 (maqephe a 104–111)*

Shebellang video ya titjhere a lokisetsa diketsahalo tse fanang ka menyetla bakeng sa baithuti ho bopa le ho buisana ka dipaterone.

Lemoha kamoo titjhere a tataisang baithuti ka dipotso le dihlohlelletso ho bopa paterone. Ngola fatshe tlotlontswe eo yena le baithuti ba e sebedisang nakong ya diketsahalo tsena.

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Sheba maqephe ana 160–173 a *Tataiso ya Mareo* ho bala haholwanyane mabapi le ho ruta Dipaterone, Ditshebetso le Algebra Kereiting ya R. Hape o tla fumana lenane la dipotso le tlotlontswe tse loketseng Karolo ena ya Dikahare.

**Ntlhatheo ya mekgahlelo** e bolela hore baithuti ba dintlheng tse fapaneng tsa qalo Kereiting ya R. Tsebo ya pele ya moithuti ka mong ke yona ntlha ya qalo bakeng sa seo a tlang ho ithuta sona. Ba ka sebedisa seo ba seng ba se tseba ho ithuta mareo a matjha a mmetse le bokgoni bo botjha.

## Session 2: Space and Shape (Geometry)

1 hour

### Facilitator's notes

- ◆ Explain that the focus of Week 7 is on Space and Shape (Geometry).
- ◆ Refer participants to pages 126–131 of the *Concept Guide*.
- ◆ Have participants work in groups to complete **Activity 6**. Ask one person from each group to report back.
- ◆ The focus on Space and Shape (Geometry) in this workshop extends the discussion in Workshop 2.

The focus of Term 1 Week 7 is Space and Shape (Geometry). In Workshop 2, we discussed 3-dimensional objects and 2-dimensional shapes and the content of Weeks 3–5 to be implemented in the classroom.

### Term 1 Content overview: Space and Shape (Geometry)



#### Activity 6

Refer to the Space and Shape (Geometry) Content Area on pages 126–131 of the *Concept Guide*. You will see that circles, squares and triangles are introduced in CAPS in Term 1 and rectangles are introduced in Term 4. The Maths Programme suggests that rectangles are introduced incidentally in Term 1.

1. When you taught squares did you find that learners confused squares and rectangles? Give reasons to support your answer.

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Learners need to see the differences between the two shapes. Even though both have four sides and four corners, the rectangle has two long sides and two short sides, and the square has four sides that are the same length.

2. How were rectangles introduced in Week 3 of the Maths Programme?

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Practically by using boxes and discussing and comparing the sides of a box.

# Karolo ya 2: Sebaka le Sebopeho (Jeometri)

Hora e 1

## Dinoutso tsa motsamaisi

- ◆ Hlalosa hore tsepamo ya Beke ya 7 e ho Sebaka le Sebopeho (Jeometri).
- ◆ Ere bankakarolo ba shebe maqephe ana 126–131 a *Tataiso ya Mareo*.
- ◆ Ere bankakarolo ba sebetse ka dihlotshwana ho phethela **Ketsahalo ya 6**. Kopa motho a le mong ho tswa sehlopheng ka seng ho fana ka tlaleho.
- ◆ Tsepamiso ho Sebaka le Sebopeho (Jeometri) ho wekshopo ena e tswellisa dipuisano tse ho Wekshopo ya 2.

Tsepamiso ya Kotara ya 1 Beke ya 7 ke Sebaka le Sebopeho (Jeometri). Ho wekshopo ya 2, re buisane ka dintho tsa mahlakore a 3 le dibopeho tsa mahlakore a 2 le dikahare tsa Dibeke tsa 3–5 tse lokelang ho kenngwa tshehetsong ka phaposeng ya borutelo.

## Kotara ya 1 Tjhebokakaretso ya dikahare: Sebaka le Sebopeho (Jeometri)



### Ketsahalo ya 6

Shebang ho Karolo ya Dikahare ya Sebaka le Sebopeho (Jeometri) maqepheng ana 126–131 a *Tataiso ya Mareo*. O tla bona hore didikadikwe, dikgutlonnetsepa le dikgutlotharo di tsebiswa ho SLTK Kotareng ya 1 mme dikgutlonne di tsebisa Kotareng ya 4. Lenaneo la Mmetse le etsa tlhahiso ya hore dikgutlonne di tsebiswe hanyane Kotareng ya 1.

1. Ha o ne o ruta ka dikgutlonnetsepa na o ile wa fumana hore baithuti ba ferekanya dikgutlonnetsepa le dikgutlonne? Fana ka mabaka ho tshehetsa karabo ya hao.

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Baithuti ba lokela ho bona phapang pakeng tsa dibopeho tse pedi tsena. Esitana le ha bobedi di ena le mahlakore a mane le dihuku tse nne, kgutlonne e na le mahlakore a mabedi a malelele le mahlakore a mabedi a makgutshwane, mme kgutlonnetsepa e na le mahlakore a mane a bolelele bo lekanang.

2. Dikgutlonne di ile tsa tsebiswa jwang ho Beke ya 3 ya Lenaneo la Mmetse?

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Ka ho sebedisa mabokoso le ho buisana le ho bapisa mahlakore a lebokoso.



## Identifying 2-dimensional shapes (triangles)

### Facilitator's notes

- ◆ Remind participants that in Workshop 2 they learnt about 3-dimensional objects and 2-dimensional shapes.  
***3-dimensional** means that an object has three dimensions: length, width and height.*  
***2-dimensional** means that a shape has length and width.*
- ◆ Explain that triangles are taught in a similar way to circles and squares in Term 1 (Week 7).

In Grade R learners recognise, identify and name 2-dimensional shapes: circles, squares, triangles and rectangles. The Maths Programme also suggests that learners are encouraged to describe the properties of these shapes, e.g. straight or curved lines, number of lines and corners.

Learners apply their new knowledge of shapes and reinforce this learning in the independent small group activities.



### Video 3

*Activity Guide: Term 1, Week 7, Days 1 and 2 (pages 120–125)*

Watch the video of the teacher introducing the learners to the triangle.

Notice how the teacher encourages the learners to describe the properties of the triangle.

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### Facilitator's notes

- ◆ In **Activity 7** participants will reflect on how the *Poster Book* can be used during activities to stimulate discussion.
- ◆ PPT: Display Poster 8 and ask participants to respond to the questions in **Activity 7**.
- ◆ After the activity ask participants which properties of 2-dimensional shapes were discussed and what maths language was used.
- ◆ Remind participants that 2-dimensional means that a shape has length and width (breadth) and that 3-dimensional means that an object has length, width and height.

## Ho hlwaya dibopeho tsa mahlakore a 2 (dikgutlotharo)

### Dinoutso tsa motsamaisi

- ◆ Hopotsa bankakarolo hore ho Wekshopo ya 2 ba ithutile ka dintho tsa mahlakore a 3 le dibopeho tsa mahlakore a 2.  
*E mahlakore a mararo e bolela hore ntho e na le mahlakore a mararo: bolelele, bophara le bophahamo.*  
*E mahlakore a mabedi e bolela hore sebopelo se na le bolele le bophara.*
- ◆ Hlalosa hore dikgutlotharo di rutwa ka tsela e tshwanang le didikadikwe le dikgutlonnetsepa tse Kotareng ya 1 (Beke ya 7).

Kereiting ya R baithuti ba lemoha, ba hlwaya le ho bolela dibopeho tsa mahlakore a mabedi: didikadikwe, dikgutlonnetsepa, dikgutlotharo le dikgutlonne. Lenaneo la Mmetse hape le hlalisa hore baithuti ba kgothaletswe ho hlalosa makgetha a dibopeho tsena, mohl. mela e otlohileng kapa e kgopameng, lenane la mela le dihuku.

Baithuti ba sebedisa tsebo ya bona e ntjha ya dibopeho mme ba hatella ho ithuta hona diketsahalang tsa dihlotshwana tse ikemetseng.



### Video ya 3

*Tataiso ya Diketsahalo: Kotara ya 1, Beke ya 7, Letsatsi la 1 le la 2 (maqephe a 120–125)*

Shebellang video ya titjhere ya tsebisang bana kgutlotharo.

Lemohang kamoo titjhere a kgothaletsang baithuti ho hlalosa makgetha a kgutlotharo ka teng.

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### Dinoutso tsa motsamaisi

- ◆ Ho **Ketsahalo ya 7** bankakarolo ba tla shebisisa kamoo *Buka ya Diphoustara* e ka sebediswang ka teng nakong ya diketsahalo bakeng sa ho tsosolosa dipuisano.
- ◆ PPT: Bea pontsheng Phoustara ya 8 mme o kope bankakarolo ho arabela dipotso tse ho **Ketsahalo ya 7**.
- ◆ Kamora ketsahalo botsa bankakarolo hore ke makgetha afe a dibopeho tsa mahlakore a 2 ao ho ileng ha buisanwa ka ona mme ke puo efe ya mmetse e ileng ya sebediswa.
- ◆ Hopotsa bankakarolo hore mahlakore a 2 e bolela hore sebopelo se na le bolelele le bophara (bobatsi) le hore mahlakore a 3 e bolela hore ntho e na le bolele, bophara le bophahamo.

*Activity Guide: Term 1* provides many opportunities throughout the term for teachers to use open-ended questions. The *Poster Book* is used during whole class activities and small group teacher-guided activities to encourage learners to express their own ideas and solve problems.

In Activity 7, you will discuss a poster and talk about whether the questions posed are ‘open-ended’ or ‘closed’ questions.



### Activity 7

1. Look at Poster 8 and respond to the following questions.

◆ How many triangles can you see? closed

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◆ How do you know it is a triangle? open-ended

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◆ How many sides does it have? closed

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◆ How many corners does it have? closed

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◆ How many lines? closed

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◆ Can you see any other triangles? closed

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◆ What other shapes can you see? closed

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◆ What is the same about these two shapes? open-ended

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◆ What is different about these two shapes? open-ended

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2. Which of the questions above are open-ended and which are closed questions?

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*Tataiso ya Diketsahalo: Kotara ya 1 e fana ka menyetla e mengata kotareng yohle bakeng sa matitjhere ho sebedisa dipotso tse dikarabo di ngata. Buka ya Diphoustara e sebediswa nakong ya diketsahalo tsa tlelase yohle le diketsahalo tsa dihlotshwana tse tataiswang ke titjhere ho kgothaletsa baithuti ho ntsha maikutlo a bona le ho rarolla mathata.*

Ho Ketsahalo ya 7, le tla buisana ka phoustara mme le bue ka hore ebe dipotso tse botsitsweng ke dipotso tse 'dikarabo di ngata' kapa tse 'karabo e nngwe'.



### **Ketsahalo ya 7**

1. Shebang Phoustara ya 8 mme le arabe dipotso tse latelang.

◆ O bona dikgutlotharo tse kae? karabo e nngwe

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◆ O tseba jwang hore ke kgutlotharo? dikarabo di ngata

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◆ E na le mahlakore a makae? karabo e nngwe

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◆ E na le dihuku tse kae? karabo e nngwe

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◆ Mela ke e mekae? karabo e nngwe

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◆ Na o bona dikgutlotharo tse ding hape? karabo e nngwe

---

◆ Ke dibopeho dife tse ding tseo o di bonang? karabo e nngwe

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◆ Ke eng e tshwanang ka dibopeho tsena tse pedi? dikarabo di ngata

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◆ Ke eng e fapaneng ka dibopeho tsena tse pedi? dikarabo di ngata

2. Ke dife tsa dipotso tse ka hodimo tse nang le dikarabo di ngata mme ke dife tse nang le karabo e nngwe?

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### Facilitator's notes

- ◆ Discuss the kinds of questions that were asked in **Activity 7** and how the **guidance principle** encourages problem solving through effective questioning.
- ◆ Highlight the importance of using maths vocabulary in discussions with learners.
- ◆ Remind participants that not all learners will grasp the ideas/concepts at the same time (**level principle**) and that they should be encouraged to share their thinking and be given plenty of practical activities and opportunities to talk about shapes.

The **guidance principle** encourages teachers and learners to work together to solve problems using effective questioning.

- ◆ **Closed questions** are questions that have a limited 'yes' or 'no' response. Closed questions can be helpful in finding out what learners know, like 'Which shape is a triangle?', 'What colour is it?'
- ◆ **Open-ended questions** have more than one possible answer, stimulate thinking and encourage learners to express their own ideas when solving problems.

Not all learners will grasp these concepts or learn the maths language at the same time (**level principle**).

### Maths vocabulary

When learners investigate, and describe shapes and objects, they use everyday language like 'flat', 'smooth' and 'pointy'. Teachers can introduce maths vocabulary to replace everyday language, for example: straight lines, curved lines, corners, sides. We also talk about how long something is, how wide it is and refer to the height of something.

Refer to the pages 190–193 of the *Concept Guide* to read more about asking questions related to teaching and learning Space and Shape (Geometry) concepts. Also read page 192 for more about Space and Shape (Geometry) vocabulary in Grade R.

### Dinoutso tsa motsamaiisi

- ◆ Buisanang ka mefuta ya dipotso tse neng di botsitswe ho **Ketsahalo ya 7** le kamoo **ntlhatheo ya tataiso** e kgothaletsang ho rarolla bothata ka ho botsa dipotso ho sebetsang.
- ◆ Hlakisa bohlokwa ba ho sebedisa tlotlontswe ya mmetse dipuisanong le baithuti.
- ◆ Hopotsa bankakarolo hore ha se baithuti bohle ba tla utlwisisa mohopolo/dikgopolo ka nako e le nngwe (**ntlhatheo ya mekgahlelo**) le hore ba lokela ho kgothaletswa ho bua ka seo ba se nahanneng mme ba fuwe diketsahalo tse sebetsehang tse ngata le menyetla ya ho bua ka dibopeho.

**Ntlhatheo ya tataiso** e kgothaletsa matitjhere le baithuti ho sebetsa mmoho ho rarolla mathata ba sebedisa ho botsa dipotso ka tsela e nepahetseng.

- ◆ **Dipotso tse karabo e nngwe** ke dipotso tse batlang karabo e itseng feela, 'e' kapa 'tjhe'. Dipotso tse karabo e nngwe di ka thusa ho fumana seo baithuti ba se tsebang, jwaloka 'Ke sebopeliso sefe seo e leng kgutlotharo?', 'E mmala ofe?'
- ◆ **Dipotso tse dikarabo di ngata** di na le dikarabo tse fetang e le nngwe, di tsoseletsa ho nahana mme di kgothaletsa baithuti ho hlakisa mehopolo ya bona ha ba rarolla bothata.

Ha se baithuti bohle ba tlang ho utlwisisa dikgopolo tsena kapa ho ithuta puo ya mmetse ka nako e le nngwe (**ntlhatheo ya mekgahlelo**).

### Tlotlontswe ya mmetse

Ha baithuti ba fuputsa, mme ba hlalosa dibopeho le dintho, ba sebedisa puo ya kamehla e kang 'sephara', 'boreledi' le 'motsu'. Matitjhere a ka tsebisa tlotlontswe ya mmetse ho nka sebaka sa puo ya kamehla, ho etsa mohlala: mela e otlohleng, mela e kgopameng, dihuku, mahlakore. Hape re bua ka bolelele ba ntho e itseng, kamoo e leng sephara ka teng mme re bua ka bophahamo ba ntho e itseng.

Shebang maqephe a 190–193 a *Tataiso ya Mareo* ho bala haholwanyane ka ho botsa dipotso tse tsamaelanang le ho ruta le ho ithuta mareo a Sebaka le Sebopeliso (Jeometri). Hape balang leqephe la 193 bakeng sa tlotlontswe e nngwe ya Sebaka le Sebopeliso (Jeometri) ho Kereiti ya R.

# Session 3: Measurement

1 hour

## Facilitator's notes

- ◆ Explain that the focus of Week 8 is on Measurement.
- ◆ Refer participants to pages 132–135 of the *Concept Guide*.
- ◆ Have participants work in groups to complete **Activity 8**. Ask one person from each group to share their ideas.

The focus of Term 1 Week 8 is Measurement: time and length.

## Term 1 Content overview: Measurement



### Activity 8

Refer to the Measurement Content Area on pages 132–135 of the *Concept Guide*.

In your group, review:

1. What concepts are covered in Term 1?

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2. What are the differences between this content and the content from CAPS?

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## What is measurement?

### Facilitator's notes

- ◆ Ask participants to think about what measurement is.
- ◆ PPT: Same picture as in Activity 9.
- ◆ Participants complete **Activity 9** and share what they have written.
- ◆ Brainstorm the following questions with the group:  
Who is taller?  
Who is heavier?  
Who is older?
- ◆ Explain that measurement is about finding out 'how much' there is of a something, e.g. the length of something, how much something holds (the capacity), the mass of something or how long it takes to do something (time).
- ◆ Explain that to talk about measurement you need to say what you want to measure – the attribute. Give examples of attributes: length, height, mass, capacity.
- ◆ Use the information below Activity 9 to explain standard and non-standard measuring units.
- ◆ Explain that in Grade R, learners measure informally using non-standard measuring units to measure time, length, mass and capacity or volume.

# Karolo ya 3: Mometho

Hora e 1

## Dinoutso tsa motsamaisi

- ◆ Hlalosa hore tsepamiso ya Beke ya 8 e ho Mometho.
- ◆ Ere bankakarolo ba shebe maqephe ana 132–135 a *Tataiso ya Mareo*.
- ◆ Ere bankakarolo ba sebetse ka dihlotshwana ho phethela **Ketsahalo ya 8**. Kopa motho a le mong ho tswa sehlotshwaneng ka seng ho abelana ka mehopolo ya bona.

Tsepamiso ya Kotara ya 1 Beke ya 8 ke Mometho: nako le bolelele.

## Kotara ya 1 Tjhebokakaretso ya dikahare: Mometho



### Ketsahalo ya 8

Bua ka Karolo ya Dikahare ya Mometho ho maqephe 132–135 a *Tataiso ya Mareo*.  
Sehlotshwaneng sa hao, buisanang ka:

1. Ke mareo afe a kenyeleditsweng ho Kotara ya 1?

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2. Diphapang ke dife pakeng tsa dikahare tsena le dikahare tse ho SLTK?

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## Mometho ke eng?

### Dinoutso tsa motsamaisi

- ◆ Kopa bankakarolo ho nahana ka seo mometho o leng sona.
- ◆ PPT: Setshwantsho se tshwanang le se ho Ketsahalo ya 9.
- ◆ Bankakarolo ba phethela **Ketsahalo ya 9** mme ba bolela seo ba se ngotseng.
- ◆ Etsang ditlhahiso mabapi le dipotso tse latelang mmoho le sehlopha:  
Ke mang ya motelele ho feta?  
Ke mang ya boima ho feta?  
Ke mang ya moholo ho feta?
- ◆ Hlalosa hore mometho o mabapi le ho fumana hore ho na le 'bokae' ba ntho e itseng, mohl. bolelele ba ntho e itseng, ntho e itseng e tshela hakae/bokae (mothamo), boima ba ntho e itseng kapa bolelele ba nako e nkuwang ho etsa ho itseng (nako).
- ◆ Hlalosa hore ho bua ka mometho o lokela ho bolela seo o batlang ho se metha – lekgetha. Fana ka mehlala ya makgetha: bolelele, bophahamo, boima, mothamo.
- ◆ Sebedisa tlhahisoleseding e ka tlase mona ho Ketsahalo ya 9 ho hlalosa diyuniti tse hlophisitsweng le tse sa hlophiswang.
- ◆ Hlalosa hore Kereiting ya R, baithuti ba metha feela ba sebedisa diyuniti tse sa hlophiswang tsa ho metha bakeng sa ho metha nako, bolelele, boima le mothamo kapa volumo.



In Activity 9 we will discuss the question ‘What is measurement?’.



### Activity 9

Look at the picture below and answer the question.



Who is the biggest?

---

Measurement is about finding ‘how much’ there is of a thing, e.g.:

- ◆ the length of something
- ◆ how much something holds
- ◆ the mass of something
- ◆ how long it takes to do something.

In order to measure, we need to decide on which attribute (feature/characteristic) we want to measure, e.g. length, mass, time. We use the following words to describe the measurements: taller, heavier, older.

Ho Ketsahalo ya 9 re tla buisana ka potso ena 'Mometho ke eng?'.



### Ketsahalo ya 9

Sheba setshwantsho se ka tlase mona mme o arabe potso.



Ke mang e moholo ho fetisisa?

---

Mometho o mabapi le ho fumana hore ho na le 'bokae' ba ntho e itseng, mohl.:

- ◆ bolelele ba ntho e itseng
- ◆ ntho e itseng e tshela hakae/bokae
- ◆ boima ba ntho e itseng
- ◆ ho nka nako e kae ho etsa ntho e itseng.

Bakeng sa ho metha, re hloka ho etsa qeto ya hore ke makgetha afe (matshwao/dintha tse fapantshang) ao re batlang ho a metha, mohl. bolelele, boima, nako. Re sebedisa mantswe a latelang ho hlalosa mometho: telele ho feta, boima ho feta, moholo ho feta.

We need to use units to measure. These can be non-standard units or standard units.

- ◆ **Non-standard measuring units** include hands, feet, crayons, pieces of string, sticks and blocks.
- ◆ **Standard measuring units** include litres, millilitres, kilograms, grams, metres, hours, minutes, etc.

In Grade R learners measure **informally** and use **non-standard measuring units** to measure time, length, mass, capacity and volume.

## Direct comparison

### Facilitator's notes

- ◆ Demonstrate how to use direct comparison and a non-standard unit of measurement. Ask eight volunteers to stand in front. Ask:  
Who is the tallest in the group? How do you know?  
Who is the shortest in the group? How do you know?  
Is anyone the same height? How do you know?  
How can we find out?
- ◆ Have the participants stand back-to-back to compare their height. Afterwards, ask participants to complete **Activity 10**.
- ◆ Discuss that by directly comparing the attribute (height) of the two people, we could find out who was taller.
- ◆ Point out that this measurement activity has been taken from Week 8 in *Activity Guide: Term 1* (pages 136–149) and that participants should refer to this activity when planning.

Measurement in Grade R includes comparing the attribute of something 'directly' with something else. For example, measuring the length of a crayon against another crayon or comparing the height of two learners standing back-to-back.

Observe the facilitator measuring a group of participants and then complete Activity 10 in your group.



### Activity 10

Refer to pages 194–207 of the *Concept Guide* to read more about Measurement and pages 136–149 of *Activity Guide: Term 1* before you answer the questions below.

Re lokela ho sebedisa diyuniti bakeng sa ho metha. Eka nna ya eba diyuniti tse sa hlophiswang kapa diyuniti tse hlophisitsweng.

- ♦ **Diyuniti tsa ho metha tse sa hlophiswang** di kenyeletsa matsoho, maoto, dikerayone, dikotwana tsa kgwele, dithupa le diboloko.
- ♦ **Diyuniti tsa ho metha tse hlophisitsweng** di kenyeletsa dilitara, dimililitara, dikilogramo, digramo, dimitara, dihora, metsotso, jj.

Kereiting ya R baithuti ba metha **ka tsela e sa hlophiswang** mme ba sebedisa **diyuniti tsa ho metha tse sa hlophiswang** ho metha nako, bolelele, boima, mothamo le volumo.

## Papiso ka kotloloho

### Dinoutso tsa motsamaisi

- ♦ Bontsha kamoo ho sebediswang papiso ka kotloloho le yuniti e sa hlophiswang ya ho metha. Kopa baithaopi ba robedi ho ema ka pele. Botsa:  
Ke mang ya motelele ho fetisisa sehlopheng? Le tseba jwang?  
Ke mang ya mokgutshwane ho fetisisa sehlopheng? Le tseba jwang?  
Na ho na le ba lekanang ka botelele ? Le tseba jwang?  
Re ka fumana seo jwang?
- ♦ Ere bankakarolo ba eme ba furallane ho bapisa botelele ba bona. Kamora moo, kopa bankakarolo ho phethela **Ketsahalo ya 10**.
- ♦ Buisanang ka hore ka ho bapisa ka kotloloho lekgetha (bophahamo) ba batho ba babedi, re ka fumana hore ke ofe ya motelele ho feta.
- ♦ Ba bontshe hore ketsahalo ena ya ho metha e nkilwe ho Beke ya 8 ka hara *Tataiso ya Diketsahalo: Kotara ya 1* (maqephe a 136–149) le hore bankakarolo ba lokela ho sheba ho ketsahalo ena ha ba etsa moralo.

Mometho Kereiting ya R o kenyeletsa ho bapisa makgetha a ntho e itseng ka 'kotloloho' le ntho e nngwe. Ho etsa mohlala, ho metha bolelele ba kerayone papisong le kerayone e nngwe kapa ho bapisa bophahamo ba baithuti ba babedi ha ba furallane.

Shebellang motsamaisi ha a metha sehlopha sa bankakarolo mme le phethele Ketsahalo ya 10 sehlotshwaneng sa lona.



### Ketsahalo ya 10

Shebang ho maqephe a 194–207 a *Tataiso ya Mareo* ho bala ho feta mabapi le Mometho le maqephe a 136–149 a *Tataiso ya Diketsahalo: Kotara ya 1* pele le araba dipotso tse ka tlase mona.

1. What non-standard unit of measurement was used to measure the height of the participants?

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Learners' bodies.

2. What other non-standard units of measurement could be used to measure the height of the participants?

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E.g. string, pencil, block.

## Time

### Facilitator's notes

- ◆ Facilitate a discussion about teaching time to learners in Grade R – that it is an abstract concept and that learners need to learn about time from daily experiences that are familiar to them.
- ◆ Ask participants to complete **Activity 11** and share their ideas with the large group. These should include:
  - sequencing of repeated events or activities during the day
  - the weather chart with day, date and month and pictures on a weekly calendar
  - the calendar with days of the week.

Time is a difficult abstract concept for learners to understand. Learners need to understand how time passes in their own lives, so teachers need to relate time to the learner's daily experiences and events that are familiar to them.



### Activity 11

Refer back to Term 1 Week 8 in *Activity Guide: Term 1* and with a partner discuss how time is taught in these lessons. Share your ideas about the following.

1. How can Grade R teachers/practitioners help learners understand more about the concepts of:
  - ◆ day and night?
  - ◆ yesterday, today and tomorrow?
  - ◆ how long things take?
  - ◆ the sequence of time?

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1. Ke yuniti efe e sa hlophiswang ya mometho e ileng ya sebediswa ho metha bophahamo ba bankakarolo?

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Mmele ya baithuti.

2. Ke diyuniti dife tse ding tse sa hlophiswang tsa mometho tse ka sebediswang ho metha bophahamo ba bankakarolo?

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Mohl. kgwele, pentshele, boloko.

## Nako

### Dinoutso tsa motsamaisi

- ◆ Tsamaisa puisano e mabapi le nako ya ho ruta ho baithuti ba Kereiti ya R – hore ke kgopolo e sa tshwareheng le hore baithuti ba hloka ho ithuta ka nako dinthong tseo ba kopanang le tsona bophelong kamehla tseo ba di tlwaetseng.
- ◆ Kopa bankakarolo ho phethela **Ketsahalo ya 11** mme ba abelane ka mehopolo ya bona le sehlopha se seholo. Mme e lokela ho kenyeletsa:
  - ho hlahlamanya diketsahalo kapa diketso tse iphetang nakong ya motsheare
  - tjhate ya maemo a lehodimo e nang le letsatsi, mohla le kgwedi le ditshwantsho khalendareng ya beke le beke
  - khalendara e nang le matsatsi a beke.

Nako ke kgopolo e sa tshwareheng e thata bakeng sa hore baithuti ba e utlwisise. Baithuti ba hloka ho utlwisisa kamoo nako e tsamayang ka teng maphelong a bona, kahoo matitjhere a hloka ho hlalosa nako ho ya ka dintho tse etsahalang kamehla ho baithuti le diketsahalo tseo ba di tlwaetseng.



### Ketsahalo ya 11

Kgutlelang morao ho Kotara ya 1 Beke ya 8 ka hara *Tataiso ya Diketsahalo: Kotara ya 1* mme mmoho le molekane buisanang ka kamoo nako e rutwang dithutong tsena.

Abelanang ka maikutlo mabapi le tse latelang.

1. Matitjhere/barutabana ba Kereiti ya R ba ka thusa jwang baithuti ho utlwisisa haholwanyane ka mareo a:
  - ◆ motsheare le bosiu?
  - ◆ maobane, kajeno le hosane?
  - ◆ nako eo dintho di e nkang ho etsahala?
  - ◆ tatelano ya nako?

2. How can you use your daily programme activities to teach learners about the concept of time?

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Discussing the sequence of activities – e.g. what do we do first, next, what happened before Storytime – provides opportunities to reflect on what happened first/next/last.

3. What vocabulary is important to understand the concept of time?

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Before, after, next, now, then, day, night, morning afternoon, today, yesterday, tomorrow.

Refer to pages 194–207 of the *Concept Guide* to read more about Measurement and time. Refer to the page 210 of the *Concept Guide* to read more about asking questions related to teaching and learning of Measurement in Grade R.

2. O ka sebedisa jwang diketsahalo tsa lenaneo la letsatsi le letsatsi ho ruta baithuti mabapi le kgopolo ya nako?

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Ho buisana ka tatelano ya diketsahalo – mohl. re etsa eng pele, kamora moo, ho etsahetse eng pele ho Nako ya pale – ho fana ka menyetla ya ho hopola se etsahetseng pele/kamora moo/qetellong.

3. Ke tlotlontswe efe eo e leng ya bohlokwa ho utlwisisa kgopolo ya nako?

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Pele ho, kamora, e latelang, hona jwale, ebe, motsheare, bosiu, hoseng, mantsiboya, kajeno, maobane, hosane.

Shebang ho maqephe ana 194–207 a *Tataiso ya Mareo* ho bala haholwanyane mabapi le Mometho le nako. Shebang ho leqephe la 211 la *Tataiso ya Mareo* ho bala haholwanyane mabapi le ho botsa dipotso tse amanang le ho ruta le ho ithuta Mometho Kereiting ya R.



# Session 4: Numbers, Operations and Relationships

1 hour

## Facilitator's notes

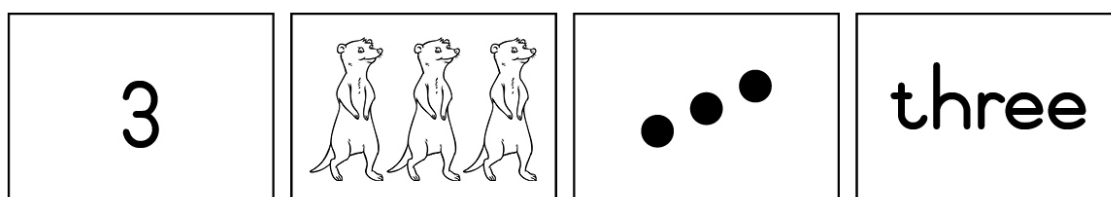
- ◆ Draw the participants' attention to how the number 3 is introduced on pages 102–105 of *Activity Guide: Term 1*.
- ◆ Explain that even though the Content Area Focus is Patterns, Functions and Algebra in Week 6, the number 3 is also introduced in this week.
- ◆ Discuss the routine that is followed for the numbers 1 and 2 and reflect on whether the same routine is followed for number 3. Discuss how each number of pictures and dots is one more than the previous one and make the connection to the fact that 2 is one more than 1 and 3 is one more than 2.
- ◆ Explain that in Week 6 learners are also introduced to dot cards.
- ◆ Use the dot cards in the *Resource Kit* to demonstrate how learners match counters to the dot cards and discover that 3 is made up of 1 and 2 dots.

In Workshop 2, you were introduced to the concepts of counting and representation of number. In this workshop we will see how the same ideas continue into Week 6 as the number 3 is introduced. The same routine is followed as with numbers 1 and 2, namely:

Refer to pages 102–105 of *Activity Guide: Term 1* for the introduction of number '3' activity.

Tell the *Number 3 story* and dramatise as you build up the story with the different representations of the number using frieze cards from the *Resource Kit*:

- ◆ animal (picture)
- ◆ number symbol
- ◆ number word
- ◆ dots (representing the doorbells).



Look for objects and match the number symbol (3) and number word (three). In Week 6, learners are introduced to dot cards (from the *Resource Kit*). Learners match counters to the dot cards and discuss that 3 is made up of 1 and 2 dots.

# Karolo ya 4: Dinomoro, Matshwao le Dikamano

Hora e 1

## Dinoutso tsa motsamaisi

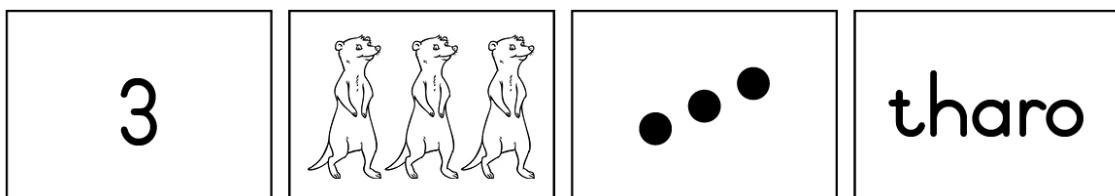
- ◆ Bontsha bankakarolo kamoo nomoro ya 3 e tsebisitsweng ka teng maqepheng a 102–105 a *Tataiso ya Diketsahalo: Kotara ya 1*.
- ◆ Hlalosa hore esitana le ha Tsepamiso ya Karolo ya Dikahare e le Dipaterone, Ditshebetso le Aljebra ho Beke ya 6, nomoro ya 3 le yona e tsebiswa bekeng ena.
- ◆ Buisanang ka diketso tsa letsatsi le letsatsi tse latelwang bakeng sa dinomoro tsa 1 le 2 mme le nahane ka hore ebe diketso tseo tsa letsatsi le letsatsi di a latelwa bakeng sa nomoro ya 3. Buisanang kamoo lenane ka leng la ditshwantsho le matheba le fetang le fetileng ka nngwe mme le bone kamano tabeng ya hore 2 e feta 1 ka nngwe le hore 3 e feta 2 ka nngwe.
- ◆ Hlalosa hore ho Beke ya 6 baithuti hape ba tsebiswa dikarete tsa matheba.
- ◆ Sebedisang dikarete tsa matheba tse ho *Khiti ya Disebediswa* ho bontsha kamoo baithuti ba nyalanyang dibadi le dikarete tsa matheba mme ba fumana hore 3 e etswa ka ho kopanya letheba le 1 le a 2.

Ho Wekshopo ya 2, o ile wa tsebiswa dikgopolo tsa ho bala le ho emela nomoro e itseng. Ho wekshopo ena re tla bona kamoo mehopolo yona eo e tswelang ho Beke ya 6 ha nomoro ya 3 e tsebiswa. Ketsahalo eo ya letsatsi le letsatsi e latelwa jwaloka ha ho entswe ho dinomoro tsa 1 le 2, e leng:

Shebang ho maqephe ana 102–105 a *Tataiso ya Diketsahalo: Kotara ya 1* bakeng sa tsebiso ya ketsahalo ya nomoro ya '3'.

Pheta *pale ya Nomoro ya 3* mme le e tshwantshise ha o ntse o ahella ho pale ka dipontsho tse fapaneng tse emelang nomoro o sebedisa dikarete tsa frizi ho tswa ho *Khiti ya Disebediswa*:

- ◆ phoofolo (setshwantsho)
- ◆ letshwao la nomoro
- ◆ lentswe la nomoro
- ◆ matheba (a emetseng ditshepe tsa monyako).



Batla dintho mme o nyalanye letshwao la nomoro (3) le lentswe la nomoro (tharo). Ho Beke ya 6, baithuti ba tsebiswa dikarete tsa matheba (tse tswang ho *Khiti ya Disebediswa*). Baithuti ba nyalanya dibadi le dikarete tsa matheba mme ba buisana ka hore 3 e etswa ke letheba le 1 le a 2.

## Term 1 Content overview: Numbers, Operations and Relationships

### Facilitator's notes

- ◆ Explain that the focus of Week 9 is on Numbers, Operations and Relationships.
- ◆ Refer participants to pages 114–123 of the *Concept Guide*.
- ◆ Have participants work in groups to complete **Activity 12**. Ask one person from each group to share their ideas.

Week 7 focuses on Space and Shape (Geometry) while Week 8 focuses on Measurement. The focus of Week 9 in Term 1 is once more on number concepts. In this session, you will investigate the relationship between numbers.



### Activity 12

Refer to the Numbers, Operations and Relationships content overview on pages 114–123 of the *Concept Guide*. In your group, discuss the following features of the content overview:

1. What is Topic 1.4?
2. What sub-topics are listed under this topic?
3. What are the differences between the blue and black text? Explain why you think this is so.

## Calculating

### Facilitator's notes

- ◆ Point out that learners in Grade R do not do number operations such as addition and subtraction, multiplication and division. Give an example of how these concepts are gradually built up through counting and manipulation of concrete materials and through problem solving in appropriate real-life contexts.
- ◆ Demonstrate an activity that involves breaking down and building up numbers ('Shake and break' on pages 166–169 of *Activity Guide: Term 1*).
- ◆ After the demonstration, participants complete **Activity 13**. Ask one person from each group to share their ideas.
- ◆ Discuss which of the questions asked were open-ended and which were closed questions.
- ◆ Remind participants that not all learners will demonstrate an understanding of these number concepts at the same time (**level principle**).

In Grade R learners do not do number operations like addition and subtraction, multiplication and division. These concepts are gradually built up through investigation and through problem solving. For example: *I have three apples. I eat one. How many apples do I have left?*

## Kotara ya 1 Tjhebokakaretso ya dikahare: Dinomoro, Matshwao le Dikamano

### Dinoutso tsa motsamaisi

- ◆ Hlalosa hore tsepamiso ya Beke ya 9 e ho Dinomoro, Matshwao le Dikamano.
- ◆ Ere bankakarolo ba shebe ho maqephe a 114–123 a *Tataiso ya Mareo*.
- ◆ Ere bankakarolo ba sebetse ka dihlotshwana ho phethela **Ketsahalo ya 12**. Kopa motho a le mong sehlotshwaneng ka seng ho abelana ka mehopolo ya bona.

Beke ya 7 e tsepamisitswe ho Sebaka le Sebopeho (Jeometri) ha Beke ya 8 e tsepamisitswe ho Mometho. Tsepamo ya Beke ya 9 Kotareng ya 1 e ho dikgopolo tsa dinomoro hape. Karolong ena, o tla fuputsa kamano pakeng tsa dinomoro.



### Ketsahalo ya 12

Shebang ho tjhebokakaretso ya dikahare ya Dinomoro, Matshwao le Dikamano e maqepheng a 114–123 a *Tataiso ya Mareo*. Sehlotshwaneng sa lona, buisanang ka makgetha a latelang a tjhebokakaretso ya dikahare:

1. Sehlooho sa 1.4 ke eng?
2. Ke dihloohwana dife tse ngotsweng ka tlasa sehlooho sena?
3. Diphapang ke dife pakeng tsa mongolo o bolou le o motsho? Hlalosa hore ke hobaneng ha o nahana hore ho jwalo.

## Ho sebetsa dipalo

### Dinoutso tsa motsamaisi

- ◆ Ba bontshe hore baithuti ba Kereiti ya R ha ba etse matshwao a dinomoro a kang ho kopanya le ho tlosa, ho atisa le ho arola. Fana ka mohlala wa kamoo mareo ana a ahellwang butlebutle ka ho bala le ho sebetsana le disebediswa tse tshwarehang le ka ho rarolla bothata maamong a tshwanelang a bophelo ba nnete.
- ◆ Bontsha ketsahalo e kenyeletsang ho heletsa le ho aha dinomoro ('Tsukutla mme o arole' maqepheng a 166–169 a *Tataiso ya Diketsahalo: Kotara ya 1*).
- ◆ Kamora ho ba bontsha, bankakarolo ba phethela **Ketsahalo ya 13**. Kopa motho a le mong ho tswa sehlotshwaneng ka seng ho abelana ka mehopolo ya bona.
- ◆ Buisanang ka hore ke dipotso dife ho tse botsitsweng tseo e neng e le dipotso tse dikarabo di ngata mme ke dife tseo e neng e le dipotso tse karabo e nngwe.
- ◆ Hopotsa bankakarolo hore ha se baithuti bohle ba tlang ho bontsha kutlwisiso ya dikgopolo tsena tsa dinomoro ka nako e le nngwe (**ntlhatheo ya mekgahlelo**).

Kereiting ya R baithuti ha ba etse matshwao a dinomoro a kang ho kopanya le ho tlosa, ho atisa le ho arola. Mareo ana a ahellwa butlebutle ha ho ntse ho fuputswa le ho rarolla bothata. Ho etsa mohlala: *Ke na le diapole tse tharo. Ke ja e le nngwe. Ke diapole tse kae tseo ke setseng ka tsona?*

Learners need to understand the relationship between numbers. Activities that involve breaking down and building up numbers help learners to understand the relationships between numbers and the value of numbers. For example: *5 is made up of 2 and 3, 1 and 4.*

### Demonstration

Watch the demonstration of a 'shake-and-break' game and then discuss your observations in your group.



### Activity 13

Discuss the demonstration you have just watched.

1. What number concepts could the learners learn by playing this game?

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Combining (adding) and separating (subtraction).

2. What questions did the facilitator use that highlighted addition and subtraction?

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How many counters do I have in this hand? And in this hand? When I put them together how many do I have?

How did you break up your counters?

How many do you have on each lid? When you put them together how many do you have?

If you take the ones on this lid away how many will you have left?

Not all learners will demonstrate an understanding of these number concepts at the same time (**level principle**).

Baithuti ba hloka ho utlwisisa kamano pakeng tsa dinomoro. Diketsahalo tse kenyeletsang ho heletsa le ho aha dinomoro di thusa baithuti ho utlwisisa dikamano pakeng tsa dinomoro le boleng ba dinomoro. Ho etsa mohlala: 5 e etswa ke 2 le 3, 1 le 4.

### **Pontsho**

Shebellang pontsho ya papadi ya 'tsukutla mme o arole' mme le buisane ka ditemoho tsa lona sehlotshwaneng sa lona.



### **Ketsahalo ya 13**

Buisanang ka pontsho eo le qetang ho e shebella.

1. Ke dikgopolo dife tsa dinomoro tseo baithuti ba ka nnang ba ithuta tsona ka ho bapala papadi ena?

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Ho kgobokanya (kopanya) le ho arohanya (ho tlosa).

2. Ke dipotso dife tseo motsamaisi a di sebedisitseng ho hlakisa ho kopanya le ho tlosa?

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Ke na le dibadi tse kae ka letsohong lena? Ka letsohong lena teng? Ha ke di kopanya mmoho ke ba le tse kae jwale?

O arotse dibadi tsa hao jwang?

O na le tse kae sekwahelong ka seng? Ha o di kopanya mmoho o se o eba le tse kae?

Ha o ka tlosa tse sekwahelong sena o tla sala ka tse kae?

Ha se baithuti bohle ba tla bontsha kutlwisiso ya dikgopolo tsena tsa dinomoro ka nako e le nngwe (**ntlhatheo ya mekgahlelo**).

# Session 5: Planning for teaching

1 hour

## Facilitator's notes

- ◆ Refer participants to Appendix A: Term 1 Weekly Content Summary (Weeks 6–9).
- ◆ Read the whole class, teacher-guided and workstation activities sections.
- ◆ Have participants work in groups to complete **Activity 14**.

## Term 1 Content Summary (Weeks 6–9)

Appendix A: Term 1 Weekly Content Summary (Weeks 6–9) outlines the main Content Area Focus for each week, the topics to be covered, the new knowledge and practise focus for each week, and suggested activities for whole class, teacher-guided and independent group work for the week.



### Activity 14

Look at Appendix A: Term 1 Weekly Content Summary (Weeks 6–9). Answer the questions.

Questions	Week 6	Week 7	Week 8	Week 9
What is the Content Area Focus for the week?	Patterns, Functions and Algebra	Space and Shape (Geometry)	Measurement	Numbers, Operations and Relationships
What are the key concepts that learners will be learning?	Patterns Number 3 Sequencing numbers	2-D shapes Figure ground Position Oral counting	Length/height Time	Estimation More and less Position Problem solving
What new knowledge is introduced?	Identifying patterns Copying patterns Number 3 Sequencing numbers 1–3	2-D triangles Figure ground Position: in front of, behind	Sequencing time: day and night; light and dark Length: height chart Position: on, under, on top Counting backwards 5–1	Estimation Numbers in familiar contexts One more, one less Position: up/down
What skills are being practised?	Oral counting 1–5 Counting objects 1–5 Reinforce number concepts 1 and 2	Circle, square Counting objects 1–5 Reinforce number concept 1–3 Sequence numbers 1–3 Symmetry Big, small	Oral counting 1–10 Sequencing numbers 1–3 Counting objects 1–5 Reinforce 1–3	Oral counting 1–10 Counting backwards from 5 Sequence numbers 1–3 Count objects 1–5 Number concept 1–3 Problem solving Circle, square, triangle

# Karolo ya 5: Ho etsa moralo bakeng sa ho ruta

Hora e 1

## Dinoutso tsa motsamaisi

- ♦ Romela bankakarolo ho Sehlomathiso A: Kotara ya 1 Kakaretso ya Dikahare tsa Beke le Beke (Dibeke tsa 6–9).
- ♦ Bala dikarolo tsa diketsahalo tsa tlelase yohle, tse tataiswang ke titjhere le tsa diteisheneng tsa tshebetso.
- ♦ Ere bankakarolo ba sebetse ka dihlotshwana ho phethela **Ketsahalo ya 14**.

## Kotara ya 1 Kakaretso ya Dikahare ya (Dibeke tsa 6–9)

Sehlomathiso A: Kotara ya 1 Kakaretso ya Dikahare tsa Beke le Beke (Dibeke tsa 6–9) se hlahisa Tsepamiso ya Karolo ya Dikahare ya sehlooho bakeng sa beke ka nngwe, dihlooho tse lokelang ho rutwa, tsebo e ntjha le tsepamiso ya boikwetliso bakeng sa beke ka nngwe, le diketsahalo tse sisintsweng bakeng sa mosebetsi wa tlelase yohle, o tataiswang ke titjhere le wa dihlopha ka boikemelo bakeng sa beke ka nngwe.



## Ketsahalo ya 14

Sheba ho Sehlomathiso A: Kotara ya 1 Kakaretso ya Dikahare tsa Beke le Beke (Dibeke tsa 6–9). Araba dipotso.

Dipotso	Beke ya 6	Beke ya 7	Beke ya 8	Beke ya 9
Tsepamiso ya Karolo ya Dikahare ke efe bakeng sa beke ena?	Dipaterone, Ditshebetso le Aljebra	Sebaka le Sebopeho (Jeometri)	Mometho	Dinomoro, Matshwao le Dikamano
Mareo a sehlooho ke afe ao baithuti ba tla beng ba ithuta ona?	Dipaterone Nomoro ya 3 Ho hlalhamanya dinomoro	Dibopeho tsa 2-D Tikolohong Boemo Ho bala ka molomo	Bolelele/bophahamo Nako	Tekanyetso Ho feta le ka tlase Boemo Ho rarolla bothata
Ke tsebo efe e ntjha e tla tsebiswa?	Hlwaya dipaterone Kopolla dipaterone Nomoro ya 3 Ho hlalhamanya dinomoro 1–3	Dikgutlotharo tsa 2-D Tikolohong Boemo: ka pela, ka mora	Ho hlalhamanya nako: motsheare le bosiu; kganya le lefifi Bolelele: tjhate ya bophahamo Boemo: hodima, tlasa, ka hodima Ho bala o kgutlela morao 5–1	Tekanyetso Dinomoro ditikolohong tse tlwaelehileng E le nngwe ho feta, e le nngwe ka tlase Boemo: hodimo/tlase
Ke bokgoni bofe bo ikwetliswang?	Ho bala ka molomo 1–5 Ho bala dintho 1–5 Hatella dikgopolo tsa dinomoro 1 le 2	Sedikadikwe, kgutlonnetsepa Ho bala dintho 1–5 Hatella dikgopolo tsa dinomoro 1–3 Ho hlalhamanya dinomoro 1–3 Molahare Kgolo, nyane	Ho bala ka molomo 1–10 Ho bea dinomoro ka tatelano 1–3 Ho bala dintho 1–5 Hatella 1–3	Ho bala ho ya pele 1–10 Ho bala o kgutlela morao ho tloha ho 5 Ho bea dintho ka tatelano ya dinomoro 1–3 Ho bala dintho 1–5 Kgopolo ya dinomoro 1–3 Ho rarolla bothata Sedikadikwe, kgutlonnetsepa, kgutlotharo



## Activity Guide: Term 1: Weeks 6, 7, 8 and 9

Refer to Weeks 6, 7, 8 and 9 in *Activity Guide: Term 1*. Complete Activity 15 in your group.



### Activity 15

Find Weeks 6, 7, 8 and 9 in *Activity Guide: Term 1*. Answer the questions.

1. What is the Content Area Focus for each week?
2. What topics and new knowledge are taught in each week?
3. How does the 'Practise' content link to the previous week?
4. What do you need to get ready before teaching each week?
5. Read the whole class activities and small group activities.
6. Discuss in your small group how you will plan and organise your class for these four weeks of teaching.



Remember that in Grade R assessment is informal and continuous. We need to observe learners throughout the day, inside and outside the classroom. The eye icon reminds us that we need to observe the learners while they are busy, and we need to listen carefully while they are talking to us and to their peers.

The Maths Programme is designed around the rotation of small groups during a week and the teacher pays special attention to one group a day, watching and listening as the learners complete specific tasks. This time gives the teacher the opportunity to carefully observe each learner and gather information on their progress.

Look at the shaded block at the end of the teacher-guided activity: '**Check that learners are able to**'. The teacher makes a mental note of each learner and once the learners have left for the day she writes down her observations in a dedicated observation book that has space for each learner's notes.

## Closing activities

### Facilitator's notes

- ◆ **Lessons learnt:** Ask participants to think about what they have learnt during the workshop and to complete **Activity 16** individually.
- ◆ **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.

## Tataiso ya Diketsahalo: Kotara ya 1: Dibeke tsa 6, 7, 8 le 9

Sheba ho Dibeke tsa 6, 7, 8 le 9 ho *Tataiso ya Diketsahalo: Kotara ya 1*. Phethelang Ketsahalo ya 15 sehlotshwaneng sa lona.



### Ketsahalo ya 15

Fumanang Dibeke tsa 6, 7, 8 le 9 ho *Tataiso ya Diketsahalo: Kotara ya 1*. Arabang dipotso tsena.

1. Tsepamo ya Karolo ya Dikahare ke efe bakeng sa beke ka nngwe?
2. Ke dihlooho dife le tsebo e ntjha efe tse rutwang bekeng ka nngwe?
3. Dikahare tsa 'Kwetliso' di hokela eng ho beke e fetileng?
4. O hloka eng bakeng sa ho itokisa pele o ruta bekeng ka nngwe?
5. Balang diketsahalo tsa tlelase yohle le diketsahalo tsa dihlotshwana.
6. Buisanang sehlotshwaneng sa lona kamoo le tlang ho rala le ho hlophisa tlelase ya hao bakeng sa dibeke tse nne tsena tsa ho ruta..



Hopola hore tekanyetso ya Kereiti ya R ke e sa hlophiswang mme ke e tswellang. Re lokela ho shebella baithuti letsatsi lohle ka hare le kantle ho phaposi ya borutelo. Aekhone ya leihlo e re hopotsa hore re hloka ho shebella baithuti ha ba ntse ba sebetsa, mme re lokela ho mamela ka hloko ha ba bua le rona le bomphato ba bona.

Lenaneo la Mmetse le radilwe ho ya ka potoloho ya dihlotshwana hara beke mme titjhere o shebana ka ho qolleha le sehlotshwana se le seng ka letsatsi, a shebile le ho mamela baithuti ha ba phetha mesebetsi e itseng. Nako ena e fa titjhere monyetla wa ho shebella ka hloko moithuti ka mong le ho bokella tlhahisoleseding e mabapi le kgatelopele ya hae.

Sheba boloko bo fifaditsweng qetellong ya ketsahalo e tataiswang ke titjhere: '**Lekola hore baithuti ba kgona ho**'. Titjhere o boloka ka kelellong moithuti ka mong mme hang ha baithuti ba tsamaile letsatsing leo o ngola fatshe tseo a di lemohileng bukeng e ikgethileng ya ditemoho e nang le sebaka bakeng sa dinoutso tsa moithuti ka mong.

## Diketsahalo tsa ho kwala

### Dinoutso tsa motsamaisi

- ♦ **Dithuto e ithutilweng:** Ere bankakarolo ba nahane ka seo ba ithutileng sona nakong ya wekshopo mme ba phethele **Ketsahalo ya 16** ka bomong.
- ♦ **Mosebetsi wa kgutlela le yona sekolong:** Bala mosebetsi ona. Botsa hore ebe ho na le ho sa hlakang le ho hlokang tlhaloso e fetang.
- ♦ **Tlhahlobo:** Fana ka dikhopi tsa Foromo ya Tlhahlobo ya Wekshopo mme o re bankakarolo ba tlatse foromo eo.
- ♦ **Wekshopo e latelang:** Fana ka matsatsi bakeng sa wekshopo e latelang mme o kwale wekshopo.



## Activity 16

**Lessons learnt:** Think about what you learnt during the workshop and complete the table.

Things I am already doing that work well	New ideas that I would like to try



### Take back to school task

1. Read the *Concept Guide* pages that were referred to during this workshop.
2. Use *Activity Guide: Term 1* to plan and implement Weeks 6–9 of the Maths Programme, including creating a maths area with a focus on the concept for each week.
3. Write an evaluation of what worked well and what did not work so well. Bring your plan and evaluation to the next workshop.
4. Bring examples or photographs of work that learners did.

### Evaluation

Complete the Evaluation Form.



## Ketsahalo ya 16

**Dithuto tse ithutilweng:** Nahana ka seo o ithutileng sona nakong ya wekshopo mme o tlatse tafole ena.

Dintho tseo ke seng ke di etsa tse sebetsang hantle	Mehopolo e metjha eo nka lakatsang ho e leka



### Mosebetsi wa kgutlela le yona sekolong

1. Bala maqephe a *Tataiso ya Mareo* ao ho ileng ha buuwa ka ona nakong ya wekshopo.
2. Sebedisa *Tataiso ya Diketsahalo: Kotara ya 1* ho rera le ho kenya tshebetsong Dibeke tsa 6–9 tsa Lenaneo la Mmetse, ho kenyeletsa ho etsa sebaka sa mmetse se tsepamisitsweng ho lereo le itseng bakeng sa beke ka nngwe.
3. Ngola tlhahlobo ya se ileng sa sebetsa hantle le se sa sebetsang hantle. Tlisa moralo wa hao le tlhahlobo ya hao wekshopong e latelang.
4. Tloo le mehlala kapa difoto tsa mosebetsi oo baithuti ba o entseng.

### Tlhahlobo

Tlatsa Foromo ya Tlhahlobo.

## APPENDIX A: TERM 1 WEEKLY CONTENT SUMMARY (WEEKS 6-9)

### Term 1: Activity Plan

Week 6				
CONTENT AREA: PATTERNS, FUNCTIONS and ALGEBRA				
TOPIC: Geometric patterns				
INTRODUCE NEW KNOWLEDGE: Identify patterns, copy patterns, complete patterns, introduce number 3, sequencing numbers 1–3. Making groups the same.				
PRACTISE: Oral counting 1–5, counting objects 1–5, number concept 1 and 2, circle, square, big and small, forwards and backwards				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Introduce number 3 number frieze story.	Play a movement game using symbols 1 and 2. Match and order dot picture/number cards 1–3.  Simple pattern using counters. Discuss the pattern, use counters to copy the pattern. Problem solving 1–3. Making groups the same.	Activity 1	Frame a picture using pattern and draw three objects.
Day 2	Uses different sized and coloured circles to make simple patterns. Discuss patterns (repetition, differences, similarities).		Activity 2	Fingerprint counting.
			Activity 3	Pattern cards using counters and sticks.
Day 3	Body percussion patterns and problem solving.		Activity 4	Template with playdough – make 3.
Day 4	Using big and small circles and objects to make simple patterns. Identify patterns in classroom.			
Day 5	Problem solving 1–3. Making groups the same.			
Week 7				
CONTENT AREA: SPACE and SHAPE (GEOMETRY)				
TOPIC: Recognise, identify and name 2-D shapes: triangle; describe and compare 3-D objects and 2-D shapes: triangles; sort 2-D shapes; figure ground; symmetry				
INTRODUCE NEW KNOWLEDGE: Triangle; figure ground; position (in front and behind); oral counting 1–10				
PRACTISE: Oral counting 1–10, sequencing number 1–3, counting objects 1–5, reinforce number concept 1–3, what number before/after, circle, square, symmetry, big and small				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Introduce triangle and its properties.	Oral counting. Touch and count using number towers 1–3 (Unifix blocks).  One-to-one correspondence. Properties of a triangle (2-D). Sort and compare 3-D objects and 2-D shapes into two groups, one of triangles and one not triangles.	Activity 1	Triangle activity – cut and decorate four triangles.
Day 2	Identify triangle shapes in <i>Poster Book</i> , problem solving.		Activity 2	Butterfly prints – symmetry.
Day 3	In front of and behind; midline crossing.		Activity 3	Shape person – use pre-cut shapes.
Day 4	Compare biggest and smallest. Bigger and smaller.		Activity 4	Shape puzzles – (minimum six pieces).
Day 5	Symmetry.			

## SEHLOMATHISO A: KOTARA YA 1 KAKARETISO YA DIKAHARE TSA BEKE LE BEKE (DIBEKE TSA 6-9)

### Kotara ya 1: Moralo wa Ketsahalo

Beke ya 6				
KAROLO YA DIKAHARE: DIPATERONE, DITSHEBETSO le ALJEBRA				
SEHLOOHO: Dipaterone tsa jeometri				
TSEBISA TSEBO E NTJHA: Hlwaya dipaterone, kopolla dipaterone, qetella dipaterone, tsebisa nomoro ya 3, ho bea dinomoro ka tatelano 1–3. Ho etsa dihlopha hore di tshwane.				
HO ETSA: Ho bala ka molomo 1–5, ho bala dintho 1–5, kgopolo ya nomoro 1 le 2, sedikadikwe, kgutlonnetsepa, nyane le kgolo, ho ya pele le ho kgutlela morao				
Diketsahalo tsa tlelase yohle		Ketsahalo e tataiswang ke titjhere	Diketsahalo tsa diteisheneng tsa tshebetso	
Letsatsi la 1	Tsebisa pale ya frizi ya nomoro ya 3.	Bapalang papadi ya metsamao le sebedisa matshwao a 1 le 2. Nyalanya le ho bea ka tatelano dikarete tsa matheba a ditshwantsho/dinomoro 1–3. Paterone e bobebe o sebedisa dibadi. Buisanang ka dipaterone, sebedisa dibadi ho kopolla paterone. Ho rarolla bothata 1–3. Ho etsa dihlopha di lekane/tshwane.	Ketsahalo ya 1	Foreima setshwantsho o sebedisa paterone mme o take dintho tse tharo. Ho bala dikgatiso tsa menwana. Dikarete tsa dipaterone o sebedisa dibadi le dithupa. Thempleiti ka hlama ya ho bapala – etsa 3.
Letsatsi la 2	Sebedisa didikadikwe tsa boholo le mebala e fapaneng ho etsa dipaterone tse bobebe. Buisanang ka dipaterone (phetapheto, diphapang, ditshwano).			
Letsatsi la 3	Dipaterone tsa medumo ya mmele le ho rarolla bothata.			
Letsatsi la 4	Ho sebedisa didikadikwe tse kgolo le tse nyane ho etsa dipaterone tse bobebe. Hlwaya dipaterone ka phaposing ya borutelo.			
Letsatsi la 5	Ho rarolla bothata 1–3. Ho etsa dihlopha hore di lekane/tshwane.			
Beke ya 7				
KAROLO YA DIKAHARE: SEBAKA le SEBOPEHO (JEOMETRI)				
SEHLOOHO: Lemoha, hlwaya le ho bolela dibopeho tsa 2-D: kgutlotharo; hlalosa le ho bapisa dintho tsa 3-D le dibopeho tsa 2-D: dikgutlotharo; hlophisa dibopeho tsa 2-D; ya tikoloho; molahare				
TSEBISA TSEBO E NTJHA: Kgutlotharo; ya tikoloho; boemo (ka pele le ka morao); ho bala ka molomo 1–10				
HO ETSA: Ho bala ka molomo 1–10, ho bea dinomoro ka tatelano 1–3, ho bala dintho 1–5, hatella kgopolo ya nomoro 1–3, ke nomoro efe e tlang pele/kamora, sedikadikwe, kgutlonnetsepa, molahare, kgolo le nyane				
Diketsahalo tsa tlelase yohle		Ketsahalo e tataiswang ke titjhere	Diketsahalo tsa diteisheneng tsa tshebetso	
Letsatsi la 1	Tsebisa kgutlotharo le makgetha a yona.	Ho bala ka molomo. Tshwara le ho bala o sebedisa ditoro tsa dinomoro 1–3 (diboloko tsa <i>Unifix</i> ). Neeletsano pakeng tsa ntho tse pedi. Makgetha a kgutlotharo (2-D). Hlophisa le ho bapisa dintho tsa 3-D le dibopeho tsa 2-D ka dihlopha tse pedi, se seng e be sa dikgutlotharo mme se seng e se be sa dikgutlotharo.	Ketsahalo ya 1	Ketsahalo ya kgutlotharo – seha le ho kgabisa dikgutlotharo tse nne. Dikgatiso tsa dirurubele – molahare. Sebopeho sa motho – sebedisa dibopeho tse seng di sehilwe. Diphazele tsa dibopeho – (dikotwana tse seng ka tlase ho tshelela).
Letsatsi la 2	Hlwaya dibopeho tsa kgutlotharo ka hara <i>Buka ya Diphoustara</i> , ho rarolla bothata.			
Letsatsi la 3	Ka pela le ka mora; ho tshela mola o hare.			
Letsatsi la 4	Bapisa tse kgolo ho fetisisa le tse nyane ho fetisisa. Kgolo ho feta le nyane ho feta.			
Letsatsi la 5	Molahare.			

Week 8				
CONTENT AREA: MEASUREMENT				
TOPIC: Time: day and night; Length: compare and order objects to describe height				
INTRODUCE NEW KNOWLEDGE: Sequencing day and night, light and dark; height chart; position (on, under, on top, below, next to, between); counting backwards 5–1				
PRACTISE: Oral counting 1–10, counting backwards from 5, sequencing numbers 1–3, counting objects 1–5, reinforce number concept 1–3, patterns				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Day and night; light and dark.	Routine introduction. Day and night; dark and light activities: - blanket - activity cards.  Day and night story and sequencing. Position (on, under, below, on top, next to, between). Pattern (animals). Height chart.	Activity 1	Day and night activity – cutting out pictures.
Day 2	Introduce height chart; position vocabulary.		Activity 2	Draw from shortest to tallest.
Day 3	Height chart. Sorting day and night everyday objects.		Activity 3	Paste shapes from biggest to smallest.
Day 4	Poster – Day and night. Positional vocabulary: on, under, below and on top.		Activity 4	Day/night matching cards.
Day 5	Compare heights. Movement-positions.			
Week 9				
CONTENT AREA: NUMBERS, OPERATIONS and RELATIONSHIPS				
TOPIC: Describe, order and compare numbers; estimation; problem-solving techniques; using numbers in familiar contexts; position				
INTRODUCE NEW KNOWLEDGE: Estimation, numbers in familiar contexts, one more, one less, position (up/down)				
PRACTISE: Oral counting 1–10, counting backwards from 5, sequencing numbers 1–3, counting objects 1–5, number concept 1–3, problem-solving techniques. Circle, square and triangle.				
Whole class activities		Teacher-guided activity	Workstation activities	
Day 1	Describe and order numbers 1–3.	Oral counting. One-to-one correspondence. Describe and order numbers 1–3. Estimation. Shake and break.	Activity 1	Playdough making 1–3 objects.
Day 2	Matching number representations 1–3. Estimation.		Activity 2	Draw pictures 1–3 in shapes.
Day 3	Counting – one more/one less. Position: up and down.		Activity 3	Pasting. Picture with three stars, two trees, one moon.
Day 4	Problem solving (more/less). Poster 1.		Activity 4	Puzzles (minimum six piece).
Day 5	Using number in familiar context: How old are you?			

Beke ya 8				
KAROLO YA DIKAHARE: MOMETHO				
SEHLOOHO: Nako: motsheare le bosiu; Bolelele: bapisa le ho hlalhamanya dintho ho hlalosa bophahamo				
TSEBISA TSEBO E NTJHA: Ho bea ka tatelano motsheare le bosiu, kganya le lefifi; tjhate ya bophahamo; boemo (hodima, ka tlasa, ka hodimo, ka tlase, pela, dipakeng); ho bala o kgutlela morao 5–1				
HO ETSA: Ho bala ka molomo 1–10, ho bala o kgutlela morao ho tloha ho 5, ho bea dinomoro ka tatelano 1–3, ho bala dintho 1–5, hatella kgopolo ya dinomoro 1–3, dipaterone				
Diketsahalo tsa tlelase yohle		Ketsahalo e tataiswang ke titjhere	Diketsahalo tsa diteisheneng tsa tshebetsa	
Letsatsi la 1	Motsheare le bosiu; kganya le lefifi.	Tsebiso ya diketsahalo tsa letsatsi le letsatsi Motsheare le bosiu; diketsahalo tsa lefifing le kganyeng: - kobo - dikarete tsa diketsahalo. Pale ya motsheare le bosiu le tatelano. Boemo (hodima, ka tlasa, ka tlase, ka hodimo, pela, dipakeng). Paterone (diphoofolo). Tjhate ya bophahamo.	Ketsahalo ya 1	Ketsahalo ya motsheare le bosiu – ho seha ditshwantsho. Taka ho tloha ho kgutshwane ho fetisisa ho isa ho telele ho fetisisa. Manamisa dibopeho ho tloha ho se seholo ho fetisisa ho isa ho se senyane ho fetisisa. Dikarete tse nyalanang tsa motsheare/bosiu.
Letsatsi la 2	Tsebisa tjhate ya bophahamo; tlotlontswe ya boemo.		Ketsahalo ya 2	
Letsatsi la 3	Tjhate ya bophahamo. Ho hlophisa dintho tsa kamehla tsa motsheare le tsa bosiu.		Ketsahalo ya 3	
Letsatsi la 4	Phoustara – Motsheare le bosiu. Tlotlontswe ya boemo: hodima, ka tlasa, ka tlase le ka hodimo.		Ketsahalo ya 4	
Letsatsi la 5	Bapisa bophahamo. Maemo a metsamao.			
Beke ya 9				
KAROLO YA DIKAHARE: DINOMORO, MATSHWAO le DIKAMANO				
SEHLOOHO: Hlalosa, hlophisa le ho bapisa dinomoro; kakanyo; mawa a ho rarolla bothata; ho sebedisa dinomoro ditikolohong tse tlwaelehileng; boemo				
TSEBISA TSEBO E NTJHA: Kakanyo, dinomoro ditikolohong tse tlwaelehileng, e le nngwe ho feta, e le nngwe ka tlase, boemo (hodimo/tlase)				
HO ETSA: Ho bala ka molomo 1–10, ho bala o kgutlela morao ho tloha ho 5, ho bea dinomoro ka tatelano 1–3, ho bala dintho 1–5, kgopolo ya nomoro 1–3, mawa a ho rarolla bothata. Sedikadikwe, kgutlonnetsepa le kgutlotharo.				
Diketsahalo tsa tlelase yohle		Ketsahalo e tataiswang ke titjhere	Diketsahalo tsa diteisheneng tsa tshebetso	
Letsatsi la 1	Hlalosa le ho bea dinomoro ka tatelano 1–3.	Ho bala ka molomo. Neeletsano pakeng tsa ntho tse pedi. Hlalosa le ho hlalhamanya dinomoro 1–3. Kakanyo. Tsukutla mme o arole.	Ketsahalo ya 1	Hlama ya ho bapala ho etsa dintho 1–3. Taka ditshwantsho 1–3 ka dibopeho. Ho manamisa. Setshwantsho se nang le dinaledi tse tharo, difate tse pedi, kgwedi e le nngwe. Diphazele (tse seng ka tlase ho dikotwana tse tshelletseng).
Letsatsi la 2	Ho nyalanya dikemelo tsa dinomoro 1–3. Kakanyo.		Ketsahalo ya 2	
Letsatsi la 3	Ho bala – e le nngwe ho feta/e le nngwe ka tlase. Boemo: hodimo le tlase.		Ketsahalo ya 3	
Letsatsi la 4	Ho rarolla bothata (ho feta/ka tlase). Phoustara ya 1.		Ketsahalo ya 4	
Letsatsi la 5	Ho sebedisa nomoro tikolohong e tlwaelehileng: Dilemo tsa hao di kae?			



# Workshop 3 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 Tlhahlobo ya Wekshopo ya 3

1. Na wekshopo ena e fihletse ditebello tsa hao?

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2. O ithutile eng ho wekshopo ena se o thusitseng ka ho fetisisa?

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3. Na ho na le seo o sa kang wa se rata kapa seo o ileng wa thatafallwa ke ho se utlwisisa?

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4. O tla sebedisa jwang seo o ithutileng sona mona phaposeng ya hao ya borutelo ya Kereiti ya R?

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5. Na o na le ditlhahiso tse itseng bakeng sa ho ntlafatsa diwekshopo tse ding tse tlang?

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