GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GGT 2030
GROWING GAUTENG TOGETHER

Sesotho/English

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

Wekshopo ya 3 ● Workshop 3

Buka ya Mosebetsi ya Monkakarolo ● Participant's Workbook

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

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

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

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Projeke ya Mmetse wa Kereiti ya R le Ntlafatso 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**.

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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 Ntlafatso 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 ntlafatsong ya disebediswa tsa rona tsa thuto.
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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)

Opening and reflection **1 hour**

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**

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.

_____
_____
_____
_____

Pulo le boikgopotso

Hora e 1

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**

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.

_____

_____

_____

_____

Session 1: Patterns, Functions and Algebra

1 hour

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?

_____
_____
_____

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

_____
_____
_____

Understanding patterns

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.

Karolo ya 1: Dipaterone, Ditshebetso le Aljebra

Hora e l

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?

_____
_____
_____

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

_____
_____
_____

Ho utlwisisa dipaterone

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.

Activity 3

In your group, discuss:

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

_____

_____

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

- ♦ What patterns do you see?

_____

_____

- ♦ What is the pattern?

_____

_____

- ♦ 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

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.

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?

_____

_____

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

- O bona dipaterone dife?

_____

_____

- Paterone ke efe?

_____

_____

- Na o ka pheta paterone eo? Hlalosa.

_____

_____

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 hlwaya dipaterone

Pateroneng e tlwaelehileng, 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 tlhahlamanong ena e tla ba sefe.

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.

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?

_____

_____

2. What is the repeating part of the sequence?

_____

_____

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.

Ketsahalong e latelang, motsamaisi 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?

_____

_____

2. Ke karolo efe e iphetang ya tatelano?

_____

_____

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

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.

_____

_____

_____

_____

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

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.

_____

_____

_____

_____

Sheba maqephe ana 160–173 a *Tataiso ya Mareo* ho bala haholwanyane mabapi le ho ruta Dipaterone, Ditshebetso le Aljebra 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**

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.

_____
_____
_____
_____

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

_____
_____
_____
_____

Identifying 2-dimensional shapes (triangles)

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.

Karolo ya 2: Sebaka le Sebopeho (Jeometri)

Hora e 1

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 tshebetsong ka phaposing 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.

_____

_____

_____

_____

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

_____

_____

_____

_____

Ho hlwaya dibopeho tsa mahlakore a 2 (dikgutlotharo)

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 hlahisa hore baithuti ba kgothaletswe ho hlalosa makgetha a dibopeho tsena, mohl. mela e otlolohileng kapa e kgopameng, lenane la mela le dihuku.

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

Video 3

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.

_____

_____

_____

_____

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?

_____

- How do you know it is a triangle?

_____

- How many sides does it have?

_____

- How many corners does it have?

_____

- How many lines?

_____

- Can you see any other triangles?

_____

- What other shapes can you see?

_____

- What is the same about these two shapes?

_____

- What is different about these two shapes?

_____

Video ya 3

Shebellang video ya titjhere ya tsebisang bana kgutlotharo.

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

_____

_____

_____

_____

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?

_____

- O tseba jwang hore ke kgutlotharo?

_____

- E na le mahlakore a makae?

_____

- E na le dihuku tse kae?

_____

- Mela ke e mekae?

_____

- Na o bona dikgutlotharo tse ding hape?

_____

- Ke dibopeho dife tse ding tseo o di bonang?

_____

- Ke eng e tshwanang ka dibopeho tsena tse pedi?

_____

- Ke eng e fapaneng ka dibopeho tsena tse pedi?

_____

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

_____

_____

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.

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

_____

_____

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 sebopeho 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 hlahisa 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 otlolohileng, mela e kgopameng, dihuku, mahlakore. Hape re bua ka bolelele ba ntho e itseng, kamoo e leng sephara ka teng mme re bue 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 Sebopeho (Jeometri). Hape balang leqephe la 193 bakeng sa tlotlontswe e nngwe ya Sebaka le Sebopeho (Jeometri) ho Kereiti ya R.

Session 3: Measurement **1 hour**

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?

_____

_____

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

_____

_____

What is measurement?

Activity 9

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

Look at the picture below and answer the question.

Who is the biggest?

_____

Karolo ya 3: Mometho

Hora e 1

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?

_____

_____

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

_____

_____

Mometho ke eng?

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?

_____

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.

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

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.

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/dintho 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.

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

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?

_____

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

_____

Time

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?

_____
_____
_____
_____
_____
_____

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

_____
_____
_____
_____

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

_____

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

_____

Nako

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

_____
_____
_____
_____

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

_____
_____
_____

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.

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

_____
_____
_____

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.

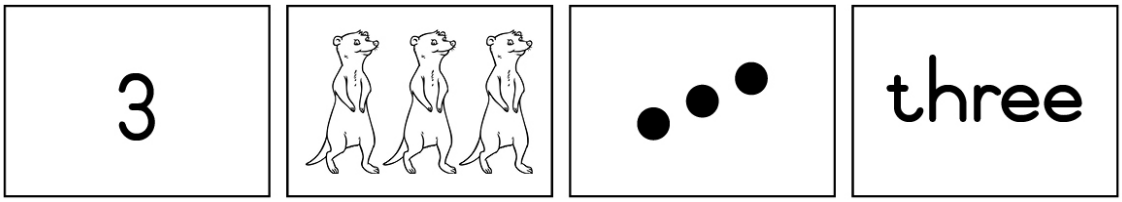
Session 4: Numbers, Operations and Relationships

1 hour

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:

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.

Term 1 Content overview: Numbers, Operations and Relationships

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.

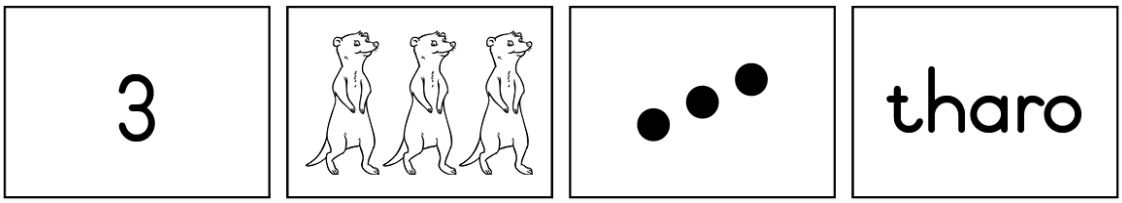
Karolo ya 4: Dinomoro, Matshwao le Dikamano

Hora e 1

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 tswellang 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:

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.

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

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.

Calculating

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?*

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?

_____

_____

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

_____

_____

_____

_____

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

Ho sebetsa dipalo

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?*

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?

_____
_____

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

_____
_____
_____
_____

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**

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?				
What are the key concepts that learners will be learning?				
What new knowledge is introduced?				
What skills are being practised?				

Karolo ya 5: Ho etsa moralo bakeng sa ho ruta

Hora e 1

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?				
Mareo a sehlooho ke afe ao baithuti ba tla beng ba ithuta ona?				
Ke tsebo efe e ntjha e tla tsebiswa?				
Ke bokgoni bofe bo ikwetliswang?				

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.

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.

Closing activities

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.

Diketsahalo tsa ho kwala

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

<table>
<tr><th colspan="5">Week 6</th></tr>
<tr><td colspan="5">CONTENT AREA: PATTERNS, FUNCTIONS and ALGEBRA</td></tr>
<tr><td colspan="5">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</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Introduce number 3 number frieze story.</td><td rowspan="5">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.</td><td>Activity 1</td><td>Frame a picture using pattern and draw three objects.</td></tr>
<tr><td>Day 2</td><td>Uses different sized and coloured circles to make simple patterns. Discuss patterns (repetition, differences, similarities).</td><td>Activity 2</td><td>Fingerprint counting.</td></tr>
<tr><td>Day 3</td><td>Body percussion patterns and problem solving.</td><td>Activity 3</td><td>Pattern cards using counters and sticks.</td></tr>
<tr><td>Day 4</td><td>Using big and small circles and objects to make simple patterns. Identify patterns in classroom.</td><td>Activity 4</td><td>Template with playdough – make 3.</td></tr>
<tr><td>Day 5</td><td>Problem solving 1–3. Making groups the same.</td><td></td><td></td></tr>
<tr><th colspan="5">Week 7</th></tr>
<tr><td colspan="5">CONTENT AREA: SPACE and SHAPE (GEOMETRY)</td></tr>
<tr><td colspan="5">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</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Introduce triangle and its properties.</td><td rowspan="5">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.</td><td>Activity 1</td><td>Triangle activity – cut and decorate four triangles.</td></tr>
<tr><td>Day 2</td><td>Identify triangle shapes in Poster Book, problem solving.</td><td>Activity 2</td><td>Butterfly prints – symmetry.</td></tr>
<tr><td>Day 3</td><td>In front of and behind; midline crossing.</td><td>Activity 3</td><td>Shape person – use pre-cut shapes.</td></tr>
<tr><td>Day 4</td><td>Compare biggest and smallest. Bigger and smaller.</td><td>Activity 4</td><td>Shape puzzles – (minimum six pieces).</td></tr>
<tr><td>Day 5</td><td>Symmetry.</td><td></td><td></td></tr>
</table>

SEHLOMATHISO A: KOTARA YA 1 KAKARETSO YA DIKAHARE TSA BEKE LE BEKE (DIBEKE TSA 6–9)

Kotara ya 1: Moralo wa Ketsahalo

<table>
<tr><th colspan="5">Beke ya 6</th></tr>
<tr><td colspan="5">KAROLO YA DIKAHARE: DIPATERONE, DITSHEBETSO le ALJEBRA</td></tr>
<tr><td colspan="5">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</td></tr>
<tr><th colspan="2">Diketsahalo tsa tlelase yohle</th><th>Ketsahalo e tataiswang ke titjhere</th><th colspan="2">Diketsahalo tsa diteisheneng tsa tshebetso</th></tr>
<tr><td>Letsatsi la 1</td><td>Tsebisa pale ya frizi ya nomoro ya 3.</td><td rowspan="5">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.</td><td>Ketsahalo ya 1</td><td>Foreima setshwantsho o sebedisa paterone mme o take dintho tse tharo.</td></tr>
<tr><td>Letsatsi la 2</td><td>Sebedisa didikadikwe tsa boholo le mebala e fapaneng ho etsa dipaterone tse bobebe. Buisanang ka dipaterone (phetapheto, diphapang, ditshwano).</td><td>Ketsahalo ya 2</td><td>Ho bala dikgatiso tsa menwana.</td></tr>
<tr><td>Letsatsi la 3</td><td>Dipaterone tsa medumo ya mmele le ho rarolla bothata.</td><td>Ketsahalo ya 3</td><td>Dikarete tsa dipaterone o sebedisa dibadi le dithupa.</td></tr>
<tr><td>Letsatsi la 4</td><td>Ho sebedisa didikadikwe tse kgolo le tse nyane ho etsa dipaterone tse bobebe. Hlwaya dipaterone ka phaposing ya borutelo.</td><td>Ketsahalo ya 4</td><td>Thempleiti ka hlama ya ho bapala – etsa 3.</td></tr>
<tr><td>Letsatsi la 5</td><td>Ho rarolla bothata 1–3. Ho etsa dihlopha hore di lekane/tshwane.</td><td></td><td></td></tr>
<tr><th colspan="5">Beke ya 7</th></tr>
<tr><td colspan="5">KAROLO YA DIKAHARE: SEBAKA le SEBOPEHO (JEOMETRI)</td></tr>
<tr><td colspan="5">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</td></tr>
<tr><th colspan="2">Diketsahalo tsa tlelase yohle</th><th>Ketsahalo e tataiswang ke titjhere</th><th colspan="2">Diketsahalo tsa diteisheneng tsa tshebetso</th></tr>
<tr><td>Letsatsi la 1</td><td>Tsebisa kgutlotharo le makgetha a yona.</td><td rowspan="5">Ho bala ka molomo.
Tshwara le ho bala o sebedisa ditora tsa dinomoro 1–3 (diboloko tsa Unifix).
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.</td><td>Ketsahalo ya 1</td><td>Ketsahalo ya kgutlotharo – seha le ho kgabisa dikgutlotharo tse nne.</td></tr>
<tr><td>Letsatsi la 2</td><td>Hlwaya dibopeho tsa kgutlotharo ka hara Buka ya Diphoustara, ho rarolla bothata.</td><td>Ketsahalo ya 2</td><td>Dikgatiso tsa dirurubele – molahare.</td></tr>
<tr><td>Letsatsi la 3</td><td>Ka pela le ka mora; ho tshela mola o hare.</td><td>Ketsahalo ya 3</td><td>Sebopeho sa motho – sebedisa dibopeho tse seng di sehilwe.</td></tr>
<tr><td>Letsatsi la 4</td><td>Bapisa tse kgolo ho fetisisa le tse nyane ho fetisisa. Kgolo ho feta le nyane ho feta.</td><td>Ketsahalo ya 4</td><td>Diphazele tsa dibopeho – (dikotwana tse seng ka tlase ho tshelela).</td></tr>
<tr><td>Letsatsi la 5</td><td>Molahare.</td><td></td><td></td></tr>
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<table>
<tr><th colspan="5">Week 8</th></tr>
<tr><td colspan="5">CONTENT AREA: MEASUREMENT</td></tr>
<tr><td colspan="5">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</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Day and night; light and dark.</td><td rowspan="5">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.</td><td>Activity 1</td><td>Day and night activity – cutting out pictures.</td></tr>
<tr><td>Day 2</td><td>Introduce height chart; position vocabulary.</td><td>Activity 2</td><td>Draw from shortest to tallest.</td></tr>
<tr><td>Day 3</td><td>Height chart. Sorting day and night everyday objects.</td><td>Activity 3</td><td>Paste shapes from biggest to smallest.</td></tr>
<tr><td>Day 4</td><td>Poster – Day and night. Positional vocabulary: on, under, below and on top.</td><td>Activity 4</td><td>Day/night matching cards.</td></tr>
<tr><td>Day 5</td><td>Compare heights.
Movement-positions.</td><td></td><td></td></tr>
<tr><th colspan="5">Week 9</th></tr>
<tr><td colspan="5">CONTENT AREA: NUMBERS, OPERATIONS and RELATIONSHIPS</td></tr>
<tr><td colspan="5">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.</td></tr>
<tr><th colspan="2">Whole class activities</th><th>Teacher-guided activity</th><th colspan="2">Workstation activities</th></tr>
<tr><td>Day 1</td><td>Describe and order numbers 1–3.</td><td rowspan="5">Oral counting.
One-to-one correspondence.
Describe and order numbers 1–3.
Estimation.
Shake and break.</td><td>Activity 1</td><td>Playdough making 1–3 objects.</td></tr>
<tr><td>Day 2</td><td>Matching number representations 1–3.
Estimation.</td><td>Activity 2</td><td>Draw pictures 1–3 in shapes.</td></tr>
<tr><td>Day 3</td><td>Counting – one more/one less.
Position: up and down.</td><td>Activity 3</td><td>Pasting. Picture with three stars, two trees, one moon.</td></tr>
<tr><td>Day 4</td><td>Problem solving (more/less). Poster 1.</td><td>Activity 4</td><td>Puzzles (minimum six piece).</td></tr>
<tr><td>Day 5</td><td>Using number in familiar context: How old are you?</td><td></td><td></td></tr>
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<table>
<tr><th colspan="4">Beke ya 8</th></tr>
<tr><td colspan="4">KAROLO YA DIKAHARE: MOMETHO</td></tr>
<tr><td colspan="4">SEHLOOHO: Nako: motsheare le bosiu; Bolelele: bapisa le ho hlahlamanya 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</td></tr>
<tr><th colspan="2">Diketsahalo tsa tlelase yohle</th><th>Ketsahalo e tataiswang ke titjhere</th><th colspan="2">Diketsahalo tsa diteisheneng tsa tshebetso</th></tr>
<tr><td>Letsatsi la 1</td><td>Motsheare le bosiu; kganya le lefifi.</td><td rowspan="5">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.</td><td rowspan="5">Ketsahalo ya 1
Ketsahalo ya 2
Ketsahalo ya 3
Ketsahalo ya 4</td><td rowspan="5">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.</td></tr>
<tr><td>Letsatsi la 2</td><td>Tsebisa tjhate ya bophahamo; tlotlontswe ya boemo.</td></tr>
<tr><td>Letsatsi la 3</td><td>Tjhate ya bophahamo. Ho hlophisa dintho tsa kamehla tsa motsheare le tsa bosiu.</td></tr>
<tr><td>Letsatsi la 4</td><td>Phoustara – Motsheare le bosiu. Tlotlontswe ya boemo: hodima, ka tlasa, ka tlase le ka hodimo.</td></tr>
<tr><td>Letsatsi la 5</td><td>Bapisa bophahamo.
Maemo a metsamao.</td></tr>
<tr><th colspan="4">Beke ya 9</th></tr>
<tr><td colspan="4">KAROLO YA DIKAHARE: DINOMORO, MATSHWAO le DIKAMANO</td></tr>
<tr><td colspan="4">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.</td></tr>
<tr><th colspan="2">Diketsahalo tsa tlelase yohle</th><th>Ketsahalo e tataiswang ke titjhere</th><th colspan="2">Dikatsahalo tsa diteisheneng tsa tshebetso</th></tr>
<tr><td>Letsatsi la 1</td><td>Hlalosa le ho bea dinomoro ka tatelano 1–3.</td><td rowspan="5">Ho bala ka molomo.
Neeletsano pakeng tsa ntho tse pedi.
Hlalosa le ho hlahlamanya dinomoro 1–3.
Kakanyo.
Tsukutla mme o arole.</td><td rowspan="5">Ketsahalo ya 1
Ketsahalo ya 2
Ketsahalo ya 3
Ketsahalo ya 4</td><td rowspan="5">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 tsheletseng).</td></tr>
<tr><td>Letsatsi la 2</td><td>Ho nyalanya dikemelo tsa dinomoro 1–3.
Kakanyo.</td></tr>
<tr><td>Letsatsi la 3</td><td>Ho bala – e le nngwe ho feta/e le nngwe ka tlase.
Boemo: hodimo le tlase.</td></tr>
<tr><td>Letsatsi la 4</td><td>Ho rarolla bothata (ho feta/ka tlase).
Phoustara ya 1.</td></tr>
<tr><td>Letsatsi la 5</td><td>Ho sebedisa nomoro tikolohong e tlwaelehileng: Dilemo tsa hao di kae?</td></tr>
</table>

Workshop 3 Evaluation Form

1. Did the workshop meet your expectations?

_____
_____
_____
_____

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

_____
_____
_____
_____

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

_____
_____
_____
_____

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

_____
_____
_____
_____

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

_____
_____
_____
_____

Foromo ya Tlhahlobo ya Wekshopo ya 3

1. Na wekshopo ena e fihletse ditebello tsa hao?

_____
_____
_____
_____

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

_____
_____
_____
_____

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

_____
_____
_____
_____

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

_____
_____
_____
_____

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

_____
_____
_____
_____