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English

Grade R Mathematics Improvement Programme



Workshop 3 Facilitator's Guide

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

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Overview

Purpose

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

The purpose of this workshop is to assist teachers 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)

Preparation

- ◆ PPT welcome and outcomes
- ◆ Read:
Concept Guide, pages 57–67
Activity Guide: Term 1, pages 10–11
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

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 29)

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.

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 62 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 62 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?

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).

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?

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?

- ◆ What is the pattern?

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

- ◆ 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.



Activity 4



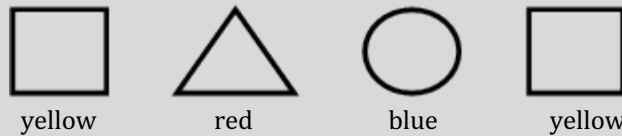
1. What shape do you think will come after the last square?

2. How would you extend the pattern?

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

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?

2. What is the repeating part of the sequence?

Facilitator's notes

- ◆ 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**).

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 53–56)

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.

Refer to pages 80–86 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.

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 63–65 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 63–65 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.

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 61–63).

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

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.

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
-

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

- ◆ How many sides does it have? closed
-

- ◆ How many corners does it have? closed
-

- ◆ How many lines? closed
-

- ◆ Can you see any other triangles? closed
-

- ◆ What other shapes can you see? closed
-

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

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

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

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 95–96 of the *Concept Guide* to read more about asking questions related to teaching and learning Space and Shape (Geometry) concepts. Also read page 96 for more about Space and Shape (Geometry) vocabulary in Grade R.

Session 3: Measurement

1 hour

Facilitator's notes

- ◆ Explain that the focus of Week 8 is on Measurement.
- ◆ Refer participants to pages 66–67 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 66–67 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?

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.

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.

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 69–75) 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 97–103 of the *Concept Guide* to read more about Measurement and pages 69–75 of *Activity Guide: Term 1* before you answer the questions below.

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

Learners' bodies.

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

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?
-
-

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

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?
-
-

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

Refer to pages 97–103 of the *Concept Guide* to read more about Measurement and time. Refer to the page 105 of the *Concept Guide* to read more about asking questions related to teaching and learning of Measurement in Grade R.

Session 4: Numbers, Operations and Relationships

1 hour

Facilitator's notes

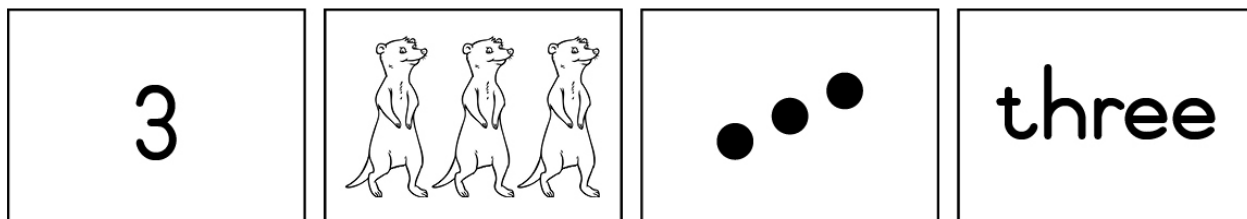
- ◆ Draw the participants' attention to how the number 3 is introduced on pages 52–53 of *Activity Guide: Term 1*.
- ◆ Explain that even though the Content Area Focus is Patterns, Functions and Algebra in Week 6, the number 3 is also introduced in this week.
- ◆ Discuss the routine that is followed for 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 52–53 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.

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 57–61 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 57–61 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 84–85 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?*

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?

Combining (adding) and separating (subtraction).

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

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**).

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

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.



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.

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.
Day 3	Body percussion patterns and problem solving.		Activity 3	Pattern cards using counters and sticks.
Day 4	Using big and small circles and objects to make simple patterns. Identify patterns in classroom.		Activity 4	Template with playdough – make 3.
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.			

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.	Activity 1	Day and night activity – cutting out pictures.
Day 2	Introduce height chart; position vocabulary.	Day and night; dark and light activities:	Activity 2	Draw from shortest to tallest.
Day 3	Height chart. Sorting day and night everyday objects.	- blanket - activity cards.	Activity 3	Paste shapes from biggest to smallest.
Day 4	Poster – Day and night. Positional vocabulary: on, under, below and on top.	Day and night story and sequencing.	Activity 4	Day/night matching cards.
Day 5	Compare heights. Movement-positions.	Position (on, under, below, on top, next to, between). Pattern (animals). Height chart.		
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.	Activity 1	Playdough making 1-3 objects.
Day 2	Matching number representations 1-3. Estimation.	One-to-one correspondence. Describe and order numbers 1-3.	Activity 2	Draw pictures 1-3 in shapes.
Day 3	Counting – one more/one less. Position: up and down.	Estimation. Shake and break.	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?			

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?
