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Grade R Mathematics Improvement Programme



Workshop 11 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 eleventh 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 consolidate the understanding of the Maths content taught in Grade R and to continue assisting teachers to implement the Maths Programme in their classrooms. Participants will have the opportunity to reflect on their implementation of the Maths Programme and discuss their planning, teaching and assessment. They will also consider learner progress, and individual developmental and learning needs. Participants will reflect on appropriate assessment strategies for capturing learner progress. The workshop explores the content for Term 4 Weeks 4–6 and its classroom implementation.

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

Learning outcomes

- ◆ To deepen understanding of Grade R Mathematics content
- ◆ To reflect on classroom implementation of the Maths Programme
- ◆ To identify challenges and find solutions to implementing the Maths Programme
- ◆ To reflect on informal forms of assessment in Grade R
- ◆ To plan the Maths Programme content to be taught in Term 4 Weeks 4–6

Workshop content

- ◆ Opening and reflection (1 hour)
 - ◆ Session 1: Review of the Maths Content Areas (1 hour)
- TEA
- ◆ Session 2: Maths Content Area presentations (1 hour)
 - ◆ Session 3: Maths Content Area presentations (continued) (1 hour)
- LUNCH
- ◆ Session 4: Planning for teaching (1½ hours)
 - ◆ Closing activities (30 minutes)

Preparation

- ◆ PPT welcome and outcomes
- ◆ Familiarise yourself with all the PowerPoints and videos
- ◆ Read: *Activity Guide: Term 4*, pages 36–60
- ◆ Bring the post box
- ◆ Remind participants to bring their:
Concept Guide
Activity Guides (for Terms 1–4)
Poster Book
- ◆ Prepare the topic sheets from Appendix B

Materials

- ◆ Flipchart paper, kokis
- ◆ Prestik
- ◆ *A Resource Kit* for each group (Groups will be working with all the apparatus in the *Resource Kit*.)
- ◆ Scissors and glue for each group

Opening and reflection

1 hour

When we think about and discuss what worked and how we dealt with any challenges that arose during our teaching, it allows us to recognise our strengths and weaknesses. Reflection on our practice as teachers helps us gain new insights into ourselves and our teaching. Reflective practice allows us to learn from our experiences and encourages us to work with our colleagues to share ideas that improve our teaching.

Facilitator's notes

- ◆ PPT: Familiarise yourself with the slide pack for the workshop.
- ◆ Discuss the post box comments and feedback from the previous workshop. Remind participants to 'post' any new comments and feedback during the workshop.
- ◆ Lead a discussion on the importance of reflective practice as part of our teaching.

The process of self-reflection is a cycle that needs to be repeated.

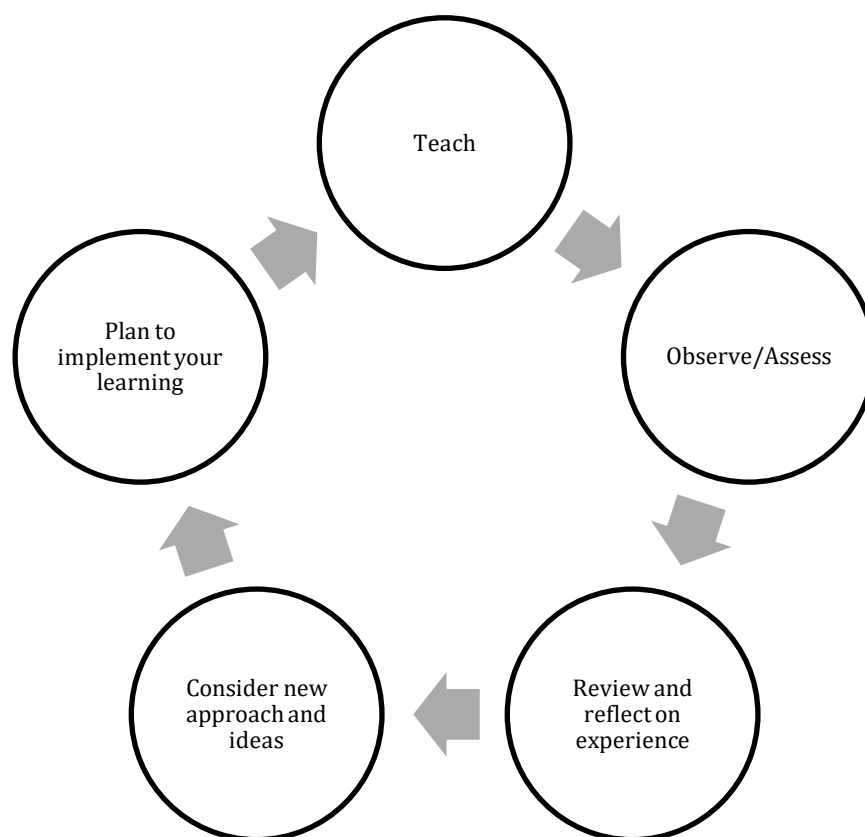


Figure 1: Stages of the reflection cycle

The process of self-reflection contains the following stages:

- ◆ Teach.
- ◆ Observe/assess.
- ◆ Review and reflect on how effective our teaching was, whether the lesson went well, what challenges emerged and whether the learners benefitted.

- ◆ Use the above information to consider new ways of teaching that could improve the quality of teaching and learning.
- ◆ Plan and implement new ideas and/or strategies in the classroom.

The cycle repeats after each teaching experience.

Reflection in implementation

Facilitator's notes

- ◆ Remind participants of the *Take back to school* task from the end of Workshop 10.
- ◆ Refer participants to **Activity 1** and read through the instructions aloud.
- ◆ Give each group a sheet of flipchart paper.
- ◆ Groups will present a summary of their discussion of the reflection cycle.

The *Take back to school* task from Workshop 10, required you to:

- ◆ Plan and implement Term 4 Weeks 1–3 of the Maths Programme.
- ◆ Write comments in the book that you use to keep track of each learner's progress (learner observation book), and to use the '**Check that learners are able to**' observation list during each of the teacher-guided activities to guide your observations and comments.
- ◆ Make notes of what worked well, what did not work well and how you resolved any challenges during your implementation of Term 4 Weeks 1–3.
- ◆ Bring your learner observation book and the notes you made when reflecting on each day's teaching to Workshop 11.



Activity 1

1. In your small group, consider each of the stages in the reflection cycle and discuss the *Take back to school* task from Workshop 10.

- ◆ How successful was your planning and teaching in Term 4 Weeks 1–3?
- ◆ Identify challenges and the strategies you used to resolve them.

- ◆ Have you been able to observe each learner and record his/her progress? Give reasons and examples to support your answer.
-
-

2. Imaging that you have been asked by your Department Head to talk to the Grade R teachers at a cluster meeting.
 - ◆ Refer to the reflection cycle in Figure 1.
 - ◆ Draw the cycle on flipchart paper and add notes next to each stage of the cycle.
 - ◆ Your group will present the main points of your discussion to the whole group.

Facilitator's notes

- ◆ Wrap up the discussion and address any questions raised.



Video 1

Watch the video of a group of teachers reflecting on their teaching and listen to their opinions about reflective practice.

1. Do you agree with their ideas about reflective practice? Explain your answer.
-
-

2. Does reflective practice increase your understanding of your teaching? Explain your answer.
-
-

3. Does reflective practice increase your understanding of learning in your class? Explain your answer.
-
-

4. Does reflective practice increase your engagement with colleagues? Explain your answer.
-
-

Facilitator's notes

- ◆ Invite comments and responses to the video.

Session 1: Review of the Maths Content Areas

1 hour

Facilitator's notes

- ◆ Divide the participants into 9 small groups. Allocate a space for each group to set up a table and wall display.
- ◆ Give each group flipchart paper, kokis, scissors and glue.
- ◆ Give one topic from Appendix B to each small group.
- ◆ Participants complete **Activity 2** in their small groups. Assist groups to ensure that content is accurate and that core concepts and skills are included in their presentation.
- ◆ Each group does a presentation to the whole group.
- ◆ After each presentation, draw the participants' attention to the main content focus. Address any issues that were raised or misconceptions that arose in the presentation.

In Sessions 1, 2 and 3 we will review our understanding and knowledge of the five CAPS Grade R Mathematics Content Areas and related topics. We will also discuss the teaching and approaches that form part of the Maths Programme we have been implementing.



Activity 2

1. Your group will prepare a presentation on a topic that the facilitator gives you.
 - ◆ You will have access to flipchart paper, kokis, scissors, glue and items from the *Resource Kit*. You will also be allocated a space in which to set up your presentation.
 - ◆ You need to refer to the *Concept Guide* and *Activity Guides* in your presentation.
2. Your presentation needs to include:
 - ◆ an overview of the content and how this is developed in Grade R
 - ◆ resources used to model concepts and represent ideas
 - ◆ appropriate learner activities for consolidating and applying new knowledge
 - ◆ areas of concern when teaching the topic
 - ◆ a table and wall display
 - ◆ examples of how learners would solve problems.
3. Your group will facilitate the discussion and answer questions from the whole group.

Notes:

Session 2: Maths Content Area presentations

1 hour

Facilitator's notes

- ◆ Each group makes its presentation to the whole group.
- ◆ After each group's presentation, draw participants' attention to the main content focus. Address any issues that were raised or misconceptions that arose in the presentation.

Each group will have 15 minutes to present their topic and respond to questions from the whole group.

Session 3: Maths Content Area presentations (continued)

1 hour

Facilitator's notes

- ◆ Each group makes its presentation to the whole group.
- ◆ After each group's presentation, draw participants' attention to the main content focus. Address any issues that were raised or misconceptions that arose in the presentation.

Each group will have 15 minutes to present their topic and respond to questions from the whole group.

Session 4: Planning for teaching

1½ hours

This workshop session prepares participants for implementing Term 4 Weeks 4–6 and provides an opportunity for small groups to plan ahead. It is important to:

- ◆ address differences in learners’ levels of progress
- ◆ support those learners who need additional assistance
- ◆ provide enrichment activities for more advanced learners.

The goal is to ensure that all learners are competent in the Grade R Mathematics content and are well prepared for Grade 1.

Facilitator’s notes

- ◆ Move between the small groups as participants discuss the planning and preparation for teaching Term 4 Weeks 4–6 in **Activity 3**. Assist by making suggestions on overcoming challenges.
- ◆ Each small group plans the three weeks and completes the templates in Appendix A.
- ◆ Lead a whole-group discussion on differentiation and how to manage learners at different levels of competence. Write these ideas on flipchart paper.



Activity 3

1. In your group, complete the planning templates for Term 4 Weeks 4–6 (Appendix A).
2. Discuss how you will plan for and manage learners who have different levels of competence.

Closing activities

30 minutes

Facilitator's notes

Workshop reflection:

- ◆ Ask participants to stand in two circles, one inside the other. Participants in the outer circle should stand facing inwards and participants in the inner circle should stand facing outwards.
- ◆ Participants take a few minutes to reflect on and discuss the workshop with the person opposite them. Invite them to mention highlights and also any questions they may have that have not yet been answered.
- ◆ Ask the inner circle to move one person to the right and to repeat the discussion. Repeat this a few times.
- ◆ Ask participants to volunteer something relevant that another participant mentioned to them.
- ◆ Encourage participants to add any comments and feedback not shared during the discussion to the post box.

Facilitator's notes

- ◆ **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.



Take back to school task

1. Invite other Grade R teachers at your school (or from another school) to join you in planning Term 4 Weeks 4–6 of the Maths Programme.
2. Implement these three weeks and use the reflection cycle (Figure 1) to review your experience. Write your reflections in a journal and bring it to the next workshop.

Evaluation

Complete the Evaluation Form.

APPENDIX A: TERM 4 WEEKLY PLANNING TEMPLATE

Term 4: Activity Plan: Week ____

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

Term 4: Activity Plan: Week ____

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

Term 4: Activity Plan: Week ____

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

APPENDIX B: ACTIVITY 2 TOPICS

Topic 1: Number concept development and counting (Numbers, Operations and Relationships)

Prepare a presentation that includes:

- ◆ a mapping of the main concepts/skills on flipchart paper
- ◆ how this topic is taught in Grade R
- ◆ a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- ◆ important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- ◆ What is number concept?
- ◆ How do children acquire number concept?
What does counting involve? Refer to:
 - the difference between sequencing number names and counting objects
 - matching one-to-one
 - comparing groups in terms of 'more than', 'less than', 'fewer than' and 'the same number as'
 - cardinal and ordinal numbers from 1–10
 - introducing the concept of the empty set with the number word 'zero' and number symbol '0'.
- ◆ What is the value of representing number in multiple ways? Provide and explain concrete examples.
- ◆ Discuss estimation in relation to the development of number concept.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Topic 2: Calculations (Numbers, Operations and Relationships)

Prepare a presentation that includes:

- ◆ a mapping of the main concepts/skills on flipchart paper
- ◆ how this topic is taught in Grade R
- ◆ a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- ◆ important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- ◆ Breaking down numbers and building up numbers.
- ◆ Representing partitioned groups of objects.

- ◆ Introducing the concept of addition as combining two collections.
- ◆ Introducing the concept of subtraction as taking away from a collection.
- ◆ Comparing two collections of objects by matching one-to-one to find the difference.
- ◆ Using the number washing line and a jumping track to solve addition problems – ‘adding on’ or ‘counting on’.
- ◆ Using the number washing line and a jumping track to solve subtraction problems – ‘counting back’.
- ◆ Introducing the concept of equal sharing and grouping.
- ◆ Promoting rapid recall and number facts.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Topic 3: Patterns, Functions and Algebra

Prepare a presentation that includes:

- ◆ a mapping of the main concepts/skills on flipchart paper
- ◆ how this topic is taught in Grade R
- ◆ a display with concrete objects, pictures and ‘examples’ of learners’ work to support your discussion
- ◆ important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- ◆ Introducing the idea of a repeated pattern.
- ◆ Identifying the pattern unit.
- ◆ Explaining the meaning of ‘variable’ and what is appropriate in Grade R.
- ◆ Making linear patterns with one variable.
- ◆ Discuss the process of introducing pattern in Grade R. Provide concrete and pictorial examples to support your discussion.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Topic 4: Space and Shape (Geometry)

Prepare a presentation that includes:

- ◆ a mapping of the main concepts/skills on flipchart paper
- ◆ how this topic is taught in Grade R
- ◆ a display with concrete objects, pictures and ‘examples’ of learners’ work to support your discussion
- ◆ important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- ◆ Discovering the general properties of 2-D shapes and 3-D objects.
- ◆ Collecting shapes and objects that have these shapes on their faces.
- ◆ Sorting shapes and objects and describing the 'rule' (criterion) for sorting.
- ◆ Introducing symmetry.
- ◆ Making symmetrical shapes with one or two lines of symmetry through drawing, folding and cutting.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Topic 5: Measurement

Prepare a presentation that includes:

- ◆ a mapping of the main concepts/skills on flipchart paper
- ◆ how this topic is taught in Grade R
- ◆ a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- ◆ important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- ◆ Using vocabulary associated with time.
- ◆ Ordering (sequencing) events and activities according to the time at which they take place.
- ◆ Comparing objects according to their size.
- ◆ Identifying the attribute to be measured.
- ◆ Using maths vocabulary to compare height, length and width.
- ◆ Using maths vocabulary to compare the mass of different objects.
- ◆ Using maths vocabulary to compare capacity and volume.
- ◆ Explain what non-standard measurement is and how it relates to each of the following Measurement topics:
 - time
 - length
 - mass
 - capacity/volume.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Topic 6: Data Handling

Prepare a presentation that includes:

- ◆ a mapping of the main concepts/skills on flipchart paper

- ◆ how this topic is taught in Grade R
- ◆ a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- ◆ important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- ◆ Direct representation of situations using learners, objects and pictures.
- ◆ How does the idea of one-to-one matching relate to representing information/data in pictures or pictographs?
- ◆ What is the purpose of the pictures in the bottom row of the pictograph?
- ◆ What is the advantage of arranging the pictures in columns?
- ◆ Why do the pictures need to be the same size?
- ◆ Why do the pictures have to be evenly spaced?
- ◆ Discuss interpreting the information on a pictograph.

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Topic 7: Classroom management

Prepare a presentation that includes:

- ◆ a mapping of this topic on flipchart paper
- ◆ this topic in relation to Grade R
- ◆ a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- ◆ important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- ◆ How do you create a stimulating learning environment? Refer to:
 - the classroom walls
 - the classroom floor space
 - the carpet area
 - the maths area.
- ◆ How do you manage and arrange resources (concrete apparatus) in the classroom?
- ◆ Describe how teaching in whole class and small groups is implemented.
- ◆ Outline the different types of planning that are required for successful teaching and learning.
- ◆ How are different levels of learner competence managed?

Refer to the *Concept Guide* and *Activity Guides* to support your discussion.

Topic 8: Assessment

Prepare a presentation that includes:

- ◆ a mapping of this topic on flipchart paper
- ◆ this topic in relation to Grade R
- ◆ a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- ◆ important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- ◆ What forms of assessment are implemented in Grade R?
- ◆ Describe how these are used for tracking learner progress and for reporting purposes.
- ◆ Provide examples and illustrations to support your presentation.
- ◆ Describe in detail one learner's solution to a word problem and describe how you would use a rubric to assess this learner.
- ◆ Clarify the use of checklists.
- ◆ How do the various forms of assessment, guide our reporting to parents?

Refer to the *Concept Guide* and *Activity Guides* to support your discussion.

Topic 9: Problem solving

Prepare a presentation that includes:

- ◆ a mapping of the main concepts/skills on flipchart paper
- ◆ how this topic is taught in Grade R
- ◆ a display with concrete objects, pictures and 'examples' of learners' work to support your discussion
- ◆ important points to note about this topic.

You will need to facilitate a discussion and answer questions from the whole group.

Points to consider in your presentation:

- ◆ What does problem solving involve in Grade R?
- ◆ What are the language considerations involved in framing word problems?
- ◆ Why is problem solving included in Grade R?
- ◆ What skills do learners need to develop to become successful problem solvers?
- ◆ Give examples of different kinds of word problems that could be presented in Grade R.
- ◆ What strategies or techniques do Grade R learners use when solving word problems?
- ◆ What is the teacher's role?

Refer to the *Concept Guide* and *Activity Guides* for examples of activities, and discuss how these were implemented in the classroom.

Workshop 11 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?
