

Teaching Mathematics for Understanding

TMU2020 PILOT

**GRADE 4 TERM 1
TEACHER TRAINER'S GUIDE
27-31 January/February 2020**

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Workshop Objectives

1. Prepare teachers for the changes being introduced by the TMU PILOT implementation.
2. Train teachers on the implementation of the TMU PILOT programme.
3. Orientate teachers to the Trainer's Guide and Handout.
4. Motivate and inspire teachers.
5. Provide in-depth training on the methodology for the teaching problem solving in Term 1 using the TMU PILOT lesson plans and resources.

Before the Training

1. **Be fully prepared (with your partner)** and have all of your materials laid out in an orderly fashion.
2. Display the objectives of the workshop and go through these with participants.
3. Display the agenda on a prominent wall in the training venue.
4. At the end of every training day, reflect on the objectives and agenda, and tick off what has been achieved that day.
5. Be prepared to use energizers and motivational videos appropriately.

Registration / Housekeeping

- Remember to ask the participants to sign the register.
- Agree on the importance of working hard and interactively and engaging sincerely with the material in order to maximise learning and enable fruitful pilot implementation.

**NECT: GRADE 4 MATHEMATICS TRIAL
TEACHING MATHEMATICS FOR UNDERSTANDING (TMU)**

GRADE 4 TERM 1 2020 TEACHER TRAINING PROGRAMME AGENDA

	TIME	ACTIVITY	Materials	Responsible
		Day 1:		
		Registration	Attendance register	
1	30 min	Pre-training Activity (pre-test)	Test paper	
2	45 min	Welcome, introduction to Grade 4 Term 1 training and housekeeping. Maths framework and TMU Pilot project (Slides) Reorganised CAPS for Grade 4 (Copy) Assessment – Revised Section 4	A data projector and a screen Copy of DG’s letter to PDoE and Circular	
3	15 min	Material distribution and introduction	TMU Resources	
4	15 min	Perspectives and expectation of TMU pilot from participants (refer to HANDOUT)	Handout Flip chart paper and stands, kokies	
5	60 min	Introduction of TMU approaches (Slides) GR 4 Revision Programme for the first 2 weeks (Copy)	Power Point Presentation Gr 4 Revision Programme	
6	45 min	Content input 1 (Slides) Numbers up to 1 000 000	Power Point Presentation	
7	60 min	Content input 2 (Slides) Addition and subtraction	Power Point Presentation	
8	45 min	Content input 3 (Slides) Approximation and calculation	Power Point Presentation	
9	60 min	Content input 4 (Slides) Numeric and geometric patterns and number sentences	Power Point Presentation	
10	15 min	Dry-run preparation–Lessons 5, 10, 17, 20, 28, 32, 40, 46. (All concept development activities – 25 min)	Flip chart paper and stands, kokies, rulers, scissors, etc.	
6 hours and 30 minutes in total – SES determine own tea and lunch break				
		Day 2:		
11	70 min	Dry run preparation finalisation – Lessons 5, 10, 17, 20, 28, 32, 40, 46. (All concept development activities – 25 min)		
12	50 min	Dry run presentation (one group to present): LESSONS 5 & 10		
	15 min	Feedback session		
13	50 min	Dry run presentation (one group to present): LESSONS 17 & 20		
	15 min	Feedback session		
14	50 min	Dry run presentation (one group to present): LESSONS 28 & 32		
	15 min	Feedback session		
15	50 min	Dry run presentation (one group to present): LESSONS 40 & 46		
	15 min	Feedback session		
16	30 min	Post training activity (post-test)	Test paper	
17	30 min	Closure and evaluation	Evaluation form	
6 hours and 30 minutes in total – SES determine own tea and lunch break				

What you will need for this Training:

ITEM	QUANTITY	CHECK
MATERIALS FOR DISTRIBUTION TO PARTICIPANTS		
Grade 4 Term 1 Lesson Plans		
Grade 4 Term 1 Teacher Resource Packs		
Grade 4 Term 1 Learner Activity Books (LAB)		
Base ten kit (CORE METHODOLOGY manipulative)		
Teacher Pre-Test and Post-Test		
Evaluation form		
Training Agenda		
Training Handout and Grade Overview		
Grade 4 revision programme materials		
EQUIPMENT AND MATERIALS FOR YOUR USE		
Flipchart stand, kokis and paper	1-2	
Data projector	1	
Laptop	1	
A4 coloured paper and A4 white paper	1 pack each	
Marker pens	1 per participant	
Cardboard paper and sticks		
Masking or cello tape		
Prestik	4	
USB WITH THE FOLLOWING FOLDERS		
All TMU PILOT MATERIALS (Term 1 Lesson plans, Teacher resources, Learner Activity Books)	1	
(MOTIVATIONAL VIDEOS)	1	

REMINDERS

1. Optional: Prepare some **energizers** and use those when the group needs an energy boost.
 - a. Mirrored numerals.
 - b. Number sentences.
2. Try to stick to the suggested timing of the schedule. Take note of your **time management** and make plans to catch up if you are running behind schedule.
3. Between training items, if there is time, **revise what has been done to date** – this **helps participants to structure and internalise** the training process, which they will have to deliver to teachers.
4. Ask participants to keep the following in mind:
 - We need to **inspire and motivate teachers** to implement this programme – if we do not get them to **emotionally connect with what we are doing**, we will not succeed as we should.
 - We need teachers to **'just do it'** – and to **start following the lesson plans immediately**, even if they do not fully understand what they are doing, and even if they are not completely confident about what they are doing. Their **knowledge and understanding will increase** with practice, and with each training session. But to start, they must 'just do it'.
 - We are **implementing a BIG IDEA** – you CAN teach column addition and subtraction with understanding. Using the base ten kits and making connections between representations are at the heart of this implementation. We need to communicate the message clearly and well!
5. Take photographs, make notes of meaningful comments, and **document all required information** for your reports (officials please clarify the route of this reporting).
6. Think about the team – share stories and successes, motivate each other, **support each other**.
7. Have **fun!** And remember, preparation is the key.

“All who have accomplished great things have had a great aim, have fixed their gaze on a goal which was high, one which sometimes seemed impossible.” —*Orison Swett Marden*

DAY ONE

1	30 MINUTES	PRE-TRAINING ACTIVITY (PRE-TEST)	Facilitator: MQA team	What you will need: Pre-Tests
<ol style="list-style-type: none"> 1. Welcome the participants into the room. 2. Settle participants in their places. 3. Distribute the pre-tests but tell participants not to look at them yet. 4. Explain the purpose of the pre-test and post-test is to test the impact of the programme, not to look at individual scores. 5. Ask participants to please use the same name on all official documents – this should be their first name and surname as it appears on their ID Documents. 6. Explain that this test will be written under regular test conditions, i.e.: no talking or communication of any kind, no calculators. 7. Tell participants to look at the test, and briefly orientate them to each section. 8. Do not read through the questions. 9. Ask participants to begin, and work for a maximum of 30 minutes. 10. Tell participants that if they are finished, they must please sit quietly and wait for their colleagues. 11. After 30 minutes or when all participants are finished, collect all test papers. 12. Carefully check that all identification and contact details are filled in and are legible. 13. Hand papers to the MQA representative in your room. 14. Note: If any participant objects to writing her or his name on the test, call or WhatsApp one of the senior MQA officials to please come to your room to talk to the participant. Arrange for this to happen outside of the venue – do not let it derail proceedings. 15. The senior MQA official is: Asiya Hendricks 082 706 7694 				

2	45 MINUTES	WELCOME, AGENDA, GROUND RULES and HOUSEKEEPING Maths framework and TMU Pilot project (Slides) Reorganised CAPS for Grade 4 (Copy) Assessment – Revised Section 4	Facilitator:	What you will need: Teacher training guide Copy of DG’s letter to PDoE and Circular
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Outcomes for teachers

Teachers will:

- Share the basic information about the TMU PILOT.
- Understand reorganised CAPS and Grade Overview.
- Familiarise themselves with the content presented in the reorganised CAPS pilot material.
- Take ownership of the TMU PILOT.

1. Settle participants so that you have their attention.
2. Officially **welcome participants** to the group. Greet and meet new participants.
3. Discuss the **training agenda** and run through the items for each day (refer to the teacher training guide).
 - Point out starting and finishing times, and acknowledge that these are long working days, but assure participants that we will do our best to ensure that they are enjoyable and fruitful. All work together to achieve the training goals.
4. Share the following **housekeeping information**:
 - Point out where the **closest bathrooms** are.
 - Point out where your **tea/lunch** will be served.
5. Finally, briefly explain that this training will be run in a very **active, participatory** manner.

- Because of this, we remind participants that **laptops** must please not be brought to training.
 - We also ask that participants **do not miss any** sessions.
 - Finally, participants should **engage** with all sessions with **open minds**, and **enjoy** this time together
6. Present slides about TMU pilot.
 7. Explain reorganised CAPS with slides and grade overview. Give time to teachers have a look at overview to compare the reorganised CAPS with current CAPS.
 8. **Listen to and check the status of Grade 4 Revision Programme and their experience.**

3	15 MINUTES	MATERIAL DISTRIBUTION	Facilitator:	What you will need: Training handout All Units 1 and 2 PILOT materials (Lesson plans, LAB, Teacher resource pack:TRP.)
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Outcomes for Teachers

Teachers will:

- Take ownership of the resources and materials that are given to them
- Effectively manage the resources and materials that are given to them
- Understand how to use TMU materials.

1. Settle participants so that you have their attention.
2. Tell participants that you are now going to **distribute all Term 1 materials**.
3. Ask participants to **tidy their space** and take out the **Training Handout and a pen**.
4. Ask participants to turn to the page in the Training Handout called **MATERIALS DISTRIBUTION FORM** and to please **tick off** each resource as it is handed to them, and to **write their names** on each resource.
5. **Hand out a copy of each item to each participant**, in an orderly fashion. **DO NOT ASK PARTICIPANTS TO TAKE ONE AND PASS ON – THIS ALWAYS LEADS TO CONFUSION.**
6. Make sure that everyone has what is needed, and that they label all resources.
7. Introduce TMU materials (Units 1 and 2); the structure, how to use lesson plans and LAB, what resources are in the TRP, by opening pages of resources. Use the **Training handout** page called **Lesson plan adaptation to the Mathematics Framework**.

4	15 MINUTES	PERSPECTIVES AND EXPECTATION OF TMU PILOT	Facilitator:	What you will need: Training handout Flip chart & kokis
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Outcomes for teachers

Teachers will:

- Identify their perspective and expectation of TMU PILOT

1. Settle participants so that you have their attention.
2. Refer to the handout. Take time to complete the questions that call on participants to reflect on what they currently experience when teaching Grade 4 mathematics, as well as their concerns and expectations about TMU PILOT. **(SEE Training Handout). This goes straight to MQA.**
3. Discuss comments and questions as a group.
4. Conclude the discussion by summarising points raised and noting any that should be taken forward.

5	60 MINUTES	INTRODUCTION OF TMU APPROACHES GR 4 REVISION PROGRAMME FOR THE FIRST 2 WEEKS	Facilitator:	What you will need: Flipchart paper & kokis <i>PowerPoint slides</i> Lesson plans, LAB, TRP. Base ten kit, bottle tops, multiplication table and array diagram with 2 sheets of paper Gr4 Revision programme materials
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Outcomes for Teachers

Teachers will:

- Familiarise themselves with the TMU strategies; CPA approach, Base ten number system with place value table, Word problems with diagrams and Addition and subtraction in column.
- Understand how and when to use Gr4 Revision programme materials in their lessons.

1. Settle the participants.
2. Present the TMU strategies using the appropriate PowerPoint presentation.
3. **Participants should experience both the manipulatives and solving problems practically.**
4. **Participants should be allowed to ask questions while you present and should participate actively, solving problems themselves, while you present.**
5. Introduce the **Gr4 revision programme materials and their purpose.**

6	45 MINUTES	FIRST CONTENT INPUT Content input 1: Numbers up to 1 000 000	Facilitator:	What you will need: Flipchart paper & kokis <i>PowerPoint slides</i> Lesson plans, LAB, TRP, Base ten kit.
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Outcomes for Teachers

Teachers will:

- Familiarise themselves with the teaching of large numbers up to 1 000 000 with place value.
- Familiarise themselves with the teaching of multiplying and dividing by 10, 100, 1 000.
- Establish routines and methodologies for teaching the grade specific content.

1. Settle the participants.
2. Present the Content Input 1 using the PowerPoint presentations.
3. **Participants should be allowed to ask questions while you present and should participate actively, solving problems themselves, while you present.**
4. Conclude the session by suggesting to participants that they spend time in the evening going through the lesson plans set to see how the methodology discussed in this session is designed into the lesson plan activities. **They should note questions they have that they want to ask about in the course of this training.**

7	60 MINUTES	SECOND CONTENT INPUT Content input 2: Addition and subtraction	Facilitator:	What you will need: Flipchart paper & kokis <i>PowerPoint slides</i> Lesson plans, LAB, TRP, Base ten kit.
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Outcomes for Teachers

Teachers will:

- Familiarise themselves with the teaching of addition of large numbers with both the column and other methods.
- Familiarise themselves with the teaching of subtraction of large numbers with both the column and other methods.
- Establish routines and methodologies for teaching the grade specific content.

1. Settle the participants.
2. Present the Content Input 1 using the PowerPoint presentations.
- 3. Participants should be allowed to ask questions while you present and should participate actively, solving problems themselves, while you present.**
4. Conclude the session by suggesting to participants that they spend time in the evening going through the lesson plans set to see how the methodology discussed in this session is designed into the lesson plan activities. **They should note questions they have that they want to ask about in the course of this training.**

8	45 MINUTES	THIRD CONTENT INPUT Content input 3: Approximation and calculation	Facilitator:	What you will need: Flipchart paper & kokis <i>PowerPoint slides</i> Lesson plans, LAB, TRP, Base ten kit, number lines
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Outcomes for Teachers

Teachers will:

- Familiarise themselves with the teaching of approximation as rounding off and their usage in the daily life with calculation.
- Establish routines and methodologies for teaching the grade specific content.

1. Settle the participants.
2. Present the Content Input 1 using the PowerPoint presentations.
- 3. Participants should be allowed to ask questions while you present and should participate actively, solving problems themselves, while you present.**
4. Conclude the session by suggesting to participants that they spend time in the evening going through the lesson plans set to see how the methodology discussed in this session is designed into the lesson plan activities. **They should note questions they have that they want to ask about in the course of this training.**

9	60 MINUTES	FOURTH CONTENT INPUT Content input 4: Numeric and geometric patterns and number sentences	Facilitator:	What you will need: Flipchart paper & kokis <i>PowerPoint slides</i> Lesson plans, LAB, TRP
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Outcomes for Teachers

Teachers will:

- Familiarise themselves with the teaching of numeric and geometric patterns and tables and flow diagrams.
- Familiarise themselves with the teaching of number sentences and properties of numbers.
- Establish routines and methodologies for teaching the grade specific content.

1. Settle the participants.
2. Present the Content Input 1 using the PowerPoint presentations.
- 3. Participants should be allowed to ask questions while you present and should participate actively, solving problems themselves, while you present.**
4. Conclude the session by suggesting to participants that they spend time in the evening going through the lesson plans set to see how the methodology discussed in this session is designed into the lesson plan activities. **They should note questions they have that they want to ask about in the course of this training.**

10	15 MINUTES	DRY RUN PREPARATION Lessons 5, 10, 17, 20, 28, 32, 40 and 47 (Concept development section for 25 minutes)	Facilitator:	What you will need: Flipchart paper & koki Training handout Lesson plans, LAB, TRP.
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Outcomes for Teachers

Teachers will:

- Prepare for dry run teaching of specified lessons.
- Establish routines and methodologies for teaching the grade specific content.

1. Settle the participants.
2. Participants should all work individually on the lesson preparation.
3. Write the list of specific lessons to be planned during this session on the flip chart paper.
4. Ask the participants to start preparing for the dry run lessons. (Refer to the training handout for the specific lessons.)
- 5. Participants should be allowed to ask questions while you present and should participate actively, solving problems themselves, while you present.**
6. Conclude the session by suggesting to participants that they spend time in the evening going through the lesson plans and planning preparation of lessons and relevant materials

DAY TWO

11	70 MINUTES	DRY RUN PREPARATION Lessons 5, 10, 17, 20, 28, 32, 40,47 (Concept development section for 25 minutes)	Facilitator:	What you will need: Flipchart paper & kokis Lesson plans Lesson specific materials.
<p>Outcomes for Teachers</p> <p>Teachers will:</p> <ul style="list-style-type: none"> • Use their knowledge of the TMU PILOT programme and methodologies to plan a demonstration lesson. • All participate in the planning of dry run lessons. 				
<ol style="list-style-type: none"> 1. Tell participants they are going to use this session to finalise a lesson for a demonstration. 2. Divide all participants into 8 groups and allocate 1 lesson to each group. 3. Remind them that in order to prepare their lesson, they must read the lesson plan and the core methodology. 4. Then, they must gather or make any resources that they need for the lesson. 5. Finally, they must practise giving the lesson, making sure they think about including all the steps of the lesson, following the time guidelines, and incorporating good classroom management. 6. Explain the following criteria for PLANNING AND PRESENTATION: <ol style="list-style-type: none"> a. Participants must NOT DEVIATE from the lesson plan. They must present lessons AS PER THE CORE METHODOLOGIES AND THE LESSON PLANS. b. Participants must think very carefully about what they say, and the instructions they give. The biggest challenge to PACING is that participants often TALK TOO MUCH AND SAY UNNECESSARY THINGS. They must be brief, clear, and to the point. <p><i>Note: You want good demonstrations – support the participants while they plan.</i></p>				
<p>When you prepare your presentation think about:</p> <ol style="list-style-type: none"> a) What must the teacher say? b) What must the teacher do? c) What must the teacher write? d) What must the learner write? <ol style="list-style-type: none"> 7. Walk around and supervise and offer assistance as participants prepare. 8. Remind participants of time – you do not want them to take too long to prepare. 9. At the end of the time, call participants to order, ask them to tidy up and be ready for their presentations. 10. Thank participants for their participation. 				

12 13 14 15	65 MINUTES EACH	DRY RUN PRESENTATIONS and FEEDBACK SESSIONS Prepared lessons according to the agenda.	Facilitator:	What you will need: Flip chart & kokis Lesson plans and teachers' resources per grade
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Outcomes for Teachers

Teachers will:

- Use their knowledge of the TMU PILOT programme and core methodologies to present a demonstration lesson.
- All participate in the planning and demonstration of model lessons.
- Offer meaningful feedback to colleagues.

1. Settle the participants.
2. Explain that participants will all be called on to present at least one part of a lesson that they have prepared. All participants should be ready to teach all assigned lessons.
3. **Remind participants of criteria and time allocations.**
4. Ask participants to please keep this as a **safe and respectful space**.
5. Also remind participants to **actively listen** to their colleagues.
6. **Begin demonstrations.**
7. Groups will come to the front and demonstrate the lessons given to them.
8. Select participants to do the presentations.
9. There are 4 units in Term 1. Each unit has 2 lessons to demonstrate. Each lesson will be given approximately **25 minutes**.
10. After every 2 demonstrations, lead the group in a feedback session for that unit.
11. If a group has clearly done an incorrect or poor demonstration, you must thank them for their effort, but you must then **correct the mistakes or demonstrate correctly** – DO NOT LET PARTICIPANTS LEAVE WITHOUT KNOWING WHAT IS CORRECT.
12. Close the session asking participants to reflect on the presentations and prepare further on theirs for the implementation of lessons in classes.

16	30 MINUTES	POST-TRAINING ACTIVITY (POST-TEST)	Facilitator: MQA team	What you will need: Post-Tests
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1. Welcome the participants into the room.
2. Settle participants in their places.
3. **Distribute the post-tests** but tell participants not to look at them yet.
4. **Ask the participants to place their completed POEs in a position where you can collect them while they write the test.**
5. **Remind the participants that the purpose** of the pre-test and post-test is to test the impact of the programme, not to look at individual scores.
6. Ask participants to please use the **same name** on all official documents – this should be their first name and surname as it appears on their **ID Documents**.
7. Explain that this test will be written under **regular test conditions**, i.e. no talking or communication of any kind.
8. Tell participants to look at the test, and **briefly orientate** them to each section.
9. Do not read through the questions.
10. Ask participants to begin, and work to a maximum of 30 minutes.
11. Tell participants that if they are finished, they must please sit quietly and wait for their colleagues.
12. After 30 minutes or when all participants are finished, collect all test papers.
13. Carefully check that all identification and contact details are filled in and are legible.
14. **Hand papers to the MQA representative** in your room.

15. Note: If any participant objects to writing her or his name on the test, call or WhatsApp one of the senior MQA officials to please come to your room to talk to the participant. Arrange for this to happen outside of the venue – do not let it derail proceedings.
16. The **senior MQA official** is:
 - Asiya Hendricks 082 706 7694

17	30 MINUTES	EVALUTATION AND CLOSURE	Facilitator:	What you will need: Evaluation forms
<p>Outcomes for Teachers</p> <p>Teachers will:</p> <ul style="list-style-type: none"> • Evaluate the training and programme by completing an evaluation form. • Document any concerns that they may have about the TMU PILOT programme. • Share one positive outcome of this training for them personally. 				
<ol style="list-style-type: none"> 1. Settle participants so that you have their attention. 2. Make sure participants have all their materials. 3. Next, settle participants and tell participants that you have come to the end of your time together. 4. Thank participants for their participation and involvement and tell them how much you have enjoyed working with them. 5. Ask them to think carefully about everything that they have covered over the course of the workshop. 6. Next, hand out the evaluation form (this goes straight to MQA) for participants to complete. Collect the evaluation forms. 7. Then, settle participants for the final closure. 8. Ask participants to reflect on this for a minute, and then get feedback from each participant: <ul style="list-style-type: none"> • Please share one positive aspect of this programme, training or experience that you take away from this session – this can be absolutely anything that has impacted on you in a positive manner. 9. Remind participants to please follow the ground rules and ACTIVELY LISTEN as we go around the circle for the last time. 10. Ask participants to please be AUDIBLE and CONCISE. If they start to share more than one concern and/ or one positive, you will cut them off. 11. Document the participant’s names and responses for your report. Try to do this verbatim. 12. Listen actively and thank each participant for her or his response. 13. Thank participants for all their hard work. 14. Wish them the best of luck for their training, and end the session. 				

After the Training

1. Please collect all extra materials from your training room and return them to the central repository. (To be identified)
2. Please sort this material carefully – do not just dump anything!
3. Please ensure that MQA have all Pre-Tests, SACE numbers, and Evaluation Forms.
4. Please complete your training report carefully and submit it before the deadline. Please email any relevant photographs or videos with the report.

Please be extremely well prepared. Work together with your partner as a **TEAM** to offer participants an outstanding experience!

Inspire and motivate participants to embrace the TMU PILOT in order to improve the teaching and learning of mathematic in Grade 4.

**Let us actively support
Teaching Mathematics for Understanding**

Good luck and thank you!