RESOURCE HANDOUT

2019 TRAINING WORKSHOP NO.1

MATHEMATICS

FOUNDATION PHASE

PILO
IMPROVING LEARNER PERFORMANCE

education

Department:
Education
PROVINCE OF KWAZULU-NATAL

Foundation phase

Just-in-Time Training Workshop
2019: No. 1

Resources Handout

Maths

Jika iMfundo
what I do matters

Endorsed by:

Jika iMfundo: Foundation Phase JIT Workshop
Mathematics January 2019
Excerpts and other support material

Contents

Tracker - Excerpts from the *Tracker* for use in Session 1

Contents

About the Planner and Tracker

The curriculum and assessment planner and tracker is a tool to support teachers in several ways

- It provides a plan of what should be taught each day of the term based on the daily lesson plans. By following the programme in the tracker and the lesson plans, you will be sure to cover the curriculum in the allocated time, and to complete the formal assessment programme.
- It enables you to track your progress through the curriculum during the term. By noting the date when each lesson is completed you can see whether or not you are 'on track'. If you are not, you can strategise with your head of department and peers on how to ensure that all the work for the term is completed.
- The planner and tracker encourages you to reflect on what works well in your lessons, and where your work could be strengthened. These reflections can be shared with colleagues. In this way, the tracker encourages continuous improvement in teaching practice.

- It gives support for assessment by providing the following:
    - **Oral and practical assessment activity assessment guidelines.**
      Each week in the tracker table (after the daily lesson plan information) there is a statement of an activity that you can use for oral and/or practical assessment in that week. The activity links to one of the CAPS topics being taught in that week and should be carried out during those lessons (and completed during the open lesson at the end of the week if necessary). The activity statement is brief – it indicates what content is being tested. A rubric or checklist is given with criteria to clarify how you can allocate marks for the activity.
      The activity statement and rubric/checklist should be used together as they give the full description of the activity and what has to be done in the activity. Most of the oral and practical assessment activities are formal but some of them are informal (this is indicated in the tracker table).
    - **An Assessment Term Plan.**
      This gives an overview of the planned assessment for the term. The plan includes the oral and practical (formal and informal) assessment activities and the written assessment items applicable to each week. Formal assessment has been planned to allow time for teachers to establish the routine at the beginning of each term and to enter marks into SA SAMS at the end of the term.
    - **A suggested mark record sheet.**
      The sheet has columns in which you can record the marks for each of the formal assessments provided. This sheet follows the Assessment Term Plan. You can copy this sheet and add your learners' names in the left hand column. The record sheet should help you when you have to enter marks into SA SAMS. If the 'out of' marks for the assessment activities you have used are not the same as those shown in SA SAMS, you can change those in SA SAMS. SA SAMS will automatically adjust the weightings, and will provide the correct level for each learner.
    - **An item bank of questions.**
      These can be used for written assessment on each of the CAPS content areas, with marking guidelines. These are referenced in the resources column of the tracker, linked to the lesson to which the assessment applies. These items can be used individually or grouped, at your discretion. You should ensure that you mark written work on each of the topics taught and give learners feedback on their work regularly.

You should file your completed tracker at the end of each term.

It is important to note that:

- The first term is not always the same length. If the term in which you are using the lesson plans and tracker is longer or shorter than 11 weeks, you will need to adjust the pace at which you work to complete the work in the time available, or make another plan to stay on track.

- The workbook pages in this tracker refer to pages in the 2017 edition of the workbook. These might not be the same as the pages in the edition to which you will refer. You should check the references to each worksheet and adjust them in the Lesson Plans and the tracker if necessary each year.

The following components are provided in the columns of the planner and tracker tables for each week:

1. Day of the week.
2. CAPS content, concepts and skills for the day.
3. Page number for the lesson in the Lesson Plans.
4. DBE workbook page to be used in the lesson.
5. Resources needed (and written assessment item when applicable).
6. Date completed (this needs to be filled in each day).

Weekly reflection

The tracker gives you space to reflect on your Mathematics lessons on a weekly basis. You can share this reflection with your HOD and discuss things that worked or did not go so well in your lesson. Together with your HOD you can think of ways of improving on the daily work that the learners in your class are doing. When you reflect you could think about things such as:

- Was your preparation for the lesson adequate? For instance, did you have all the necessary resources? Had you thought through the content so that you understood it fully and so could teach it effectively?
- Did the purpose of the lesson succeed? For instance, did the learners reach a good understanding of the key concepts for the day? Could they use the language expected from them? Could they write what was expected from them?
- Did the learners cope with the work set for the day? For instance, did they finish the classwork? Was their classwork done adequately? Did you assign the homework?

Briefly write down your reflection weekly, following the prompts in the tracker.

- *What went well?*
- *What did not go well?*
- *What did the learners find difficult or easy to understand or do?*
- *What will you do to support or extend learners?*
- *Did you complete all the work set for the week?*
- *If not, how will you get back on track?*
- *What will you change next time? Why?*

The reflection should be based on the daily lessons you have taught each week. It will provide you with a record for the next time you implement the same lesson. It also forms the basis for collegial conversations with your head of department and your peers.

Week 2

Day	CAPS content, concepts, skills	LP no. & p.	DBE workbook	Resources	Date completed
1	Zero and Number 1: Identify, recognise, read and write number symbol 1 and the number name one	1	Worksheet 9 (pp. 18, 19)	Number symbol and number name cards (0 zero*;* 1 one), counting objects, old magazines/newspapers, number tracing card (see *Printable Resources*)	
2	Number 2: Identify, recognise, read and write number symbol 2 and the number name two	2	Worksheet 10 (pp. 20, 21)	Number symbol and number name cards (2 two), counting objects, old magazines/newspapers, number tracing card (see *Printable Resources*)	
3	Number 3: Identify, recognise, read and write number symbol 3 and the number name three	3	Worksheet 11 (pp. 22, 23)	Number symbol and number name cards (3 three), counting objects, magazines/newspapers, number tracing card (see *Printable Resources*)	
4	Compare and order numbers 1 to 3: Describe and compare a collection of objects and numbers (1 to 3)	4	Worksheet 13 (pp. 28, 29)	Counters, number symbol cards, flashcards (more, less, the same as)	
5	Complete and consolidate the week's assessment and work	n/a			

Week 2 Assessment Activity 1: ORAL and PRACTICAL– INFORMAL
CAPS: Number, operations and relationships: Counting
Activity: Observe learners to assess their ability to count objects up to 3.

Mark: /7

Mark (percentage)	Criteria – rubric
1 (0%-29%)	Unable to count less than 3 objects reliably
2 (30%-39%)	Counts out less than 3 objects reliably, saying the names with errors most times
3 (40%-49%)	Counts out up to 3 objects reliably, saying the names in sequence with a few errors most times
4 (50%-59%)	Counts out 3 objects reliably, saying the names in sequence with a few errors sometimes
5 (60%-69%)	Counts out 3 objects reliably, saying the names correctly in sequence
6 (70%-79%)	Counts out more than 3 objects reliably, saying the names in sequence correctly
7 (80%-100%)	Counts out more than 3 objects reliably, saying the names in sequence correctly and confidently

Reflection

Think about and make a note of: *What went well? What did not go well? What did the learners find difficult or easy to understand or do? What will you do to support or extend learners? Did you complete all the work set for the week? If not, how will you get back on track?*

What will you change next time? Why?

HOD _____ Date _____

Lesson Plans - Excerpts from the *Lesson Plans* for use in Session 1

CONTENTS

Etc.

ABOUT THE LESSON PLANS AND RESOURCES

The lesson plans and resources in this book are part of the Teacher Toolkit for Mathematics Grade 2 Term 2. The other documents in the toolkit are:

- a CAPS aligned Planner, Tracker and Assessment Resources
- a bilingual CAPS Learner Activity Book
- a bilingual Dictionary of Mathematical Terms.

A variety of printable resources that you can copy for yourself and/or your learners are included at the end of the lesson plans in this book. They include:

a) **Resource sheets:** These comprise a variety of teaching and learning aids that are needed in certain lessons. The specific resource sheet, and the number of copies needed, is noted in the relevant lesson plan and in the tracker so that you can prepare them in advance.
b) **Mental mathematics challenge cards:** A pack of eight mental mathematics challenge cards (solutions are provided) are included to allow for routine weekly mental mathematics activities that you can record.
c) **Enrichment activity cards:** A pack of 32 enrichment activity cards (solutions are provided) are included for learners who complete the day's classwork activities ahead of the class.

A. About the lesson plans

The lesson plans give detailed information about how to teach a CAPS-aligned lesson every day. By following the lesson plans, you will ensure that you cover the content and assessment tasks specified in the curriculum and give your learners the best possible chance of developing the knowledge and skills required for Mathematics in this grade.

1. Curriculum alignment

The lessons are sequenced according to the topics in the CAPS and weighted according to requirements given there, and the programme of assessment is accommodated. Every lesson shows the CAPS content and skill being focussed on in the lesson.

2. Links to the DBE workbooks

Links are given in the lessons to all appropriate DBE worksheets. Note that the pages referred to are all from the 2017 edition of the DBE workbook. This changes very little from year to year, but if you use a different edition of the workbook, you should check that the worksheet on the same page in this different edition is still appropriate for your purpose.

Bilingual learner material is provided in the LoLT of the school in accordance with the Foundation Phase language policy.

3. Broad overview of the content of the lesson plans

Each lesson plan provides a set of steps to guide you in delivering the lesson. In addition, it contains learner activities that will help learners develop the concepts and skills set for the lesson. These include the required daily mental mathematics activity, whole class oral activities led by the teacher, classwork and homework activities, as well as answers for these. All the classwork and homework activities are also given in the Learner Activity Books, so that learners do not need to waste time copying them down. In Grade 1, learners write in these activity books, and so need a new one each term. In the other grades, activity books should not be written in and should be returned at the end of each term for use the following year.

4. Assessment

The programme of assessment suggested in the lesson plans and tracker is adaptable and can be adjusted to comply with the CAPS as amended by Circular S1 of 2017 and provincial responses to this. The lesson plans and tracker provide a number of resources to support both formal and informal assessment in this programme, as noted below:

- Oral and practical activities which you can use to assess learners as you observe and interact with them in class are provided in the tracker. Rubrics and checklists with criteria for

this assessment are provided in the tracker, at the end of the table for the week in which the assessment is suggested.

- There is an item bank of written assessment questions, with marking memos in the tracker. Items that are relevant to a specific lesson are noted in the resources column for the lesson in the tracker.
- A complete overview of the programme of assessment for the term is given in the tracker. This shows you when it is suggested you carry out both formal (and informal) assessment tasks which are oral, practical and written. This will assist you in planning and monitoring your assessment programme.
- There is also a recommended mark record sheet in the tracker. This has been drawn up to assist you as you record your marks on SA-SAMS.

5. *Managing the lesson programme*

A set of orientation activities on eight different topics aligned with the CAPS baseline assessment requirements is provided for the start of the term. You should use all or a selection of these activities in the first week of term before the formal teaching of the numbered lesson plans begins.

The formal curriculum for Term 2 of Grade 2 is covered in a set of 40 numbered, fully developed lesson plans, paced to cover a 50-day teaching term. There are four such lesson plans each week for ten weeks of the term. There is no formal numbered lesson plan for the fifth lesson each week; instead, it is assigned for you to use for a variety of purposes. You can use this time to catch up, remediate or consolidate the content covered in the week's formal lessons. Learners can complete the worksheets from the DBE workbook related to topics taught in the week if they did not manage to do them in the course of the week.

Each lesson is designed to last 90 minutes. If your school's timetable has different period lengths, you will have to adjust the amount of work done in each lesson to accommodate this. However, each school should allow seven hours for Mathematics each week, and it should be possible to fit in all the work for the week, even if the lengths of periods are not the same as in the lesson plans.

6. *Sequence adherence and pacing*

Each lesson and its contents have been carefully sequenced. It is therefore important that lessons are not skipped. Should you miss a Mathematics lesson for any reason, you should continue the next day from where you last left off. Do not leave a lesson out. You may need to speed up the pace of delivery to catch up a missed lesson by covering the lesson concept content of two consecutive days in one day. To do this you could cut out or cut back on some of the routine activities like mental mathematics or homework reflection to save time until you are back on track with the expected delivery of the plans. You need to prepare very well as this will help you to manage the full set of lessons at the appropriate pace.

7. *Lesson preparation*

The lesson plans provide a detailed lesson design for you to follow. However, to deliver the lessons successfully **you must do the necessary preparation yourself**. The information below outlines some key aspects of preparation.

a) **Term focus:** Start by looking at the CAPS document and **orientating** yourself to the CAPS content focus for the term. It is important that you are clear about the content focus, as this will frame everything you do in your Mathematics lessons during the term.

b) **Prepare resources:** The resources needed for each lesson are listed in each lesson plan and in the tracker. It is very important that you check what is required for each lesson ahead of time, so that you have all your resources ready for use every day (e.g. counters, number boards, paper cut-outs, examples of shapes, etc.).
   - **Your lessons will not succeed if you have not prepared properly for them.**
   - If you do not have all the necessary resources readily available, see how best you can improvise, e.g. get learners to collect bottle tops or small stones to be used for counting, or make your own flard cards/number boards using pieces of cardboard and a marker pen.
   - Collect empty cool drink cans, cereal boxes, washing powder boxes, plastic bottles, etc. for the **shop activity** in the week long in advance, so that you have all the necessary goods to stock your shop.

- Use newspapers and magazines to cut out pictures that could be used in your teaching. If you have access to the internet, search for and print out pictures that you may need to use as illustrations in your lessons.

c) **Prepare for the written classwork and homework activities:** When preparing your lessons, check the lesson activity requirements. In some instances you will need to write information or draw some diagrams on the board that you will use while you do the interactive whole-class-teaching component of the lesson. Also mark the homework activities as often as you can, so that you can give useful feedback to the learners each day, and be aware of any difficulties learners are having as soon as they become apparent.

d) **Prepare to teach the concepts and skills associated with the lesson topic:** Think carefully about what it is that you will teach your learners in the lesson. Prepare a short introduction to the topic, so that you can explain it in simple terms to your learners. Make sure you have prepared for the teaching of the concepts before you teach – you need to be able to explain new Mathematics content and skills to the learners. Be sure you have gone through the oral teaching activities provided in the lesson plans. Also make sure that you have thought about how to use the resources in the lesson effectively. This preparation needs to be done in advance, so that you do not waste time during the lesson. Be sure you are familiar with the sequence of activities in the lesson plan. Prepare yourself to assist learners with any questions they might have during the lesson. Also give some thought to how you will accommodate learners with barriers to learning.

e) **Lesson pace:** Think about how much time you will spend on each activity. It is important to plan how you will manage the pace of the lesson carefully; otherwise you will not manage to cover all the lesson content. Not all learners work at the same pace. You need to determine the pace – be guided by the average learner and the recommendations in the lesson plans. Be careful not to slow down to the pace of the slowest learners as this will disadvantage the other learners.

f) **Organisation of learners:** Think about how you will organise learners when they do the classwork activities. Will they work alone, in pairs or in small groups? How will you organise the pairs or groups if you choose to use them? You need to organise the learners quickly at the beginning of the lesson, so that you do not waste too much time on this.

g) **Inclusive education:** Consider the needs of any learners with barriers to learning in your class, and how best you can support them. The DBE has published some excellent materials to support you in working with learners with learning barriers. Two such publications are:
   - Directorate Inclusive Education, Department of Basic Education (2011) *Guidelines for Responding to Learner Diversity in the Classroom Through Curriculum and Assessment Policy Statements*. Pretoria. www.education.gov.za, www.thutong.doe.gov.za/InclusiveEducation.
   - Directorate Inclusive Education, Department of Basic Education (2010) *Guidelines for Inclusive Teaching and Learning. Education White Paper 6. Special needs education: Building an inclusive education and training system*. Pretoria. www.education.gov.za, www.thutong.doe.gov.za/InclusiveEducation.

Lesson Plan Outline	
Each lesson plan has several components. Information about each is given in the table below. This information tells you how to use each of the components of the lesson plans and how they fit together to create a well-paced and properly scaffolded Mathematics lesson each day. You need to read this outline as you prepare each lesson until you are fully familiar with the general lesson plan components, pace and structure.	
Lesson topic	Each lesson has a topic with specific detail about the day's lesson.
CAPS topics	The CAPS content related to the day's lesson is given here, together with the reference number for this content in the expansion of content section in the CAPS document for this term. You are encouraged to look at the CAPS to read about the selected curricular topics for the day.
Lesson vocabulary	A list of all mathematical terms used in the lesson is given here. The terms, with full explanations and diagrams, are also provided in the bilingual Dictionary of Mathematical Terms that is part of your Toolkit. Go through the lesson vocabulary each day as you prepare for the lesson. These terms are important, as they are the language of Mathematics that each learner needs to learn and understand in order to build a solid foundation and understanding of this subject. It is important to explain these words to your learners and to practise using them with your learners during the lesson.
Prior knowledge and lesson concept	The prior knowledge and lesson concept section gives information about content that learners should have learnt in earlier grades that will be built on in this lesson. • You need to read through this section when you do your lesson preparation. • No time is allocated to this part of the plan because it does not form part of the teaching of the day's lesson. • The information about prior knowledge may help you to assist learners who struggle to understand the content of the lesson because there are gaps in the prior knowledge on which the lesson is based. You can use the information about prior knowledge to help you identify such gaps and to diagnose learners' needs in relation to content they do not yet know that may be preventing them from understanding the day's lesson. • Remediation may be needed on prior knowledge that you notice is not properly in place.
Assessment	A reminder to refer to the tracker for the formal/informal oral, practical or written assessment activity for the day is given here. • On-going formal/informal oral and practical assessment should be done virtually every day in your class. This means you will record a mark for a few learners for a certain criterion from the curriculum each day. Decide how many learners to assess every day, so that you assess your whole class in the time allocated to each assessment activity. • Rubrics and checklists to guide you in giving ratings for the oral and practical assessments are given in the tracker at the end of the tracker table for each week. Each day you need to use the appropriate rubric or checklist for the assessment activity of that day. • Written test items and their memos are provided in the tracker. Links to these items are given in the resources column of the tracker to show you in which lesson they should best be used. • A *Suggested Assessment Record Sheet* that you can use to record your term marks is given in the tracker. This sheet aligns with the SA-SAMS.

Lesson Plan Outline	
Remediation	***Optional as required.*** You could use these activities to assist slower learners. You need to decide, based on your observation of the learners while you are teaching the lesson content, whether to use this content and with which learners. It will be done with a smaller group of learners/individual learners while the rest of the class is working through the Classwork activity from the LAB.
Enrichment	***Optional as required.*** You could use these activities as extra work for fast learners or others interested in doing them. Activities that you can use for enrichment opportunities for learners who have completed the lesson activities are provided in a set of enrichment activity cards at the end of the lesson plan set. Ideally, you should photocopy the enrichment cards, paste them onto cardboard and laminate them, so that they can be used as a resource, not only this year, but in the future as well. Learners should work on these cards independently or with their peers who have also completed the classwork. They may work through the cards in any order. You may need to explain some of the activities to the learners who use them. You should tell them to ask questions it they have any. All learners who show an interest in the enrichment activities should be encouraged to work through the cards.
Mental mathematics **(15 minutes)**	This is the first component of the lesson. We recommend that you take at most 15 minutes to do the mental mathematics activity. There are two parts to the mental mathematics activity, a counting activity and a set of questions to drill recall and basic mathematical strategies. Mental mathematics is not a concrete activity (as the title suggests). However, if there are learners who need concrete aids to complete the mental mathematics activities, we suggest that you allow them to use their fingers to count on. • Observe which learners struggle with mental activities, and make sure you spend time to assist them to reach the required level of competence by offering remediation activities using concrete aids. • The answers to the ten mental mathematics questions are given in the answer column in the lesson plans. • It would be far better to do all ten questions per day, but if you find that your learners struggle to finish these in ten minutes, do a minimum of five questions. There is a set of mental mathematics challenge cards at the end of the lesson plans. Learners write the answers to the questions given on these cards. We recommend that learners only do written mental mathematics once a week and oral mental mathematics on all the other days. You can use this work to obtain a mental mathematics activity mark each week.
Correction/reflection on homework **(15 minutes)**	This is the second component of the lesson. We recommend that you take 15 minutes to remediate and correct the previous day's homework. Read out answers to all of the homework questions. Let learners/peers mark the work. Also try to check homework yourself as often as you can. Choose one or two activities that you realise were problematic to work through in full with the whole class. In this part of the lesson you may reflect on the previous day's work. Allow learners the opportunity to write corrections as needed.

Lesson Plan Outline	
Lesson content – concept development **(30 minutes)**	This is the third component of the lesson. It is the body of the lesson, in which learners are introduced to the new work planned for the day. We recommend that you actively teach your class for 30 minutes – going through the activities interactively with your learners. • Activities on the content that you will teach with worked examples and suggested explanations are given. These activities have been carefully sequenced and scaffolded so that they support the teaching of the concepts for the day. You should work through each of these with your class. • It is important to manage the pace of the lesson carefully, otherwise you will not manage to cover all the lesson content. Once you have introduced the new concept, work through Activity 1 of the lesson with the whole class (or with learners in groups). Then immediately move on to the next activity, and provide a reasonable time for the learners to complete Activity 2, but do not wait for the last learner to finish before moving on. If there are further activities, continue pacing yourself in this way, so that you work through all of the activities in each lesson. A few activities are marked as *optional* – these need only be done if you have sufficient time.
Classwork activity from Learner Activity Book **(25 minutes)**	This is the fourth component of the lesson. We recommend that you allocate 25 minutes to classwork. You could go over one or two of the classwork activities orally with the whole class before allowing the class to complete the activities independently (individually or in groups). • Learners do most of the activities in their Mathematics books (an exercise book for learner Mathematics writing activities). Some activities are done in the DBE workbook. • You should allow the learners opportunities to do these activities alone, in pairs and in groups so that they experience working alone as well as with their peers. • Wrap up the lesson each day by giving the learners the answers to the classwork, and allow time for corrections to be written if and when necessary. The bilingual Learner Activity Book contains all of the daily classwork activities.
Homework activity from Learner Activity Book **(5 minutes)**	This is the fifth and final component of the lesson. We have allocated five minutes to give you time to tell the learners about the homework each day. Here you find a set of activities on the day's content that you can set for your class to do for homework. This is to consolidate the Mathematics that you have taught them that day. Homework also promotes learner writing and development of their mathematical knowledge. The bilingual Learner Activity Book contains all of the daily homework activities.
Reflection	Each day there is a reminder to note your thoughts about the day's lesson. You will use these notes as you plan and prepare for your teaching.

Lesson Plans - Excerpts from the *Lesson Plans* for use in Session 1 & 2:

Fractions lessons

LESSON 35: FRACTIONS

Teacher's notes

CAPS topics: 1.1 Counting objects, 1.2 Count forwards and backwards, 1.10 Sharing leading to fractions, 1.16 Mental mathematics, 1.17 Fractions.

Lesson vocabulary: Fractions, halves, quarters, thirds, fifths, calculate, fraction circles, share, divide, equal parts.

Prior knowledge:
Learners should have been taught how to:

- Recognise fractions in diagrammatic form.

Concepts:

- Solve word problems in context and explain own solutions to problems that involve equal sharing leading to solutions that include unitary fractions halves, quarters, thirds and fifths.
- Recognise fractions in diagrammatic form.
- Write fractions as 1 half, 2 thirds.

Resources: Fruit picture cards (see printable – one copy per group).

DBE workbook activities relevant to this lesson:

- DBE worksheet 60 (pp. 128 and 129).

Assessment: Refer to the tracker for today's formal/informal oral, practical or written assessment activity.

Remediation: Cut any fruit into halves, quarters and thirds. Ask the learners each time: *Between how many children can you share it?* I can share this between two children (halves). I can share this amongst three children (thirds). I can share this amongst five children (fifths). I can share this amongst four children (quarters).

Problem solving: *Mom bakes a cake. It is for me and my three friends. How many equal parts should she cut it into?* Use fraction circles to show how to find the answers to these problems.

Enrichment: See enrichment activity cards.

1. Mental mathematics

1.1 Counting (5 minutes)

- Count forwards and backwards in 5s and 10s from 0 to 150.

1.2 Mental mathematics activity (10 minutes)

	Calculate:	Answer
1.	__ + 9 = 9	0
2.	__ + 3 = 7	4
3.	__ + 4 = 5	1
4.	__ + 1 = 7	6
5.	__ + 8 = 10	2

	Calculate:	Answer
6.	__ + 7 = 9	2
7.	__ + 2 = 7	5
8.	__ + 10 = 10	0
9.	__ + 6 = 9	3
10.	__ + 5 = 10	5

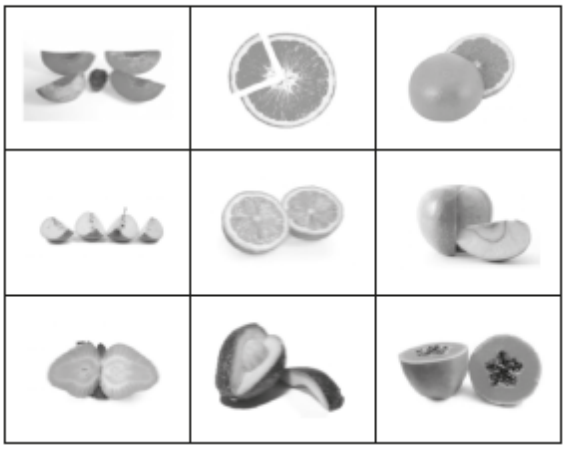
2. Correction/reflection on homework (15 minutes)

Reflection/remediation based on previous day's work/homework.

3. Lesson content – concept development (30 minutes)

Activity 1: Learners work in pairs

- Give each pair of learners a fruit pictures card.
- Discuss each of the fruits: think about their colour, taste and texture.
- Then ask the learners the following questions while still looking at the pictures/fruit:
  (Make sure all of the learners are able to recognise the fraction parts into which the different fruit have been cut.)



  - *Which fruits are divided into halves?* (Whole orange, strawberry, paw paw.)
  - *Which fruits are divides into quarters?* (Nectarine, apple.)
  - *From which fruit was one quarter cut?* (Orange slice, apple, avocado.)
  - *How many equal parts makes fifths?* (5) *Are any of these fruits in fifths?* (No.)

4. Classwork activity (25 minutes) (See next page)

5. Homework activity (5 minutes) (See next page)

6. Reflection on lesson

Term 2 Lesson 35: Fractions

Classwork

1. Draw a picture of an apple, orange, tomato and a banana. Share these fruits between two children. (Halves.)
2. Use the same fruit but share them amongst four children this time. (Quarters.)
3. I have an orange cut in fifths. How many children can share the orange? Draw pictures. (Five.)
4. I have an apple cut into quarters. Can I share it between two or four children? (Four – each get one; two – each get two.)
5. I have a mango. Cut it to share it between three children. How much mango do they each get? (1 third.)

Homework

1. Draw a picture of a round cake. Share the cake equally between you and your friend. (Halves.)
2. I cut an apple into quarters. How many children will get a piece of apple each? (Four.)
3. I cut an orange into quarters. I share it between two children. How many pieces will each child get? (Two.)
4. Draw a rectangle and divide it into fifths.

LESSON 36: FRACTIONS

Teacher's notes

CAPS topics: 1.1 Counting objects, 1.2 Count forwards and backwards, 1.10 Sharing leading to fractions, 1.16 Mental mathematics, 1.17 Fractions.

Lesson vocabulary: Fractions, halves, quarters, thirds, fifths, calculate, share equally, between.

Prior knowledge:
Learners should have been taught how to:

- Solve word problems in context and explain own solutions to problems that involve equal sharing leading to solutions that include unitary fractions halves, quarters, thirds and fifths.
- Recognise fractions in diagrammatic form.

Concepts:

- Solve word problems in context and explain own solutions to problems that involve equal sharing leading to solutions that include unitary fractions halves, quarters, thirds and fifths.
- Recognise fractions in diagrammatic form and write fractions as 1 half, 2 thirds.
- Use techniques like drawings or concrete apparatus, e.g. counters, when solving problems and explain solutions to problems.

Resources: Scrap paper.

DBE workbook activities relevant to this lesson:

- DBE worksheet 61 (pp. 130 and 131).

Assessment: Refer to the tracker for today's formal/informal oral, practical or written assessment activity.

Remediation: Cut any fruit, e.g. an apple or orange, into halves, quarters and thirds or use fruit pictures. Ask the learners each time: *Between how many children can you share it?* I can share this between two children (halves). I can share this amongst three children (thirds). I can share this amongst four children (quarters). Ask the learners to share the following equally between 2 children: 3 apples (each child gets one and a half apple). 5 apples (each child gets two and a half apples). Share the following equally amongst 3 children: 4 apples (each child gets one and one third apple). 7 apples (each child gets two and one third apples). Share the following equally amongst 4 children: 5 apples (each child gets one and a quarter apples). 8 apples (each child gets two apples). Etc.

Enrichment: See enrichment activity cards.

1. Mental mathematics

1.1 Counting (5 minutes)

- Ask the learners to start at 132, count on in ones to 150.

1.2 Mental mathematics activity (10 minutes)

	Calculate:	Answer
1.	__ – 3 = 7	10
2.	__ – 5 = 2	7
3.	__ – 9 = 1	10
4.	__ – 8 = 1	9
5.	__ – 6 = 2	8

	Calculate:	Answer
6.	__ – 4 = 0	4
7.	__ – 7 = 2	9
8.	__ – 0 = 10	10
9.	__ – 1 = 3	4
10.	__ – 2 = 4	6

2. Correction/reflection on homework (15 minutes)

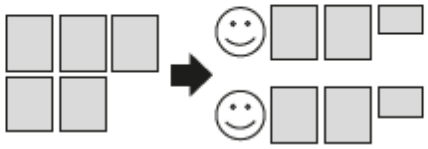
Reflection/remediation based on previous day's work/homework.

3. Lesson content – concept development (30 minutes)

This activity is practical. It is essential that you allow learners to work with the scrap paper while they do the sharing. The activity is designed so that you make best possible use of the scrap paper as learners can re-use the whole sheets as they work through the different sharing tasks. Each time they should only fold and tear the piece that needs to be broken up.

Activity 1: Learners work in groups

- Give each group of learners some sheets of scrap paper. Neatly tear each piece of paper in half if you need to, so that you can give each group 10 sheets of paper.
- Discuss the following sharing problems, allowing the learners to work out the answers using the scrap paper.
- Share 5 sheets of paper equally between two children. *How many sheets will each child get?*
  (Two and a half sheets of paper.)



- Share 5 sheets of paper equally between four children. *How many sheets of paper will each child get?*
  (One and one quarter sheets of paper.)

Activity 2: Learners work in groups

- Put aside the papers that you have divided up into fraction parts and re-use the whole scrap paper sheets.
- Share 4 sheets of paper equally between three children. *How many sheets of paper will each child get?*
  (One and one third sheets of paper.)
- Share 3 sheets of paper equally between two children. *How many sheets of paper will each child get?*
  (One and one half sheets of paper.)

4. Classwork activity (25 minutes) (See next page)

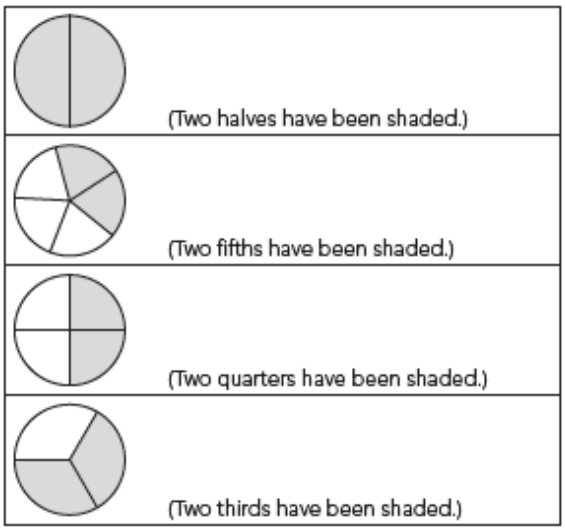
5. Homework activity (5 minutes) (See next page)

6. Reflection on lesson

Term 2 Lesson 36: Fractions

Classwork

1. Copy and label the fraction parts that the circles have been divided into. Colour two of each of the parts and write the amount you have shaded under each drawing. (Do not shade the undivided whole.)



2. Draw 2 children, 2 apples and 2 halves of an apple. How much fruit will each child get? (One and one half of an apple.)

3. Draw 2 children, 4 oranges and 2 quarters of an orange. How much fruit will each child get? (Two and one quarter oranges.)

4. Share 3 oranges equally between 3 children. Each child gets: __ (One orange.)

5. Share 4 oranges equally between 3 children. Each child gets: __ (One and one third oranges.)

Homework

1. Share 4 oranges equally between 2 children. Each child gets: __ (Two oranges.)

2. Share 4 bananas equally between 3 children. Each child gets: __ (One and one third bananas.)

3. Share 5 tomatoes equally between 4 children. Each child gets: __ (One and one quarter tomatoes.)

4. Share 6 mangoes equally between 5 children. Each child gets: __ (One and one fifth mangoes.)

LESSON 37: FRACTIONS

Teacher's notes

CAPS topics: 1.1 Counting objects, 1.2 Count forwards and backwards, 1.10 Sharing leading to fractions, 1.12 Techniques (methods or strategies), 1.16 Mental mathematics, 1.17 Fractions.

Lesson vocabulary: Fractions, halves, half, halve, double, quarters, thirds, fifths, equally.

Prior knowledge:
Learners should have been taught how to:

- Solve word problems in context and explain own solutions to problems that involve equal sharing leading to solutions that include unitary fractions halves, quarters, thirds and fifths.
- Recognise fractions in diagrammatic form.

Concepts:

- Solve word problems in context and explain own solutions to problems that involve equal sharing leading to solutions that include unitary fractions halves, quarters, thirds and fifths.
- Recognise fractions in diagrammatic form.
- Write fractions as 1 half, 2 thirds.

Resources: Scrap paper – cut into squares for learners.

DBE workbook activities relevant to this lesson:

- DBE worksheet 62 (pp. 132 and 133).

Assessment: Refer to the tracker for today's formal/informal oral, practical or written assessment activity.

Remediation: Give learners papers in a variety of sizes. You need to prepare it beforehand. Make use of recycled paper. Ask learners to choose any piece of paper and to fold it in half. Note that the way learners fold the paper could be different. Make sure they fold it into two exactly equal pieces. Do the same activity folding the papers into quarters. You can also add pieces of paper cut into triangles and circles.

Problem solving: *How many times should you fold a paper to get: halves, quarters, thirds, fifths?*

Enrichment: See enrichment activity cards.

1. Mental mathematics

1.1 Counting (5 minutes)

- Ask the learners to start at 3, count on in threes to 30.

1.2 Mental mathematics activity(10 minutes)

	Double:	Answer
1.	5	10
2.	7	14
3.	9	18
4.	11	22
5.	12	24

	Halve:	Answer
6.	20	10
7.	18	9
8.	16	8
9.	10	5
10.	4	2

2. Correction/reflection on homework (15 minutes)

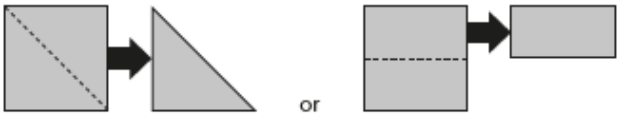
Reflection/remediation based on previous day's work/homework.

3. Lesson content – concept development (30 minutes)

You need to prepare some square sheets of scrap paper for this lesson.

Activity 1: Whole class activity

- Give each learner a piece of square paper to use for the following activity.
- Learners fold their papers in half and name each part. It is important that they understand that when you make two equal parts from something, you call each part a *half*.
- Fold the piece of paper into half again. The importance here is to fold the page in different ways to obtain a different-looking half. Always ask learners to predict how many pieces they will get and allow them to unfold the page and check.



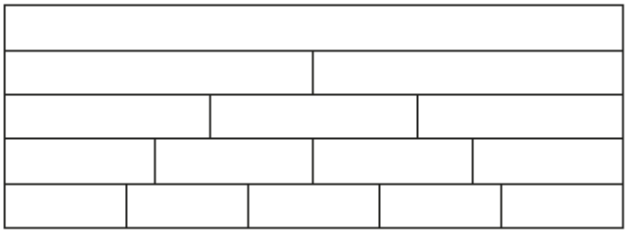
- Comparing the two different half shapes can lead to interesting conversations on shape and size.
- Ask the learners: *Can I call these two shapes by the same number name, namely one half?* (Yes.)
- Do the same for different quarter shapes that you fold using a square of paper.

Activity 2: Learners work in groups

- With other pieces of paper experiment with the learners on how to fold a piece of paper into other fraction parts:
  - thirds
  - quarters
  - fifths
  - sixths.
- Repeat the questioning to consolidate that parts of equal size give us fraction parts and they are named according to how many parts the whole was divided into. (For example, if I have 5 equal sized parts I have fifths.)
- Discuss the idea that even if shapes look different they can be the same size, if they have been made by folding into equal parts. (For example, if I have folded a square into sixths in two different ways, I have still found sixths both times.)

Activity 3: Whole class activity

- Draw this grid on the board.



- Discuss the way in which the grid has been divided into fraction parts.
- Label the fraction parts in your gird on the board as you discuss them with the class. (Label each row in the fraction table – whole, halves, thirds, quarters, fifths.)
- Leave the grid on the board for learners to refer to when they do the classwork activity.

4. Classwork activity (25 minutes) (See next page)

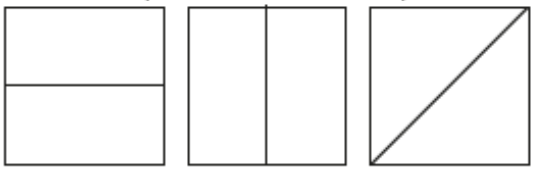
5. Homework activity (5 minutes) (See next page)

6. Reflection on lesson

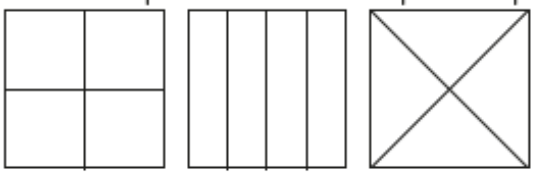
Term 2 Lesson 37: Fractions

Classwork

1. Draw three squares and divide each square into halves showing a different way each time.



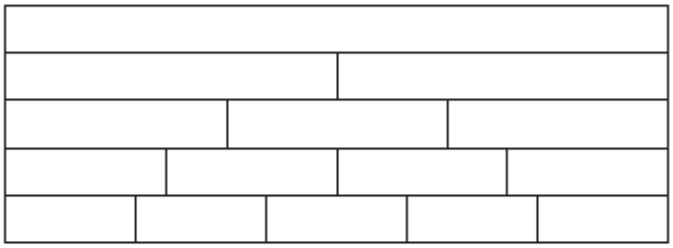
2. Draw three squares and divide each square into quarters showing a different way each time.



3. Can you divide a triangle in half, in more than one way? Show it. (No, only 1 way.)

4. Can you divide a circle into quarters, in more than one way? Show it. (No, only 1 way.)

5. Name the fraction parts into which each row of this table has been divided:



(Rows in order from the top: whole, halves, thirds, quarters, fifths.)

Homework

(Learners must do these drawings, as shown in the classwork activity solutions above. Check that they have divided their shapes into equal-sized parts.)

1. Draw 3 rectangles. Divide each one into halves showing different ways.

2. Draw 2 squares. Divide each one into quarters showing different ways.

3. Choose one shape and divide it into thirds: a rectangle, square, circle or a triangle.

4. Choose one shape and divide it into fifths: a rectangle, square or a circle.

Learner Activity Book - Excerpts from the *Learner Activity Book* for use in Session 1

CONTENTS Grade 3
OKUQUKETHWE Ibanga lesi-3

TERM 2 LESSON 1: PLACE VALUE – NUMBERS 100–300

ITHEMU 2 ISIFUNDO 1: ISIKHUNDLA SENOMBOLO – IZINOMBOLO 100-300

Classwork **Umsebenzi waseklasini**

1. How many tens are in 260?
   Mangaki amashumi ema-260?

2. How many hundreds are in 99?
   Mangaki amakhulu ema- 99?

3. How many ones are there in 45?
   Mingaki imivo ema-45?

4. Draw a number line starting at 290 and ending at 300.
   Dweba umugqa wezinombolo uqale ema-290 uphele ema-300.
   a) Draw a square around 295.
      Dweba isikwele ukokelezele ama-295.
   b) Circle all the numbers smaller than 295.
      Kokelezela zonke izinombolo ezincane kunama-295.
   c) Underline all the numbers bigger than 295.
      Dwebela zonke izinombolo ezinkulu kunama-295.

5. Write 128 in words.
   Bhala i-128 ngamagama.

6. Write 105 in words.
   Bhala i-105 ngamagama.

7. Write 233 in words.
   Bhala ama-233 ngamagama.

8. Write 204 in words.
   Bhala ama-204 ngamagama.

Homework **Umsebenzi wasekhaya**

1. Draw a number line starting at 180 and ending at 190.
   Dweba umugqa wezinombolo uqale ema-180 uphele ema-190.
   a) Draw a square around 186.
      Dweba isikwele ukokelezele i-186.
   b) Circle all the numbers smaller than 186.
      Kokelezela zonke izinombolo ezincane kune-186.
   c) Underline all the numbers bigger than 186.
      Dwebela zonke izinombolo ezinkulu kune-186.

TERM 2 LESSON 2: PLACE VALUE – NUMBERS 301–400

ITHEMU 2 ISIFUNDO 2: ISIKHUNDLA SENOMBOLO – IZINOMBOLO 301–400

Classwork **Umsebenzi waseklasini**

1. Write 329 showing the breakdown into hundreds, tens and units.
   Bhala u-329 umehlukanise ngamakhulu, amashumi nangamayunithi.

2. Write a number sentence and the answer for 300 and 80 and 1.
   Bhala umusho wezinombolo kanye nempendulo yalokhu: amabhulokhi angama-300 namanye angama-80 kanye nelinye eli-1.

3. Draw and complete a number line. Start at 390 and end at 400.
   Dweba uphinde uqedele umugqa wezinombolo. Qala ema-390 uphelele ema-400.

a) Underline all the numbers smaller than 395.
   Dwebela zonke izinombolo ezincane kunama-395.

b) Circle all the numbers bigger than 395.
   Kokelezela zonke izinombolo ezinkulu kunama-395.

4. Write 233 in words.
   Bhala ama-233 ngamagama.

5. Write 244 in words.
   Bhala ama-244 ngamagama.

Homework **Umsebenzi wasekhaya**

1. Write 362 showing the breakdown into hundreds, tens and units.
   Bhala u-362 umehlukanise ngamakhulu, amashumi nangamayunithi.
2. Write a number sentence and answer for 90 and 300 and 2.
   Bhala umusho wezinombolo kanye nempendulo yalokhu: ama-90 nama-300 noku-2.
3. Draw and complete a number line. Start at 380 and end at 390.
   Dweba uphinde uqedele umugqa wezinombolo. Qala ema-380 uphelele ema-390.
   a) Underline all the numbers bigger than 386.
      Dwebela zonke izinombolo ezincane kunama-386.
   b) Circle all the numbers smaller than 384.
      Kokelezela zonke izinombolo ezinkulu kunama-386.
4. Write 226 in words.
   Bhala ama-226 ngamagama.

TERM 2 LESSON 3: PLACE VALUE – NUMBERS 401–500

ITHEMU 2 ISIFUNDO 3: ISIKHUNDLA SENOMBOLO – IZINOMBOLO 401–500

Classwork **Umsebenzi waseklasini**

1. Write a number sentence and the answer for 400 blocks and 20 blocks and 9 blocks.
   Bhala umusho wezinombolo kanye nempendulo yalokhu: amabhulokhi angama-400 namanye angama-20 kanye namanye ayi-9.

2. Write a number sentence and the answer for 400 and 80 and 1.
   Bhala umusho wezinombolo kanye nempendulo yalokhu: amabhulokhi angama-400 namanye angama-80 kanye nelinye eli-1.

3. Draw and complete a number line. Start at 490 and end at 500.
   Dweba umusho wezinombolo ophelele. Qala ema-490 ugcine ema-500.
   a) Circle all the numbers smaller than 495.
      Kokelezela zonke izinombolo ezincane kunama-495.
   b) Underline all the numbers bigger than 495.
      Dwebela zonke izinombolo ezinkulu kunama-495.

4. Write 238 in words.
   Bhala ama-238 ngamagama.

5. Write 212 in words.
   Bhala ama-212 ngamagama.

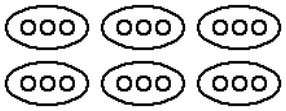
Homework **Umsebenzi wasekhaya**

1. Write a number sentence and answer for 400 blocks and 60 blocks and 2 blocks.
   Bhala umusho wezinombolo kanye nempendulo yalokhu: amabhulokhi angama-400 namanye ayi-60 namanye ama-2.
2. Write a number sentence and answer for 90 and 400 and 2.
   Bhala umusho wezinombolo kanye nempendulo yalokhu: ama-90 nama-400 uphinde uqedele umugqa wezinombolo.
3. Draw and complete a number line. Start at 480 and end at 490.
   Dweba umugqa wezinombolo ophelele. Qala ema-480 uwuqedele ema-490.
   a) Circle all the numbers bigger than 486.
      Dwebela izinombolo ezinkulu kunama-484.
   b) Underline all the numbers smaller than 484.
      Dwebela izinombolo ezincane kunama-484.
4. Write 207 in words.
   Bhala ama-207 ngamagama.

Fractions exercises: Session 2 Activity 6

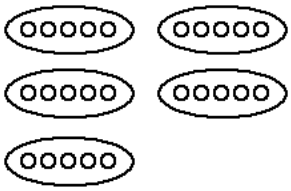
How many equal sized parts have the wholes below been divided into?

Exercise 1

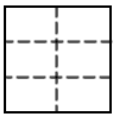
A 

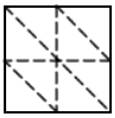
B 

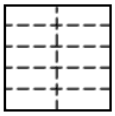
C 

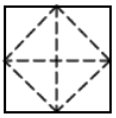
D 

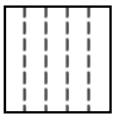
E 

F 

G 

H 

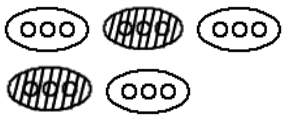
I 

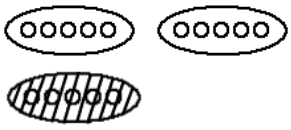
J 

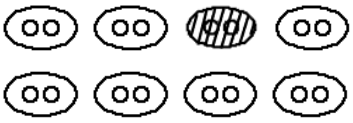
K 

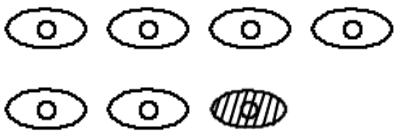
Identify what part of the whole has been shaded in each case.

Exercise 2

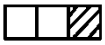
A 

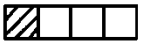
B 

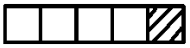
C 

D 

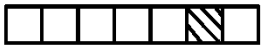
F 

G 

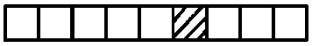
H 

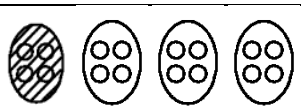
I 

J 

K 

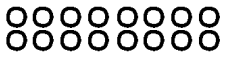
L 

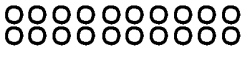
M 

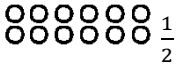
E 

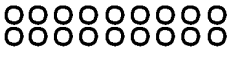
Exercise 3

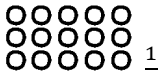
Shade the fraction part requested in each case.

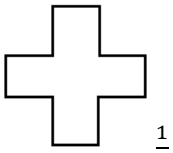
A  $\frac{3}{8}$

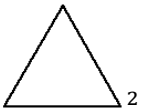
B  $\frac{1}{4}$

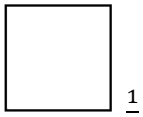
C  $\frac{1}{2}$

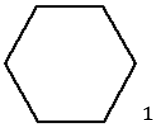
D  $\frac{2}{6}$

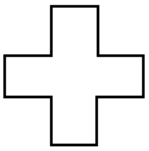
E  $\frac{1}{5}$

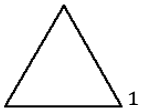
F  $\frac{1}{2}$

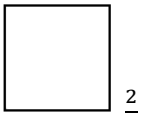
G  $\frac{2}{3}$

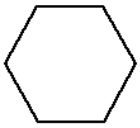
H  $\frac{1}{4}$

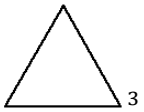
I  $\frac{1}{2}$

J  $\frac{3}{4}$

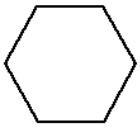
K  $\frac{1}{2}$

L  $\frac{2}{3}$

M  $\frac{2}{3}$

N  $\frac{3}{4}$

O  $\frac{5}{9}$

P  $\frac{5}{6}$

Exercise 4

Which of the following illustrations correctly give the fraction parts as indicated?

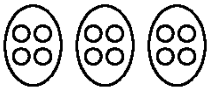
A Halves?

B Thirds?

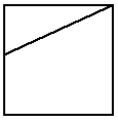
C Thirds?

D Quarters?

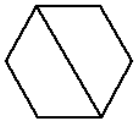
E Quarters?



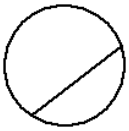
F Halves?



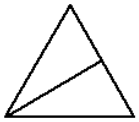
G Halves?



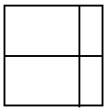
H Halves?



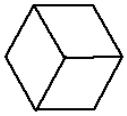
I Halves?



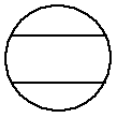
J Thirds?



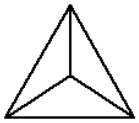
K Thirds?



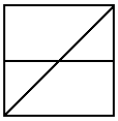
L Thirds?



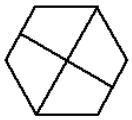
M Thirds?



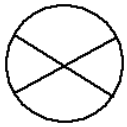
N Quarters?



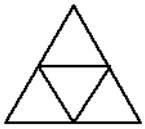
O Quarters?



P Quarters?



Q Quarters?



CAPS excerpts – Session 2: Activity 7

CAPS FP	Grade 1	Grade 2	Grade 3
1.9 Grouping and sharing leading to division	Practically solve word problems in context and explain own solutions to problems involving equal sharing and grouping with whole numbers up to 5 and with answers that may include remainders.	Solve word problems in context and explain own solutions to problems that involve equal sharing and grouping up to 20 with answers that may include remainders.	Solve number problems in context and explain own solutions to problems that involve equal sharing and grouping up to 50 with answers that may include remainders.
	Solve word problems in context and explain own solutions to problems involving equal sharing and grouping with whole numbers up to 10 and with answers that may include remainders	Solve word problems in context and explain own solutions to problems that involve equal sharing and grouping up to 50 with answers that may include remainders.	Solve number problems in context and explain own solutions to problems that involve equal sharing and grouping up to 75 with answers that may include remainders.
	Solve word problems in context and explain own solutions to problems involving equal sharing and grouping with whole numbers up to 15 and with answers that may include remainders	Solve word problems in context and explain own solutions to problems that involve equal sharing and grouping up to 75 with answers that may include remainders.	Solve number problems in context and explain own solutions to problems that involve equal sharing and grouping up to 75 with answers that may include remainders.
	Solve word problems in context and explain own solutions to problems involving equal sharing and grouping with whole numbers up to 20 and with answers that may include remainders.	Solve word problems in context and explain own solutions to problems that involve equal sharing and grouping up to 99 with answers that can include remainders.	Solve number problems in context and explain own solutions to problems that involve equal sharing and grouping up to 100 with answers that may include remainders.
1.10 Sharing leading to fractions			Solve and explain solutions to practical problems that involve equal sharing leading to solutions that include unitary and non-unitary fractions e.g. $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}, \frac{2}{5},$ etc.
		Solve word problems in context and explain own solutions to problems that involve equal sharing leading to solutions that include unitary fractions e.g. $\frac{1}{2}, \frac{1}{4}, \frac{1}{3}, \frac{1}{5},$ etc.	Solve and explain solutions to practical problems that involve equal sharing leading to solutions that include unitary and non-unitary fractions e.g. $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}, \frac{2}{5},$ etc.
		Solve word problems in context and explain own solutions to problems that involve equal sharing leading to solutions that include unitary fractions e.g. $\frac{1}{2}, \frac{1}{4}, \frac{1}{3}, \frac{1}{5},$ etc.	Solve and explain solutions to practical problems that involve equal sharing leading to solutions that include unitary and non-unitary fractions e.g. $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}, \frac{2}{5},$ etc.
		Solve word problems in context and explain own solutions to problems that involve equal sharing leading to solutions that	Solve and explain solutions to practical problems that involve equal sharing leading to solutions that include unitary

CAPS FP	Grade 1	Grade 2	Grade 3
		include unitary fractions e.g. $\frac{1}{2}$, $\frac{1}{4}, \frac{1}{3}, \frac{1}{5}$, etc.	and non-unitary fractions e.g. $\frac{1}{2}$, $\frac{1}{4}, \frac{3}{4}, \frac{2}{5}$, etc.
1.17 Fractions		Use and name fractions in familiar contexts including halves, quarters, thirds and fifths. Recognise fractions in diagrammatic form. Write fractions as 1 half, 2 thirds.	Use and name unitary fractions in familiar contexts including halves, quarters, eighths, thirds, sixths, fifths. Recognise fractions in diagrammatic form. Write fractions as 1 half, 1 third.
		Use and name fractions in familiar contexts including halves, quarters, thirds and fifths. Recognise fractions in diagrammatic form. Write fractions as 1 half, 1 third.	Use and name unitary fractions in familiar contexts including halves, quarters, eighths, thirds, sixths, fifths. Recognise fractions in diagrammatic form. Write fractions as 1 half, 1 third.
		Use and name fractions in familiar contexts including halves, quarters, thirds and fifths. Recognise fractions in diagrammatic form. Write fractions as 1 half, 1 third.	Use and name unitary and non-unitary fractions in familiar contexts including halves, quarters, eighths, thirds, sixths, fifths. Recognise fractions in diagrammatic form. Begin to recognise that two halves or three thirds make one whole and that 1 half and 2 quarters are equivalent. Write fractions as 1 half, 2 thirds.
		Use and name unitary fractions in familiar contexts including halves, quarters, thirds, fifths. Recognise fractions in diagrammatic form. Write fractions as 1 half, 1 third.	Use and name unitary and non-unitary fractions in familiar contexts including halves, quarters, eighths, thirds, sixths, fifths. Recognise fractions in diagrammatic form. Begin to recognise that two halves or three thirds make one whole and that 1 half and 2 quarters are equivalent. Write fractions as 1 half, 2 thirds.

Extract from ANA diagnostic report (2014) Session2: Activity 7

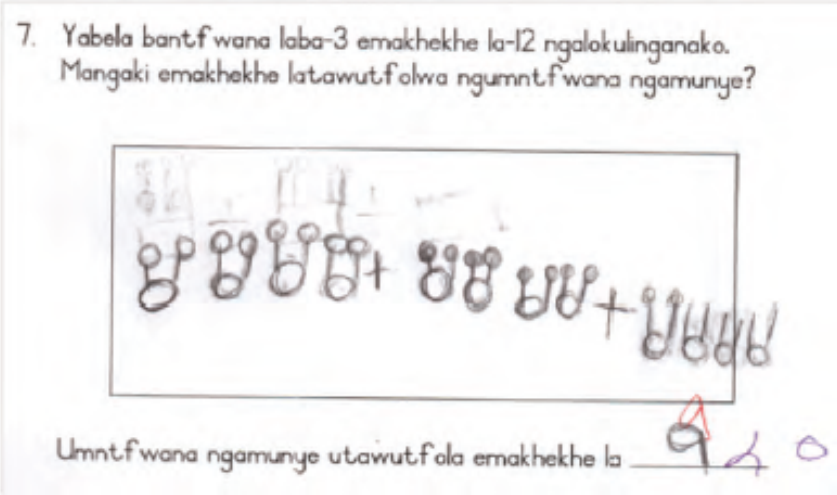
Grade 1: Sharing division (prior knowledge for fracitons).

b. Division with Sharing equally without a remainder

Learners were expected to solve a word problem by (sharing) using numbers up to 12. Grade 1 learners are expected to be able to apply the skill of sharing equally in the number range up to 20 without a remainder.

In this assessment learners knew that they had a total of "12" to share. The majority of learners understood the term "equally" and therefore made drawings showing "3 groups of 4 to get 12" but did not respond to the question "On how many biscuits each child got?"

An example of a common kind of error made by learners is presented below. In this example learners were required to demonstrate their understanding of the concept of sharing the total number of biscuits which is 12 amongst 3 learners equally.



In the example above, the learner correctly represented the number (12) of biscuits in three (3) groups of four (4) biscuits. The grouping technique is shown in the drawing and repeated addition in 4's to get to the total of "12". However, the learner was not able to accurately divide the number of biscuits amongst three learners to arrive at an answer of four biscuits per learner; as the learner finally wrote an answer of nine (9) as shown in the specimen. It would appear that the learner lacked the knowledge of using division as the appropriate basic operation of sharing and may have subtracted the number of learners from the total number of biscuits.

Remediation

Based on the identified problems above, some remediation measures are stated below for teachers to consider

- Expose learners to practical equal sharing situations using word problems that arise in various contexts in their lives, e.g. sharing of sweets, money, etc.;
- expose learners to practical sharing activities where they share out one object/item at a time and increase the number range progressively namely up to 5, up to 10 and up to 15;
- teach learners problem solving techniques for equal sharing namely grouping (drawing), number line (count backwards showing equal jumps e.g. from 12 by counting in 4s three times), repeated equal addition (e.g. 4 + 4 + 4 = 12) and repeated equal subtraction (e.g. 12 – 4 – 4 – 4 = 0); and
- teach learners to use appropriate symbols (+,-, =, □) and to write number sentences for each word problem.

Extract from ANA diagnostic report (2014) Session2: Activity 7

Grade 3: Fractions – problem solving contexts

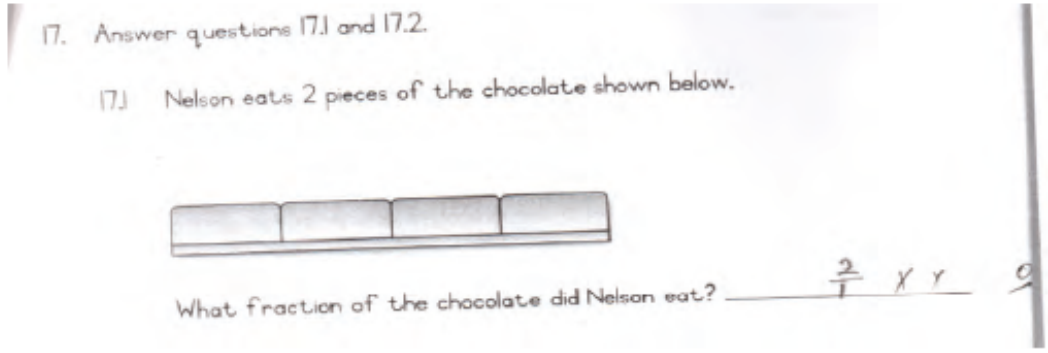
c. Fractions

Learners were expected to solve problems in context by making meaning of the drawings and identifying the number parts in the whole that included unitary fractions e.g. half, quarter, three quarter, two fifths, etc. Learners were expected to show understanding of a whole divided into equal parts and show how equal parts can form a whole. Thereafter, identify the fraction half, quarter etc.

At Grade 3 level learners are expected to recognise, use and name unitary and non-unitary fractions and write fractions as 1 half, 1 third etc. In this assessment, learners were expected to identify a fraction that represents two pieces of a chocolate in the given picture (a whole) and also to identify the number of pieces. The majority of learners lacked the knowledge of the terminology (in words) that represented the required fraction.

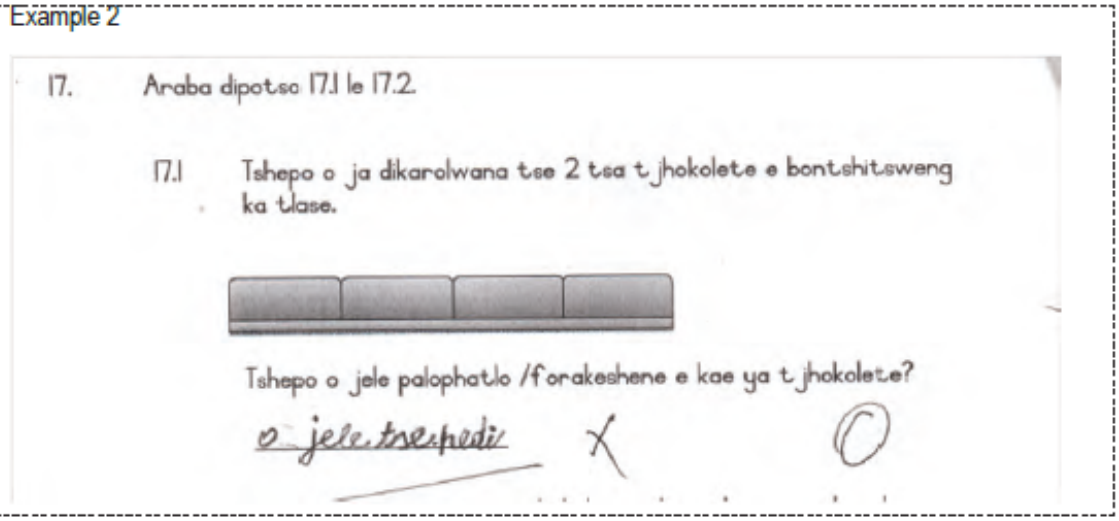
An example of a common error made by learners is presented below.

Example 1



In the above example the learner responded by writing a fraction symbol $\frac{2}{1}$ instead of $\frac{1}{2}$. It shows that the learner recognised that 2 parts of the whole chocolate is equal to half but could not write the word "half" or the number symbol $\frac{1}{2}$. It is evident that the learner is not familiar with fraction symbols.

Example 2



In the example above the learner responded by writing the whole number "two" in words instead of writing half or 2 quarters. The learner did not comply with the instruction that requested an answer as a unitary fraction.

Remediation

- Teachers should fractions using correct terminology (half, quarter, thirds, eighths, sixths, fifths, tenths) by:
  - allowing learners to divide the whole into fractions and put it back together into a whole e.g. 4 equal parts are called quarters and 4 quarters = 1 whole etc.;
  - assisting learners to draw objects, cut into different fractions and label accordingly; and,
  - paste drawings on a big chart which is hung on the wall for incidental/ referral reading to serve as a constant reminder to learners about the names of different fractions in relation to their sizes.

Reflection notes Jika iMFundo Toolkit – Maths. Session 1

Venue: _____

Record your group's responses to these questions below. Please hand them in to the presenter at the end of the discussion.

1. How have you been able to use the Jika iMfundo toolkit in your classroom so far?

2. In what way has the material supported you?

3. What difficulties have you experienced?

4. What resources do you have in your mathematics storeroom that you could use when teaching FP Mathematics? Do you regularly use those resources? Why/why not? (10 min)

5. Maths in FP cannot be taught without support of concrete resources. Discuss this comment. (10 min)

6. What is the best way to be prepared for well-resourced teaching? (10 min)

7. Officials/HOD/Lead teachers: Discuss how will YOU help the teachers to be well prepared? (10 min)

Circular discs to cut - Session 2: Activity 1 and examples

(NB: must be printed on an odd page to be able to cut out)