

**MATHEMATICS**  
**Grade 3**  
**TERM 4 2019**  
**Lesson**  
**Plans**



# Acknowledgement:

These lesson plans have been developed based on previous sets of lesson plans (GPLMS and PILO) which have been adapted to align with the Mathematics Framework for South Africa: Teaching Mathematics for Understanding.



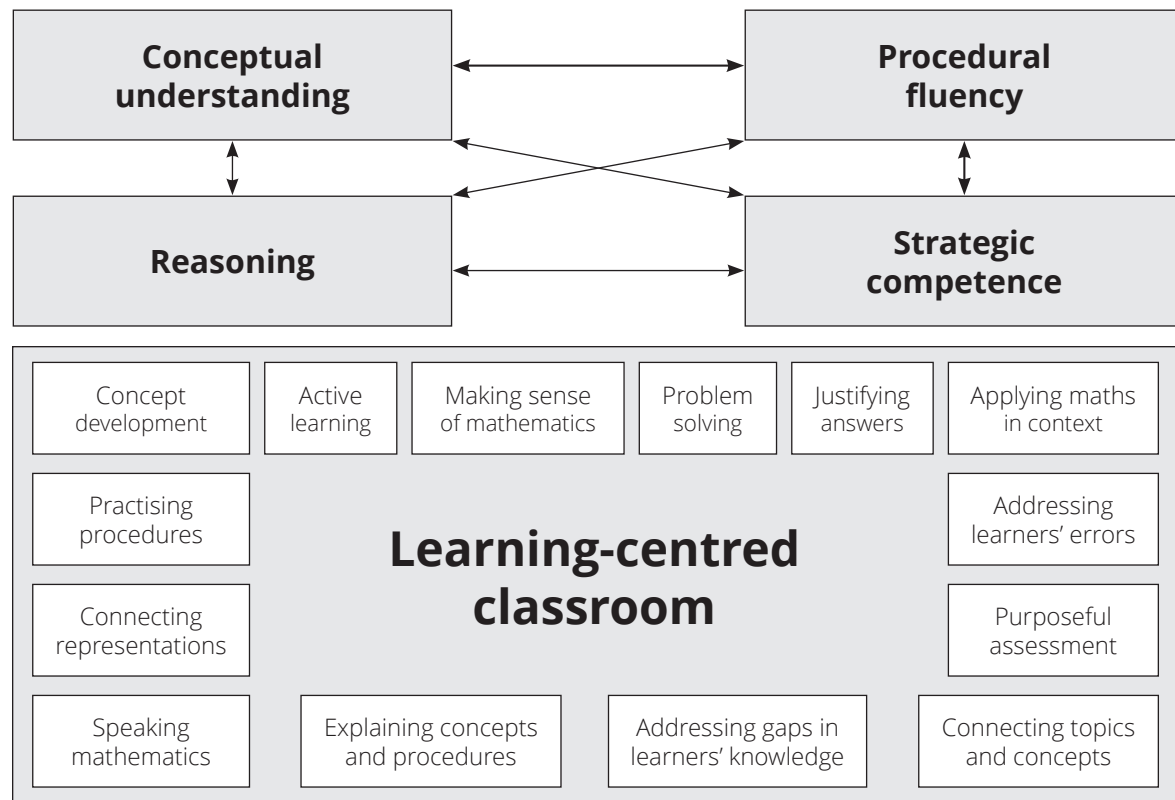
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# Teaching mathematics for Understanding (TMU)

You are participating in the pilot implementation of the Mathematics Framework – which calls for *Teaching Mathematics for Understanding*. Diagrammatically the framework is represented as shown below.



The Framework proposes that steps should be taken to bring about the transformation of mathematics teaching in South Africa. Teachers should strive to:

- teach mathematics for **conceptual understanding** to enable comprehension of mathematical concepts, operations, and relations;
- teach so that learners develop **procedural fluency** which involves skill in carrying out procedures flexibly, accurately, efficiently, and appropriately;
- develop learners' **strategic competence** – the ability to formulate, represent, and decide on appropriate strategies to solve mathematical problems;
- provide multiple and varied opportunities for learners to develop their mathematical **reasoning** skills – the capacity for logical thought, reflection, explanation and justification; and
- promote a **learning-centred classroom** which teachers support by engaging with learners in ways that foreground mathematical learning, thus enabling all of the above.

The lesson plans you will follow are designed to help you teach according to the framework dimensions.

# Glossary of important terms used in the TMU lesson plans

The following terminologies are used in the TMU lesson plan. Some of them also appear in CAPS.

## Calculation

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### **ADDITION WITH CARRYING**

The type of addition which occurs when we bridge ten, in single digit (or 2-digit and 3-digit) calculations. For example  $9 + 4$ ,  $57 + 26$ ,  $83 + 19$ . The term 'carrying' is used since the terminology is familiar to teachers. What happens when we 'carry' is that in order to bridge ten, 10 ones are 'exchanged' to make 1 ten.

### **SUBTRACTION WITH BORROWING**

The type of subtraction which occurs when the units involved in the subtraction create an impasse (a temporary hurdle). For example  $14 - 5$ ,  $52 - 27$ ,  $102 - 19$ . The units do not allow for subtraction 'on their own'. The term 'borrowing' is used since the terminology is familiar for teachers. What happens when we 'borrow' is that 1 ten is 'exchanged' into 10 ones and grouped with the other ones in the question, to overcome the impasse so that the subtraction can be done.

### **BASE-TEN NUMBER SYSTEM**

The most commonly used number system across the world. Our number system uses a base of ten which means it involves grouping in tens. There are ten ones in one ten, ten tens in one hundred and so on. Each digit in a number has a value according to the position it is in. The only digits we need to represent a number of any size are the digits 0 to 9. One focus of the TMU framework is to move from mathematics based on counting methods to methods managed by the base-ten number system.

### **MAKE-A-TEN METHOD**

A calculation technique that learners can use to do addition with carrying and subtraction with borrowing. This method helps learners avoid calculation by counting.

### **COLUMN METHOD/VERTICAL ALGORITHM (GR2, 3)**

A calculation technique used in addition and subtraction that helps reinforce number concept or number sense. Also known as the vertical algorithm or vertical method. This structured method consolidates learners' understanding of place value because it is structured using place value. This should help learners to understand the concept of place value and to work meaningfully with numbers (rather than doing tallies and counting).



**NUMBER BONDS**

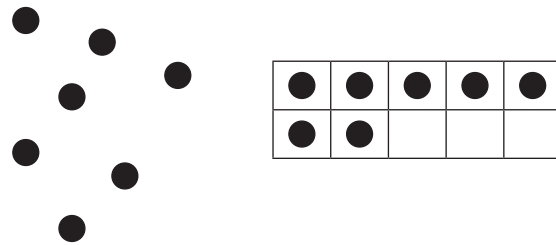
A calculation technique that consists of building up (composition) and breaking down (decomposition). For instance, 4 can be broken down into 1 and 3, 2 and 2 and 3 and 1. These are the number bonds of 4. The number bonds of 10 are the most important since they are used in all calculation strategies.

**EXPANDED NOTATION**

Representation of a number by writing it out using place value. For example 467 is expanded in the following way:  $467 = 400 + 60 + 7$ . ‘Expanded notation’ and ‘building up and breaking down of numbers’ are used interchangeably in CAPS. In the lesson plans, building up and breaking down are only used as number bonds. Flard card can help learners to acquire knowledge of expanded notation.

**SUBITISING**

Subitising is ‘an instant cognition of the number of objects’. This is one of the most important skills that learners should acquire in the Foundation Phase. A ten frame is a useful tool to help learners to subitise objects. In the example below, it is easier to recognise the number of dots by putting them in a ten frame.



**JUMPING STRATEGIES ON A NUMBER LINE**

When we solve addition or subtraction with number line, we use ‘jump’ strategies. This strategy builds on learners’ knowledge of numbers and it can also help reinforce number concept or number sense. There are many ways in which ‘jumps’ can be made on number line, but efficient jumps (such as jumping to the next ten or jumping in tens) make the calculations easier. Choosing these ‘efficient jumps’ develops learners’ number sense.



**Representations**

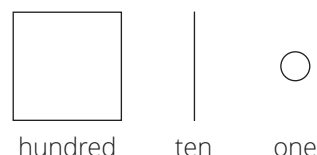
**CPA APPROACH**

The Concrete-Pictorial-Abstract (CPA) approach helps learners develop the concepts of numbers. The CPA approach uses several different representations for the concept of numbers 1, 10 and 100.

- **Concrete** objects are any materials that can be touched. In TMU, bottle tops are recommended as concrete objects.
- **Pictorial** representations are drawings that represent concrete objects.
- **Abstract** representations consist of number symbols and symbols such as '+', '-', '×', '÷'.

### SIMPLIFIED PICTORIALS

A simplified pictorial representation of hundreds, tens and ones are used to write down in paper. The concept of the numbers represented by the pictorials is reinforced when learners draw simplified pictorials. By using simplified pictorials, an enormous time of writing can be saved compared with drawing tallies, circles etc. Simplified pictorials are much more effective than tallies.



Tallies should not be drawn beyond ten or a maximum of 20 items. A simplified pictorial representation is introduced in Grade 2 Term 4 to represent 3-digit numbers and larger. A simplified pictorial representation is used in Grade 3 to show the mechanism of carrying and borrowing in the column method.

### PLACE VALUE TABLE

A diagram showing a number using a display of concrete/semi-concrete objects (bottle tops as ones or base ten kit tens and hundreds) and abstract representations (numbers and number names). On the right is the sample of a number 37 shown in the place value table.

Tens			Ones
●	●	●	
●	●	●	
●	●	●	
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
3 tens			7 ones
37			

### ARRAY DIAGRAM

The following is the array diagram of  $2 \times 4$ . The order of multiplication is important and it is consistent with CAPS.

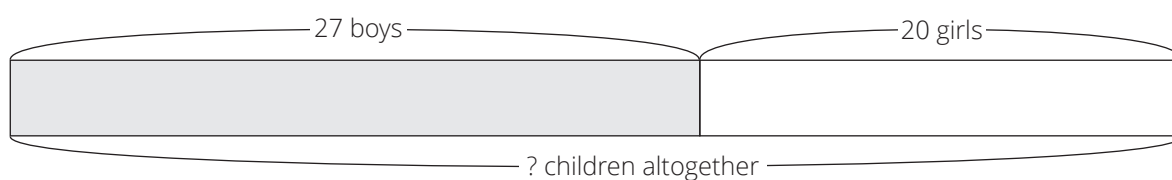


### MULTIPLICATION TABLE

Multiplication tables show the multiples of numbers – the answers to the multiplication of several 1x1 digit multiplications, depending on the number of the multiplication table. For example, the 5 times table is  $\square \times 5$  and will show all the multiples of 5 by the numbers 1 to 10. Learners must memorise the multiplication tables, because once learners master the multiplication tables, they will be able to divide by applying their knowledge of multiplication.

### BAR DIAGRAM

A diagram representing the relationships of numbers in word problems. The following is an example of bar diagram showing addition (combine).



## Resources

### MANIPULATIVES

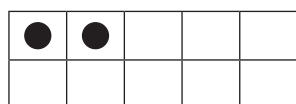
These are concrete apparatus such as counters, printed tens, printed hundreds, box and ball shapes, etc. that can be manipulated by learners.

### COUNTERS

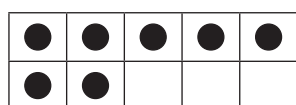
These are any (loose) concrete objects that learners can manipulate when counting. In the TMU bottle tops are recommended since they are freely available but other counters can also be used such as interlocking cubes (e.g. Unifix cubes). Teachers are expected to use concrete counters such as bottle tops on a big ten frame to help learners develop their number concept as they learn how to count and work with numbers, starting from the number 1. An abacus can be used for counting but since the numbers of the abacus are fixed onto the bars, learners cannot manipulate them as freely. In the lesson plans, all counters are referred to as bottle tops.

### DOUBLE-DECKER TEN FRAME (GR1, TERM 1 AND 2)

A ten frame which is made of  $2 \times 5$  frames. Double-decker ten frames are very helpful when working in the number range 0 to 10. The double-decker ten frame helps learners to understand the numbers 6 to 10 as  $5 + 1$ , etc. (numbers 1 to 5) by subitising. Learners must put bottle tops onto ten frames themselves when they learn about numbers. The double-decker ten frame give visual clues about the numbers shown on it. This is the number 2 represented on a double-decker ten frame:

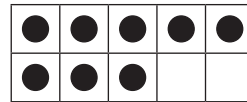
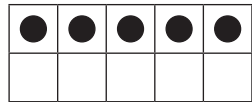


This is the number 7 represented on a double-decker ten frame (visual of 5 plus 2):



**TEN FRAME CARDS (GR 1)**

Ten frames with counters already shown in the cards. The example of 5 and 8 are presented. These are also called number picture cards. Learners can start to recognise these cards after working with real ten frames and bottle tops themselves in class.



**STRAIGHT TEN FRAME (GR 1 TERM 3 AND 4, GR 2, 3)**

A ten frame which is straight. The thicker line in the middle shows the 5. This line is important because it helps learners to recognise the numbers 6 to 10 by using the building up skill of 5 and ... (numbers 1 to 5). A straight ten frame is helpful to deal with numbers bigger than 10.



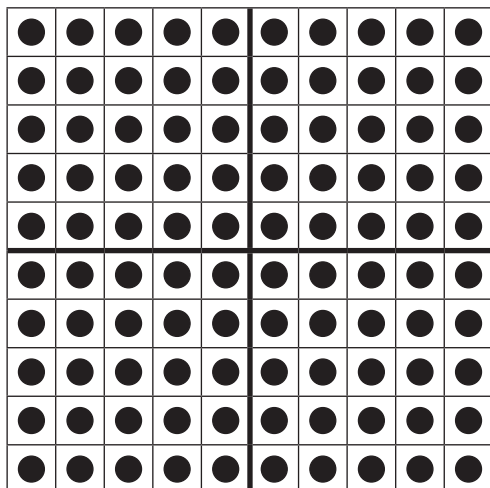
**PRINTED TEN**

Printed version of a group of 10 ones. You should call them 'ten(s)' in the lesson.



**PRINTED HUNDRED (GR 2, 3)**

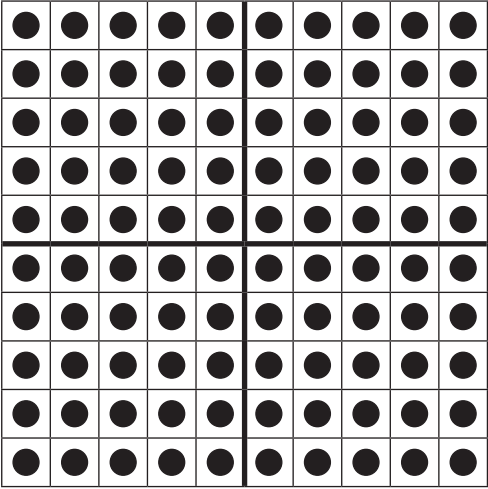

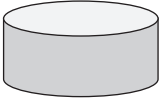
Printed version of a group of 100 ones. You should call them 'hundred(s)' in the lesson.



**BASE TEN KITS (ALL)**

The concrete number representations used in the TMU lesson plans as 'counters' for ones, tens and hundreds. Bottle tops are used as single counters (to count ones), printed tens are used to count tens and printed hundreds are used to show hundred places. Each learner needs 1 printed hundred, 20 printed tens and 20 or 30 bottle tops. Teachers need 10 big printed hundreds, 20 big printed tens and 20 big bottle tops.

Glossary of important terms used in the TMU lesson plans

100	10	1
hundred	ten	one
		

# About the Lesson Plans and Resources

The lesson plans and resources in this book are part of the Grade 3 Term 4 Teacher Toolkit for the pilot implementation of the mathematics framework.

The other documents in the toolkit are:

- a Lesson and Assessment Planner and Tracker
- a bilingual Learner Mathematics Activity Book
- a set of teacher printable resources
- a bilingual Dictionary of Mathematical Terms

## 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 a reorganised CAPS unit planner. The content is CAPS aligned (all topics are covered and the CAPS weighting has been adhered to) but it covers a slightly different sequence to the regular CAPS. Your school has been given permission by the minister to follow this special reorganised curriculum. Lesson plans do show links to the CAPS content and skills being focussed on in the lesson.

### 2 DBE WORKBOOKS

Pilot implementation schools have been given permission **not** to use the DBE workbooks. You will use your CAPS and lesson plan aligned Learner Activity Books (LAB) instead. The LAB has been designed to include activities from the DBE workbook wherever possible. Bilingual LAB material is provided in English and 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. There are mental maths activities, whole class activities led by the teacher, classwork and homework activities. The answers for the classwork and homework are included in the lesson plans. The classwork and homework activities form the content of the LAB which is provided in a bilingual workbook format.

#### **4 ASSESSMENT**

Assessment is provided for in the sequence of lessons. There is also a recommended mark record sheet in the tracker. You can first record your marks in the tracker and then transfer them to SA SAMS.

The programme of assessment suggested in the lesson plans complies with the CAPS as amended by Circular S1 of 2017 and provincial responses to this. Written, oral and practical assessments are provided. Rubrics and checklists with criteria for the oral and practical assessments are also included.

#### **5 MANAGING YOUR TEACHING USING THE LESSON PLAN**

A set of orientation activities on eight different topics aligned with the CAPS baseline assessment requirements is provided for the start of the first 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 4 of Grade 3 is covered in a set of 40 numbered lesson plans. This includes 32 lessons and 8 assessments. The number of lessons has been reduced since the 4th term is shorter than the other terms.

Each of the 32 fully planned lessons 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 so 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 of the fully planned lessons and its contents has been carefully sequenced. You should not skip one of these lessons. Should you miss a school day for any reason, rather skip a consolidation lesson nearby to the lesson that you are busy teaching. You might choose 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.

# Preparing to teach a lesson

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**.

Before you get started, study the contents page of the lesson plan document. This will give you an overview of the mathematics content you will cover during the term.

The information below outlines some key aspects of the preparation required before you teach the lessons.

- a 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. bottle tops, number grids, paper cut-outs, examples of shapes, etc.).
- **Your lessons will not succeed if you have not prepared properly ahead of time.**
  - 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 grids 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.
- b 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.
- c 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.



- d 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.
- e 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.
- f 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](http://www.education.gov.za), [www.thutong.doe.gov.za/InclusiveEducation](http://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](http://www.education.gov.za), [www.thutong.doe.gov.za/InclusiveEducation](http://www.thutong.doe.gov.za/InclusiveEducation).

# Lesson Plan Outline

Each lesson plan has several components. Information about each one 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 should read this outline as you prepare each lesson until you are fully familiar with the general lesson plan components, pace and structure.

## Teacher's notes

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These notes include information for the teacher about the CAPS content to be covered in the lesson and the learning objective for the lesson.

A list of the lesson vocabulary is included in the teacher's notes. This is a list of the important mathematical vocabulary used in the lesson. The vocabulary, with explanations and diagrams, is also provided in the bilingual dictionary that is part of your Toolkit. You should 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 encourage learners to use them as well. If you have learners in your class who are not yet comfortable in the Language of Teaching and Learning (LoLT), try and explain the word in a language they understand. Use gestures, pictures or enlist the help of another learner who is familiar with the home language of the learner who is struggling with a language barrier.

Finally, the resources that you should prepare for the days lesson are listed. You need to check what resources you need in advance for each lesson so that you are ready to teach each lesson each day.

## Mental mathematics (10 minutes)

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This is the first active component of the lesson. We recommend that you take at most 10 minutes to do the mental mathematics activity. The mental mathematics activity consists of a set of questions to drill number facts and basic mathematical strategies that are linked to the day's lesson.

Mental mathematics is not a concrete activity (as the title suggests). Remember a concrete activity uses actual material to scaffold learning. 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 later to help them reach the required level of competence by offering remediation activities using concrete aids.

- The answers to the mental mathematics questions are given in the answer column in the lesson plans.
- You should try and complete all of each day's mental mathematics questions, but if you find that your learners struggle to finish these in ten minutes, do a minimum of five questions.

## **Lesson content – concept development (45 minutes)**

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This is the second 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 45 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 that 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 and correction of homework (25 minutes)**

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This is the third component of the lesson. We recommend that you allocate 25 minutes to going over the previous day's homework and giving time to the learners to do the classwork.

First, take a minute or two to reflect on the homework. You might read out answers to all of the homework questions, allow learners/peers to mark the work. Try to check the homework yourself as often as you can. If you notice a question that many learners struggled with, especially if it is important for today's lesson, you could work through it in full with the whole class. Allow learners the opportunity to write corrections as needed.

When you assign the 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 should do their classwork in the Learner Activity Book.
- Learners should work individually, in pairs and in groups so that they experience working alone as well as with their peers.
- Individual work is so important. Sometimes, in group work, only one or very few learners lead the group, they do all the work and present it to the class for the group.

Group work does not guarantee every learner's learning and understanding. Some of the group members may have been left behind without knowing exactly what has been done. Learners should first work individually and then discuss what they have done with the rest of the group, based on what they have in their classwork book or worksheets.

- Wrap up the classwork activity each day by giving the learners the answers to the classwork, and allow time for corrections to be written if and when necessary. You should reflect on questions that learners have struggled with if necessary.

The bilingual learner resources contain all of the daily classwork activities.

### **Homework activity (5 minutes)**

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This is the fourth component of the lesson. We have allocated five minutes to give you time to tell the learners about the homework each day.

Homework consolidates the content that you have taught each day. Homework also promotes learner writing and development of their mathematical knowledge.

The bilingual learner resources contain all of the daily homework activities.

### **Reflection (5 minutes)**

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This is the fifth component of the lesson. You should wrap up the lesson every day by focussing the learners on the content covered and concepts they should have learned.

# Week 1

## Unit 1 Introduction

This unit focuses on division with and without a remainder. Learners will be given opportunities to revise what they have already learned about division, before they move on to new ideas. Doubling and halving will be addressed in relation to division, and the relationship to fractions will also be investigated. Learners will practice solving problems, using multiplication tables to help them, and will also check their answers and correct errors.

In this unit you will be able to focus on the four framework dimensions in the following way:

- **Conceptual understanding:** In this unit learners will develop their conceptual understanding of division, and its links to multiplication, doubling, halving and fractions.
- **Procedural fluency:** Learners will practice solving problems so that they become more efficient in the solution procedures.
- **Strategies:** Learners will investigate how they can use multiplication tables to help them solve division problems, and also learn about doubling and halving in relation to division.
- **Reasoning:** Learners need to verbalise their ideas so that they can share ideas and clarify the new concepts

Building a **learning centred classroom** in this unit will involve (amongst other things) attention to:

- **Connecting topics and concepts:** In this unit learners will see a connection between division and multiplication as they use multiplication tables to help them solve division problems.
- **Addressing learners' errors:** There are revision lessons in this unit which provide a good opportunity to address learners' errors in terms of their previous knowledge of division. Learners' use of multiplication in solving division problems will also provide opportunities to address learners' errors in terms of multiplication.
- **Practising procedures:** There is a fair amount of repetition in lessons in terms of how learners solve problems so that there are opportunities for learners to practice procedures.
- **Problem solving:** Learners will be required to solve a variety of problems, and to provide reasons for their solutions. They will have to think logically about remainders and whether the final answer to problem needs to take the remainder into consideration or not.

## Lesson 1: Review of division (1)

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.15 Division

Lesson Objective: Reinforce the concept of sharing division.

Lesson Vocabulary: Sharing, share, divide, multiplication, multiply.

Resources: Bottle tops, multiplication cards 1–6 times tables (see Term 2 *Printable Resources*).

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
<b>1</b>	$14 \div 2$	7	<b>6</b>	$21 \div 3$	7
<b>2</b>	$12 \div 3$	4	<b>7</b>	$24 \div 4$	6
<b>3</b>	$32 \div 4$	8	<b>8</b>	$5 \div 5$	1
<b>4</b>	$30 \div 5$	6	<b>9</b>	$12 \div 2$	6
<b>5</b>	$18 \div 2$	9	<b>10</b>	$27 \div 4$	9


### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, the learners will revise the concept of division while doing word problems. The learners will focus on the idea of sharing in this lesson, and will also play with multiplication cards in order to memorise multiplication tables. It is important that the learners begin to be able to solve division problems mentally, so encourage the learners to try this as they develop their confidence.

Today we are reinforcing the concept of sharing.

#### Activity 1: Whole class activity

- Make sure that each pair of learners has 18 bottle tops in front of them.
- Write the following story on the board:  
**There are 18 oranges.**  
**Share them equally between 6 learners.**  
How many oranges does each learner get?
- Read the problem.
- Let the learners read the problem until they read it fluently.
- Underline the numbers (18 and 6).
- Ask: **What is the question?** (How many oranges will each learner get?)
- Underline the question with a wavy line.

- Give the learners time to find the number of oranges using bottle tops.
  - Ask: **What did you do to solve the problem?** (We shared the bottle tops one by one between the 6 learners.)
  - *Help the learners to recognise that in this problem they know the number of groups they need (6 learners), and that they are trying to find out how many oranges (represented as bottle tops) will be in each group. This means that they are **sharing**.*
  - Ask: **What can you tell me about your bottle tops?** (There are 3 bottle tops in a group; there are 6 groups of 3 bottles tops.)
  - Ask: **How do you write a number sentence for this story?**
  - Draw circles on the board to represent what the learners are describing and write the number sentence for correction. ( $18 \div 6 = \underline{\quad}$ )
- 
- Confirm that the answer is 'Each of the 6 learners will get 3 oranges.'
  - Let the learners write the number sentence and answer in their classwork books. ( $18 \div 6 = 3, 3 \text{ oranges}$ )

### Activity 2: Whole class activity /Learners work in groups / Learners work in pairs

*Give each learner, each pair, or each group of learners a set of multiplication cards of the 1 to 6 times tables with the answers written on the back (these should have been prepared in Terms 2 and 3; prepare more if necessary). The intention of these activities is to help the learners begin to memorise the multiplication tables.*

Play the 1 to 6 multiplication card game. Your teacher will explain the rules.

#### Rules of the game

- Learners work in pairs, using 1–6 times table cards.
  - The learners shuffle the 4 times table cards and pile them up with the number sentence side up in the centre of their desks.
  - The 1–3, 5, and 6 times table cards are shuffled and laid out with the number sentence side up.
  - One learner holds up a card.
  - Both learners find number sentences that have the same answer.
  - The learners check the answers by looking at the back of the cards.
  - The second learner then holds up a number sentence card, with learners alternating like this for the remainder of the cards.
  - The learner who finds more cards correctly is the winner.
- Learners work alone.
  - The learners shuffle the 3, 4, and 6 times table cards.
  - Learners place the cards on their desks with the answers facing up.

- c** Learners try to find a number sentence for which the answer is shown.
- d** Learners check the answers by looking at the back of the cards (note that they might find the factors written in reverse relative to what they have said because of the commutative law.)

### **3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

Calculate:

- a**  $18 \div 2 = \square$  (9)
- b**  $40 \div 5 = \square$  (8)
- c**  $24 \div 6 = \square$  (4)
- d**  $1 \div 1 = \square$  (1)
- e**  $28 \div 4 = \square$  (7)
- f**  $24 \div 3 = \square$  (8)
- g**  $3 \div 1 = \square$  (3)
- h**  $32 \div 4 = \square$  (8)
- i**  $42 \div 6 = \square$  (7)
- j**  $36 \div 4 = \square$  (9)
- k**  $5 \div 5 = \square$  (1)
- l**  $54 \div 6 = \square$  (9)

### **4 HOMEWORK ACTIVITY (5 MINUTES)**

Calculate:

- a**  $18 \div 3 = \square$  (6)
- b**  $48 \div 8 = \square$  (6)
- c**  $36 \div 9 = \square$  (4)
- d**  $56 \div 7 = \square$  (8)

### **5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have reinforced the concept of sharing.



## Lesson 2: Review of division (2)

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.15 Division.

Lesson Objective: Reinforce the concept of division.

Lesson Vocabulary: Sharing, share, divide, multiplication, multiply.

Resources: Bottle tops, multiplication cards 7–9 times tables (see Term 2 *Printable Resources*).

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
<b>1</b>	$12 \div 6$	2	<b>6</b>	$56 \div 7$	8
<b>2</b>	$28 \div 7$	4	<b>7</b>	$32 \div 8$	4
<b>3</b>	$48 \div 8$	6	<b>8</b>	$27 \div 9$	3
<b>4</b>	$72 \div 9$	8	<b>9</b>	$54 \div 6$	9
<b>5</b>	$30 \div 6$	5	<b>10</b>	$49 \div 7$	7

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In today's lesson, the learners will revise the commutative law of multiplication. The learners do not need to learn the name of the law, but they need to know that multiplication is commutative (the factors in a multiplication number sentence are reversible, e.g.  $5 \times 4 = 4 \times 5$ ). Ensure that the learners are given opportunities to see (for example)  $5 \times 4$  being equal to  $4 \times 5$ . It is important for learners to understand this law so that they can use it to help them solve division problems.

Today we are reinforcing the concept of division.

#### Activity 1: Learners work in pairs

- Ask learners to refer to the array diagram in the LAB.
- Form pairs and have one learner show  $4 \times 7$  using their array diagram.

	1	2	3	4	5	6	7
1	●	●	●	●	●	●	●
2	●	●	●	●	●	●	●
3	●	●	●	●	●	●	●
4	●	●	●	●	●	●	●

- Ask: **How many groups of dots are there?** (4 groups of 7 dots.)
- Have the other learner (in the pair) show  $7 \times 4$  using their array diagram.

	1	2	3	4
1	●	●	●	●
2	●	●	●	●
3	●	●	●	●
4	●	●	●	●
5	●	●	●	●
6	●	●	●	●
7	●	●	●	●

- Ask: **How many groups of dots are there?** (7 groups of 4 dots.)
- Ask: **What do you notice about the total number of dots in the two array diagrams?** (They both have 28 dots.)
- Ask: **Why do  $4 \times 7$  and  $7 \times 4$  have the same number of dots?** (If we rotate the array diagram, it becomes the same arrangement.)
- Ask: **What can we say about the number sentences from this activity?** (When we calculate  $4 \times 7$  and  $7 \times 4$ , the answers are the same.)
- Ask the learners to use array diagrams for the following problems to find if they have the same answer:
  - $6 \times 8$  and  $8 \times 6$
  - $3 \times 5$  and  $5 \times 3$
- Let the learners record all the number sentences with answers in their classwork books.
- Corrections should be done on the board. (e.g.  $6 \times 8 = 8 \times 6 = 48$ )

## Activity 2: Whole class activity /Learners work in groups / Learners work in pairs

*Give each learner, each pair, or each group of learners a set of multiplication cards of the 7 to 9 times table with the answers written on the back (these should have been prepared in Terms 2 and 3, prepare more if necessary). Activity 2 is important, as it consolidates teaching on the commutative law. The intention of these activities is to help the learners begin to memorise the multiplication tables.*

Play the 7 to 9 multiplication card game. Your teacher will explain the rules.

### Rules of the game

- 1 Learners work in pairs.
  - a Learners shuffle the 7–9 times table cards.
  - b One learner holds up a number sentence.

- c** The second learner must read the number sentence and give the answer.
  - d** The learners check the answers by looking at the back of the card.
  - e** The second learner then holds up a number sentence card for the first learner.
  - f** Keep going until all the cards have been read.
- 2** Learners work alone.
- a** Learners shuffle the cards.
  - b** Learners lay out the cards with the answers facing up.
  - c** Learners give a number sentence for which the answer is shown.
  - d** Learners check the answers by looking at the back of the card (note that they might find the factors written in reverse to what they have said because of the commutative law).

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Calculate:

- a**  $36 \div 9 = \square$  (4)
- b**  $24 \div 8 = \square$  (3)
- c**  $45 \div 9 = \square$  (5)
- d**  $21 \div 7 = \square$  (3)
- e**  $48 \div 8 = \square$  (6)
- f**  $81 \div 9 = \square$  (9)
- g**  $35 \div 7 = \square$  (5)
- h**  $56 \div 8 = \square$  (7)
- i**  $49 \div 7 = \square$  (7)
- j**  $72 \div 8 = \square$  (9)
- k**  $42 \div 7 = \square$  (6)
- l**  $64 \div 8 = \square$  (8)

### 4 HOMEWORK ACTIVITY (5 MINUTES)

Calculate:

- a**  $27 \div 3 = \square$  (9)
- b**  $56 \div 8 = \square$  (7)
- c**  $28 \div 7 = \square$  (4)
- d**  $63 \div 7 = \square$  (9)

### 5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have reinforced the concept of division.

## Lesson 3: Review of division (3)

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.15 Division.

Lesson Objective: Reinforce the concept of division.

Lesson Vocabulary: Sharing, share, divide, multiplication, multiply.

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
<b>1</b>	$18 \div 2$	9	<b>6</b>	$20 \div 5$	4
<b>2</b>	$40 \div 8$	5	<b>7</b>	$36 \div 4$	9
<b>3</b>	$24 \div 4$	6	<b>8</b>	$24 \div 3$	8
<b>4</b>	$42 \div 6$	7	<b>9</b>	$63 \div 9$	7
<b>5</b>	$28 \div 7$	4	<b>10</b>	$35 \div 7$	5

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, the learners will continue to consolidate the concept of division while doing word problems. The learners will solve both sharing and grouping problems in this lesson, and will revise how to use their knowledge of multiplication to find the answers to division problems.

Today we are reinforcing the concept of division.

#### Activity 1: Whole class activity

- Write the following story on the board:  
**There are 30 biscuits.**  
**Give the biscuits to 5 learners.**  
How many biscuits will each learner get?
- Read the problem.
- Underline the numbers (30 and 5).
- Ask: **What is the question?** (How many biscuits will each learner get?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem until they read it fluently.
- Ask: **What do you think you need to do to solve this problem?** (We need to divide.)

- Ask: **In this problem, are you grouping or are you sharing?** (Sharing because we know that there are 5 learners (groups), but we don't know how many biscuits each learner gets.)
- Ask the learners to write the number sentence in their classwork books ( $30 \div 5 = \underline{\quad}$ ).
- Write the number sentence on the board for corrections.
- Give the learners time to solve the problem.
- Ask: **Which multiplication tables can you use to find the answer?** (5 times table.)
- Ask a learner to come to the front of the class to explain how they can use the 5 times table to find the answer. (We turned  $30 \div 5 =$  into  $5 \times \square = 30$ . We know that  $5 \times \boxed{6}$  is 30 so each learner will get 6 biscuits.)
- Say: **The answer is the same when you use the numbers from the multiplication.**
- Draw circles on the board to represent what the learners are describing.

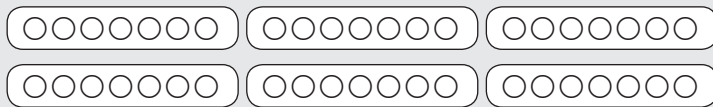


- Ask the learners to complete the number sentence with the answer (and the units of the answer) in their classwork books.
- Call a learner to the board to complete the number sentence and write the answer:  $30 \div 5 = 6$ , 6 biscuits.

### Activity 2: Whole class activity

- Write the following story on the board:  
**There are 42 learners in a class.**  
**Learners make netball teams of 7 players each.**  
**How many teams will be made?**
- Read the problem.
- Underline the numbers (42 and 7).
- Ask: **What is the question?** (How many teams will there be?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem until they read it fluently.
- Ask: **What do you think you need to do to solve this problem?** (We need to divide the 42 learners into groups of 7.)
- Ask: **In this problem, are you grouping or are you sharing?** (Grouping, because we know that each team can have 7 players, but we don't know how many teams (groups) can get 7 players.)
- Ask the learners to write the number sentence in their classwork books ( $42 \div 7 = \underline{\quad}$ ).
- Write the number sentence on the board for corrections.
- Give the learners time to solve the problem.
- Ask: **Which multiplication table can you use to find the answer?** (7 times table.)
- Ask a learner to come to the front of the class to explain how they can use the 7 times table to find the answer. (We turned  $42 \div 7 =$  into  $\square \times 7 = 42$ . We know that  $\boxed{6} \times 7$  is 42 so there will be 6 teams.)

- Draw circles on the board to represent what the learners are describing.



- Ask the learners to complete the number sentence with the answer (and the units of the answer including the unit with the answer) in their classwork books.
- Call a learner to the board to complete the number sentence and write the answer:  $42 \div 7 = 6, 6 \text{ teams}$ .

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Calculate:

- a  $12 \div 2 = \square$  (6)
- b  $49 \div 7 = \square$  (7)
- c  $72 \div 9 = \square$  (8)
- d  $6 \div 1 = \square$  (6)
- e  $32 \div 8 = \square$  (4)
- f  $21 \div 3 = \square$  (7)
- g  $9 \div 9 = \square$  (1)
- h  $45 \div 5 = \square$  (9)
- i  $54 \div 9 = \square$  (6)
- j  $24 \div 8 = \square$  (3)
- k  $56 \div 7 = \square$  (8)
- l  $42 \div 6 = \square$  (7)

### 4 HOMEWORK ACTIVITY (5 MINUTES)

Calculate:

- a  $28 \div 4 = \square$  (7)
- b  $56 \div 7 = \square$  (8)
- c  $36 \div 6 = \square$  (6)
- d  $45 \div 9 = \square$  (5)

### 5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have reinforced the concept of division.

## Lesson 4: Assessment

### Teacher's notes

This lesson should be used for assessment of the content covered in this unit to date.

CAPS topics: 1.15 Division.

Resources: Printable assessment in teacher's resources.

Date:

Week

Day

### 1 SETTLE THE CLASS AND ADMINISTER THE ASSESSMENT. (45 MINUTES)

The assessment for today is linked to the work covered in the unit to date.

You will find the printable version of the assessment in the teacher's resource pack.

### 2 DISCUSS ASSESSMENT ITEMS WITH THE CLASS (45 MINUTES)

Take in the learners' work when they are done.

There should be time for you to discuss a few of the items with the class:

- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.

### 3 ASSESSMENT

#### WRITTEN ASSESSMENT

(18)

#### 1 Solve the problems:

(6)

<b>a</b>	There are 24 eggs. 6 eggs fit in one box. How many boxes will we need?	
	Write the number sentence.	$(24 \div 6 = \square)$
	Turn it into multiplication.	$(\square \times 6 = 24)$
	Write the answer.	(4 boxes)
<b>b</b>	There are 56 sweets. Share the sweets equally between 8 learners. How many sweets will each learner get?	
	Write the number sentence.	$(56 \div 8 = \square)$
	Turn it into multiplication.	$(8 \times \square = 56)$
	Write the answer.	(7 sweets each.)

**2** Calculate:

(12)

**a**  $40 \div 5 = \square$  (8)

**b**  $21 \div 7 = \square$  (3)

**c**  $4 \div 1 = \square$  (4)

**d**  $63 \div 9 = \square$  (7)

**e**  $35 \div 5 = \square$  (7)

**f**  $32 \div 8 = \square$  (4)

**g**  $54 \div 6 = \square$  (9)

**h**  $72 \div 9 = \square$  (8)

**i**  $7 \div 7 = \square$  (1)

**j**  $90 \div 10 = \square$  (9)

**k**  $48 \div 6 = \square$  (8)

**l**  $49 \div 7 = \square$  (7)



## Lesson 5: Halving

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.6 Problem-solving Techniques; 1.12 Techniques (methods or strategies).

Lesson Objective: Develop an understanding of halving and use it to solve division problems.

Lesson Vocabulary: Half, halve, halving, double, doubling, more, less.

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
<b>1</b>	$2 \times 3$	6	<b>6</b>	$2 \times 6$	12
<b>2</b>	$2 \times 1$	2	<b>7</b>	$2 \times 8$	16
<b>3</b>	$2 \times 4$	8	<b>8</b>	$2 \times 9$	18
<b>4</b>	$2 \times 2$	4	<b>9</b>	$2 \times 7$	14
<b>5</b>	$2 \times 5$	10	<b>10</b>	$2 \times 10$	20

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will revise the concepts of doubling and then use this to develop an understanding of halving. Learners will realise that halving is the same as dividing by 2. The learners will then use their knowledge of halving to help them divide by 4.

Today we are developing an understanding of halving and how to use it to solve division problems.

#### Activity 1: Whole class activity

- Call out a number sentence (doubling of a multiple of 10) to the class, without giving the answer:
  - $2 \times 10 = \underline{\quad}$ ?
- Ask the learners solve the problem as quickly as possible and tell their partner the answer.
- Allow the learners to write in their classwork books if they need to work out the answer; however, the goal is for learners to be able to solve these problems mentally by doubling or saying that two tens are 20.
- Ask: **How did you solve this problem?** (I used 2 groups of 10; I doubled 10.)
- *Take some time to discuss the fact that  $10 + 10$  is the same as  $2 \times 10$ .*

- Repeat with different problems involving doubles of the multiples of 10 up to 50. ( i.e.  $2 \times$  (multiples of 10 up to 50)):
- Ask the learners to calculate the following:
  - $2 \times 20$
  - $2 \times 10$
  - $2 \times 50$
  - $2 \times 30$
  - $2 \times 40$
- Call out a multiple of 10, asking the class to halve it:
- Ask: **What is half of 40?**
- Ask the learners solve the problem as quickly as possible and tell their partner the answer.
- Allow the learners to write in their classwork books if they need to work out the answer; however, the goal is for learners to be able to solve these problems mentally by halving or dividing by 2.
- Ask: **How did you solve this problem?** (I halved 40 into 2 groups of 20; 40 divided by 2 is 20.)
- Repeat with different problems involving halving the multiples of 10:
- Ask the learners to calculate the following:
  - Half of 60.
  - Half of 20.
  - Half of 100.
  - Half of 80.
  - Half of 40.
- Ask: **What do you notice about doubling and halving?** (Encourage the learners to realise that doubling is multiplying by 2 and halving is dividing by 2.)

### Activity 2: Whole class activity

- Call out a number sentence (dividing by 4) to the class, without giving the answer:
  - $100 \div 4 = \underline{\quad}?$
- Ask: **How did you solve this problem?** (I shared 100 between 4 to get to the answer, I made groups of 4 and counted how many groups I made.)
- Call two learners to the board to write their method on the chalkboard.
- Take some time to discuss the different ways of solving the problem.
- Say: **Now try solving  $100 \div 4 = \underline{\quad}?$  by halving, and then by halving again.**
- Allow the learners to write in their classwork books.
- Call a learner to the board to write the method on the chalkboard.
 

$100 \div 2 = 50$  (halving 100)  
 $50 \div 2 = 25$  (halving 50)
- Ask: **What do you notice about the two methods of solving the problems (dividing between 4, and halving twice)?** (You get the same answer; I can halve in my head but it was hard to divide by 4 in my head; it is much quicker to halve and then halve again.)

- Repeat steps as above for:
  - $80 \div 4 = \underline{\quad}$ ?
  - $40 \div 4 = \underline{\quad}$ ?
- *Some learners may remember that when they fold the paper strip into 4 equal parts, they fold it in half twice. This is the same method to find the answer to  $100 \div 4 = \underline{\quad}$ .*

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Solve the following:

- a** Double 10. (20)
- b** Halve 40. (20)
- c**  $80 \div 4 = \square$  (20)
- d** Double 50. (100)
- e** Halve 50. (25)
- f**  $100 \div 4 = \square$  (25)
- g** Double 30. (60)
- h** Halve 100. (50)
- i**  $40 \div 4 = \square$  (10)
- j** Double 40. (80)
- k** Halve 20. (10)
- l**  $60 \div 4 = \square$  (15)

### 4 HOMEWORK ACTIVITY (5 MINUTES)

Solve the following:

- a** Double 20. (40)
- b** Halve 80. (40)
- c**  $20 \div 4 = \square$  (5)

### 5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have developed an understanding of halving and how to use it to solve division problems.

# Week 2

## Lesson 6: Halving And Fractions

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.6 Problem-solving Techniques; 1.10 Sharing leading to fractions; 1.12 Techniques (methods or strategies); 1.17 Fractions.

Lesson Objective: Use understanding of halving to solve fraction problems.

Lesson Vocabulary: Half, halve, halving, double, doubling, more, less.

Resources: Paper strips.

Date: \_\_\_\_\_ Week \_\_\_\_\_ Day \_\_\_\_\_

### 1 MENTAL MATHS (10 MINUTES)

	What is double ...	Answer		What is half of ...	Answer
<b>1</b>	30	60	<b>6</b>	100	50
<b>2</b>	50	100	<b>7</b>	20	10
<b>3</b>	10	20	<b>8</b>	80	40
<b>4</b>	40	80	<b>9</b>	40	20
<b>5</b>	20	40	<b>10</b>	60	30

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This lesson creates a link between halving and fractions. The learners will revise the fractions learned in Term 3, and solve problems involving fractions of a collection. This means that they will have to find fractional parts of whole numbers and also divide numbers resulting in answers involving fractions.

Today we are learning to use understanding of halving to solve fraction problems.

#### Activity 1: Whole class activity

- Write the following word problem on the board.  
**Mom gives you R20.**  
**You spend  $\frac{1}{2}$  of the money.**  
**How much money do you spend?**
- Read the problem.
- Ask: **What is the story about?** (Money.)
- Ask: **What numbers do you see in the story?** (20 and  $\frac{1}{2}$ )

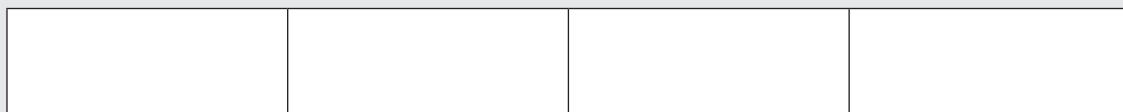
- Underline these numbers.
- Ask: **What is the question?** (How much money do I spend?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Ask: **What does  $\frac{1}{2}$  mean?**
  - **What does the number 2 at the bottom of the fraction tell you?** (The number 2 at the bottom of the fraction shows that we divide the whole into 2 equal parts.)
  - **What does the number 1 at the top of the fraction tell you?** (The number 1 at the top of the fraction shows that we take one part of 2 equal parts.)
- Ask: **What is a whole in this story?** (R20: all of the money I got from Mom.)
- Ask: **What do we do to divide a whole (R20) into 2 equal parts?** (We halve 20.)
- Ask: **What do we do when we halve a number?** (Split/share the whole number into 2 equal parts; divide by 2.)
- Let the learners write the number sentence in their classwork books.
- Ask a learner to write the number sentence on the board ( $20 \div 2 = \square$ ).
- Give the learners time to solve the problem.
- Draw the following on the board to represent what the learners are describing:

R20 (a whole)	
$\frac{1}{2}$	$\frac{1}{2}$
R10	R10

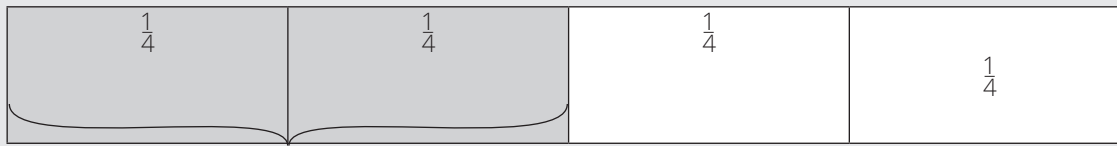
- Ask: **How much money would be one half of R20?** (R10, so I spend R10.)
- Let the learners complete the number sentence and write the answer in their classwork books:  $20 \div 2 = 10$ , R10.
- Write the answer to the number sentence on the board for corrections.

### Activity 2: Whole class activity

- Draw a large bar diagram (showing quarters – four parts of equal size) on the board.



- Ask the learners to fold a strip of paper into half twice and open it, tracing the fold lines with a pencil.
- Ask: **How many equal parts can you see on your strip?** (4)
- Ask: **What do we call one of these parts on the bar diagram?** ( $\frac{1}{4}$ ; one quarter.)
- Let the learners write  $\frac{1}{4}$  on each part of the strip.
- Write  $\frac{1}{4}$  on each part of the diagram on the board for corrections.
- Ask the learners to shade in  $\frac{2}{4}$  of the strip.
- Ask: **How many parts did you shade in?** (We shaded in two out of the four parts.)

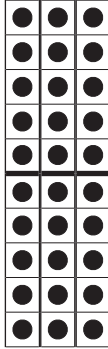
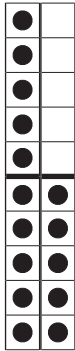
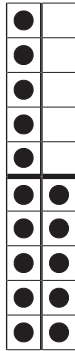


$$\frac{2}{4}$$






- Ask: **What would we call two of the parts of your paper strip?** (The learners may suggest  $\frac{2}{4}$  from what they learned in Term 3.)
- Explain: **We read the fraction  $\frac{2}{4}$  as two quarters.**
- Write  $\frac{2}{4}$  on the board.
- Let the learners read  $\frac{2}{4}$  several times and write it in their classwork books.
- Ask: **How many  $\frac{1}{4}$ s are there in  $\frac{2}{4}$ ?** (There are two  $\frac{1}{4}$ s in  $\frac{2}{4}$ .)
- Ask: **How many s have not been shaded in?** (Two s; .)
- Ask: **What do you notice about the shaded parts and the unshaded parts?** (There are the same number of shaded parts as unshaded parts; half the parts are shaded and half the parts are not shaded.)
- Encourage the learners to recognise that half the parts have been shaded.
- Ask: **How do you know that two  $\frac{1}{4}$ s is the same as one half?** (Because there are 4 equal parts and only half of them are shaded, I have the same number of shaded parts as I have unshaded parts.)

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

**1** Solve the problem:

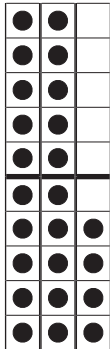
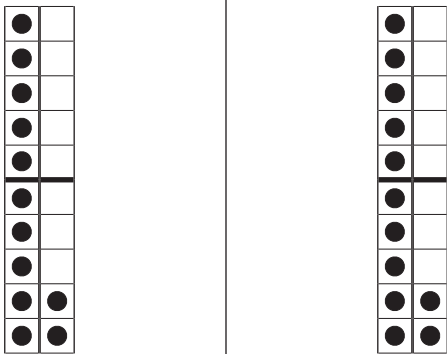
Themba has 30 balloons. She gives $\frac{1}{2}$ of her balloons to her friend. How many balloons does she give to her friend?	
Draw the diagram. <div style="border: 1px solid black; padding: 2px; width: fit-content;">Dots</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;">Fractions</div>	a whole: 30 balloons 
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <math>(\frac{1}{2})</math>   </div> <div style="text-align: center;"> <math>(\frac{1}{2})</math>   </div> </div>
Write the number sentences to show $\frac{1}{2}$ of 30.	$(30 \div 2 = 15)$
Write the answer.	(Themba gave 15 balloons to her friend.)

**2** Shade half of each fraction strip and write the fraction:

		Fraction
<b>a</b>		$(\frac{2}{4})$
<b>b</b>		$(\frac{3}{6})$
<b>c</b>		$(\frac{1}{2})$
<b>e</b>		$(\frac{5}{10})$
<b>f</b>		$(\frac{4}{8})$

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Solve the problem:

<p>I have 24 marbles.                  I give <math>\frac{1}{2}</math> of them to a friend.                  How many marbles do I give to my friend?</p>			
<p>Draw the diagram.</p> <table border="1" style="width: 100px; height: 40px;"> <tr><td>Dots</td></tr> <tr><td>Fractions</td></tr> </table>	Dots	Fractions	<p>a whole: 24 marbles</p> 
	Dots		
	Fractions		
<p><math>(\frac{1}{2})</math>                      <math>(\frac{1}{2})</math></p>			
			
<p>Write the number sentences to show <math>\frac{1}{2}</math> of 24.</p>	<p><math>(24 \div 2 = 12)</math></p>		
<p>Write the answer.</p>	<p>(I gave 12 marbles to my friend.)</p>		

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to use our understanding of halving to solve fraction problems.



## Lesson 7: Fractions

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.6 Problem-solving Techniques; 1.10 Sharing leading to fractions; 1.12 Techniques (methods or strategies); 1.17 Fractions.

Lesson Objective: Use understanding of halving to solve fraction problems.

Lesson Vocabulary: More, less.

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	What is double ...	Answer		What is half of ...	Answer
<b>1</b>	5	10	<b>6</b>	50	25
<b>2</b>	45	90	<b>7</b>	70	35
<b>3</b>	15	30	<b>8</b>	10	5
<b>4</b>	35	70	<b>9</b>	90	45
<b>5</b>	25	50	<b>10</b>	30	15

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

The learners will revise the fractions learned in Term 3, and solve problems involving fractions of a collection. This means that they will have to find fractional parts of whole numbers, and also divide numbers resulting in answers involving fractions.

Today we are learning to solve fraction problems.

#### Activity 1: Whole class activity

- Write the following word problem on the board.  
**Ntokozo has 18 pencils.**  
**He leaves  $\frac{1}{2}$  of the pencils at home.**  
**How many pencils will he take to school?**
- Read the problem.
- Ask: **What is the story about?** (Pencils.)
- Ask: **What numbers do you see in the story?** (18 and  $\frac{1}{2}$ .)
- Underline these numbers.
- Ask: **What is the question?** (How many pencils will he take to school?)
- Underline the question with a wavy line.

- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Ask: **What does  $\frac{1}{2}$  mean?**
  - **What does the number 2 at the bottom of the fraction tell you?** (The number 2 at the bottom of the fraction shows that we divide the whole into 2 equal parts.)
  - **What does the number 1 at the top of the fraction tell you?** (The number 1 at the top of the fraction shows that we take one part of 2 equal parts.)
- Ask: **What is a whole in this story?** (18: that is all of the pencils.)
- Ask: **What do we do for dividing a whole (18) into 2 equal parts?** (We halve 18.)
- Ask: **What do we do when we halve a number?** (Split/share the whole number into 2 equal parts; divide by 2.)
- Let the learners write the number sentence in their classwork books.
- Ask a learner to write the number sentence on the board ( $18 \div 2 = \square$ ).
- Give the learners time to solve the problem.
- Draw the following on the board to represent what the learners are describing:

18 (a whole)	
$\frac{1}{2}$	$\frac{1}{2}$
9	9

- Ask: **How many pencils would be one half of 18?** (9, so Ntokozo will take 9 pencils to school.)
- Let the learners complete the number sentence and write the answer in their classwork books:  $18 \div 2 = 9$ , 9 pencils.
- Write the answer to the number sentence on the board for corrections.

### Activity 2: Whole class activity

- Write the following word problem on the board.  
**You have 20 biscuits.**  
**You give three quarter of the biscuits away.**  
**How many biscuits do you give away?**
- Read the problem.
- Ask: **What is the story about?** (Biscuits.)
- Ask: **What numbers do you see in the story?** (20 and  $\frac{3}{4}$ )
- Underline these numbers.
- Ask: **What is the question?** (How many biscuits do you give away?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Ask: **What does  $\frac{3}{4}$  mean?**

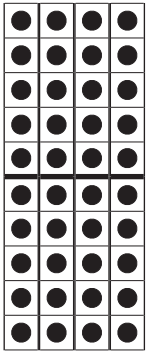
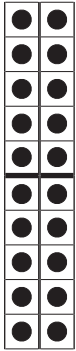
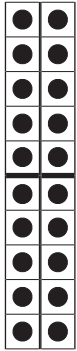
- **What does the number 4 at the bottom of the fraction tell you?** (The number 4 at the bottom of the fraction shows that we divide the whole into 4 equal parts.)
- **What does the number 3 at the top of the fraction tell you?** (The number 3 at the top of the fraction shows that we take three parts of 4 equal parts.)
- Ask: **What is a whole in this story?** (20: that is all of the biscuits that I have.)  
Ask: **What do we do for dividing a whole (20) into 4 equal parts?** (We can halve 20 and then halve the answer again/  $20 \div 4 = \square$ )
- Ask: **What do we do when we halve a number?** (Split/share the whole number into 2 equal parts; divide by 2.)
- Give the learners time to solve the problem.
- Ask a learner to come to the front of the class to explain how they could solve the problem by halving. (I halved 20 which gave me 10, and then I halved 10 to give me 5/I turned  $20 \div 4 =$  into  $4 \times \square = 20$ . I know that  $4 \times 5$  is 20.)
- Draw the following on the board to represent what the learners are describing:

Whole (20)			
$\frac{1}{2}$ (10)	$\frac{1}{2}$ (10)		
$\frac{1}{4}$ (5)	$\frac{1}{4}$ (5)	$\frac{1}{4}$ (5)	$\frac{1}{4}$ (5)

- Let the learners write the number sentences in their classwork books.
- Ask a learner to write their number sentences on the board ( $20 \div 2 = 10$ ;  $10 \div 2 = 5$  or  $20 \div 4 = 5$ ).
- Ask: **How many biscuits would be one quarter of 20?** (5)
- Ask: **How many biscuits would be  $\frac{3}{4}$  of 20 biscuits?** (5 is  $\frac{1}{4}$  of 20. To find 3 quarters we take 3 of the 4 equal parts. So  $3 \times 5 = 15$  is  $\frac{3}{4}$  of 20.)
- Let the learners complete the number sentences and write the answer:  $20 \div 4 = 5$ ,  $3 \times 5 = 15$ , 15 biscuits.
- Write the answer to the number sentences on the board for corrections.

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

Solve the problems:

<p><b>a</b></p>	<p>Priya has 40 sweets. She gives <math>\frac{1}{2}</math> of her sweets to her friend. How many sweets does she give to her friend?</p>			
<p>Draw the diagram.</p> <table border="1" data-bbox="340 645 532 765"> <tr> <td>Dots</td> </tr> <tr> <td>Fractions</td> </tr> </table>	Dots	Fractions	<p>a whole: 40 sweets</p> 	
Dots				
Fractions				
	$(\frac{1}{2})$	$(\frac{1}{2})$		
				
<p>Write the number sentences to show <math>\frac{1}{2}</math> of 40.</p>	<p><math>(40 \div 2 = 20)</math></p>			
<p>Write the answer.</p>	<p>(Priya gave 20 sweets to her friend.)</p>			

<b>b</b>	Bongi has R12. She gives $\frac{3}{4}$ of her money to her Mom. How much money does she give to her Mom?			
	Draw the diagram.	Whole (R12)		
	Dots	$\frac{1}{2}$ (R6)		$\frac{1}{2}$ (R6)
	Fractions	$\frac{1}{4}$ (R3)	$\frac{1}{4}$ (R3)	$\frac{1}{4}$ (R3)
	Write the number sentences to show $\frac{1}{4}$ of R12.	$(12 \div 2 = 6)$ $(6 \div 2 = 3)$ $(3 \times 3 = 9)$		$(12 \div 4 = 3)$ $(3 \times 3 = 9)$
Write the answer.	(Bongi gave R9 to her Mom.)			

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Calculate:

- a** Double 40 =  $\square$  (80)  
**b** Halve 60. \_\_\_\_\_ (30)  
**c**  $36 \div 4 = \square$  (9)

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to use our understanding of halving to solve fraction problems.

## Lesson 8: Division (with multiples of 10)

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.15 Division.

Lesson Objective: Division of multiples of ten by single-digit numbers.

Lesson Vocabulary: Sharing, share, divide, multiplication, multiply.

Resources: Printed tens (see *Printable Resources*).

Date: \_\_\_\_\_ Week \_\_\_\_\_ Day \_\_\_\_\_

### 1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
<b>1</b>	$12 \div 2$	6	<b>6</b>	$56 \div 8$	7
<b>2</b>	$32 \div 8$	4	<b>7</b>	$28 \div 4$	7
<b>3</b>	$16 \div 4$	4	<b>8</b>	$18 \div 2$	9
<b>4</b>	$48 \div 8$	6	<b>9</b>	$24 \div 8$	3
<b>5</b>	$36 \div 4$	9	<b>10</b>	$10 \div 2$	5

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

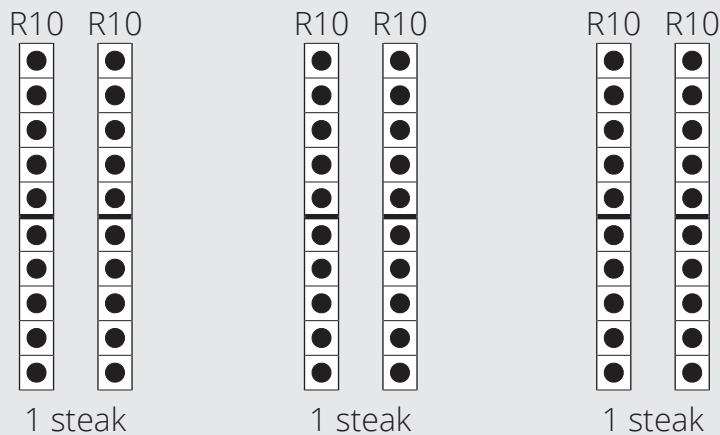
In this lesson, learners will practice division with dividends up to 100, and divisors that are 3, 4 or 5. Make sure that the answers to problems cannot be found on the multiplication table and that learners are given opportunities to solve problems mentally. The problems do not include remainders.

Today we are learning to divide multiples of ten by single-digit numbers.

#### Activity 1: Learners work in pairs

- Make sure each pair of learners has 10 small printed full ten frames.
- Write the following story on the board:  
**There is a pack which contains 3 pieces of steak for R60.**  
How much is one piece of steak?
- Read the problem.
- Underline the numbers (60 and 3).
- Ask: **What is the question?** (How much is one piece of steak?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem until they read it fluently.

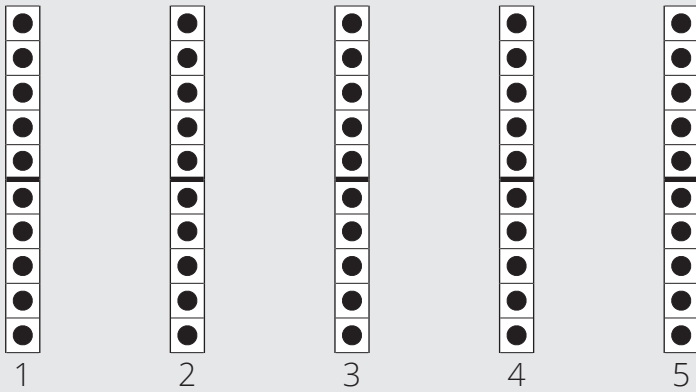
- Ask: **What do you think you need to do to solve this problem?** (We need to divide.)
- Ask the learners to write the number sentence in their classwork books ( $60 \div 3 = \underline{\quad}$ ).
- Ask: **How many tens are there in 60?** (6; pairs of learners should use their small printed full ten frames to set 60.)
- Encourage pairs to use the printed tens to solve the problem. Make sure that the learners discuss what they are doing in their pairs.
- Ask a pair of learners to come to the front of the class to explain how they solved the problem using the printed tens (learners may say that they shared out the printed tens between the 3 steaks).



- Ask the learners to complete the number sentence with the answer (and the units of the answer) in their classwork books.
- Call a learner to the board to complete the number sentence and write the answer:  $60 \div 3 = 20$ , R20 for one steak.
- Some learners may realise that they can think about the number of tens and do the division  $6 \div 3 = 2$  to find the answer. Now they know the answer is 2 tens = 20.)

### Activity 2: Learners work in pairs

- Make sure each pair of learners has 10 printed tens.
- Write the following number sentence on the board:  
 $50 \div 5 = \square$
- Ask the learners to write the number sentence in their classwork books.
- Ask: **How many tens are there in 50?** (5; pairs of learners should use their small printed full ten frames to set out 50.)
- Encourage pairs to use the printed tens to solve the problem. Make sure that the learners discuss what they are doing in their pairs.
- Ask a pair of learners to come to the front of the class to explain how they solved the problem using the printed tens (learners may say that they shared out the printed tens into 5 groups).



- Ask: **What do you notice about your printed tens?** (There is one ten in each group.)
- Ask the learners to complete the number sentence with the answer in their classwork books.
- Call a learner to the board to complete the number sentence and write the answer:  
 $50 \div 5 = 10$ .
- Repeat with similar problems, such as:
  - $40 \div 4 = (10)$
  - $90 \div 9 = (10)$
  - $70 \div 7 = (10)$
- If learners can answer mentally, it is encouraged.
- Encourage the learners to see the pattern that that emerges as they realise that the answer each time is 10.

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learners may use their printed tens if they need them to solve the problems. However, the intention is for the learners to begin to move towards working mentally by using their knowledge of division by 1–9, so encourage them to do this as they grow in confidence.

Calculate:

- a  $80 \div 4 = (20 \text{ --- applying } 8 \text{ tens } \div 4 = 2 \text{ tens})$
- b  $100 \div 5 = (20 \text{ --- applying } 10 \text{ tens } \div 5 = 2 \text{ tens})$
- c  $90 \div 3 = (30 \text{ --- applying } 9 \text{ tens } \div 3 = 3 \text{ tens})$
- d  $80 \div 8 = (10 \text{ --- applying } 8 \text{ tens } \div 8 = 1 \text{ ten})$
- e  $20 \div 2 = (10 \text{ -- applying } 2 \text{ tens } \div 2 = 1 \text{ ten})$
- f  $80 \div 2 = (40 \text{ -- applying } 8 \text{ tens } \div 2 = 4 \text{ tens})$
- g  $30 \div 3 = (10 \text{ --- applying } 3 \text{ tens } \div 3 = 1 \text{ ten})$
- h  $60 \div 3 = (20 \text{ --- applying } 6 \text{ tens } \div 3 = 2 \text{ tens})$
- i  $100 \div 2 = (50 \text{ --- applying } 10 \text{ tens } \div 2 = 5 \text{ tens})$
- j  $90 \div 9 = (10 \text{ --- applying } 9 \text{ tens } \div 9 = 1 \text{ ten})$



**4 HOMEWORK ACTIVITY (5 MINUTES)**

Calculate:

**a**  $40 \div 2 = \underline{(20)}$

**b**  $80 \div 8 = \underline{(10)}$

**c**  $70 \div 7 = \underline{(10)}$

**d**  $60 \div 3 = \underline{(20)}$

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to divide multiples of ten by single-digit numbers.

## Lesson 9: Assessment

### Teacher's notes

This lesson should be used for assessment of the content covered in this unit to date.

CAPS topics: 1.6 Problem-solving Techniques; 1.10 Sharing leading to fractions; 1.12 Techniques (methods or strategies); 1.15 Division; 1.17 Fractions.

Resources: Printable assessment in teacher's resources.

Date:

Week

Day

### 1 SETTLE THE CLASS AND ADMINISTER THE ASSESSMENT. (45 MINUTES)

The assessment for today is linked to the work covered in the unit to date.

You will find the printable version of the assessment in the teacher's resource pack.

### 2 DISCUSS ASSESSMENT ITEMS WITH THE CLASS (45 MINUTES)

Take in the learners' work when they are done.

There should be time for you to discuss a few of the items with the class:

- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.




### 3 ASSESSMENT

#### WRITTEN ASSESSMENT

(26)

#### 1 Shade half of each fraction strip and write the fraction:

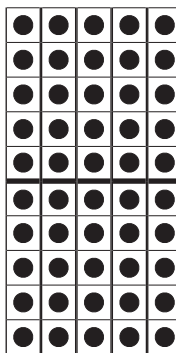
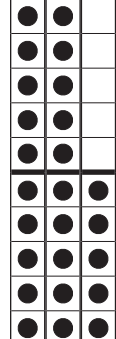
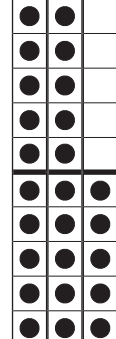
(6)

		Fraction
a		$\left(\frac{2}{4}\right)$
b		$\left(\frac{3}{6}\right)$
c		$\left(\frac{1}{2}\right)$

2 Solve the problems:

(2 × 5=10)

WEEK 2

<p><b>a</b></p>	<p>Bheki has 50 marbles. He gives <math>\frac{1}{2}</math> of his marbles to his friend. How many marbles does he give to his friend?</p>			
<p>Draw the diagram.</p> <table border="1" data-bbox="432 565 626 686"> <tr> <td>Dots</td> </tr> <tr> <td>Fractions</td> </tr> </table>	Dots	Fractions	<p>a whole: 50 marbles</p> 	
Dots				
Fractions				
	$(\frac{1}{2})$	$(\frac{1}{2})$		
				
<p>Write the number sentences to show <math>\frac{1}{2}</math> of 50.</p>	<p>(50 ÷ 2 = 25)</p>			
<p>Write the answer.</p>	<p>(Bheki gives 25 marbles to his friend.)</p>			

<b>b</b>	I have 24 oranges. I give $\frac{1}{4}$ of them to my brother. How many oranges do I give to my brother?				
	Draw the diagram.	Whole (R24)			
		$\frac{1}{2}$ (R12)		$\frac{1}{2}$ (R12)	
		$\frac{1}{4}$ (R6)	$\frac{1}{4}$ (R6)	$\frac{1}{4}$ (R6)	$\frac{1}{4}$ (R6)
	Write the number sentences to show $\frac{1}{4}$ of R24.	(24 $\div$ 2 = 12) (12 $\div$ 2 = 6)		(24 $\div$ 4 = 6)	
Write the answer.	(I give 6 oranges to my brother.)				

**3** Calculate: (10)

- a** Double 30. (60)
- b** Halve 50. (25)
- c**  $60 \div 4 = \square$  (15)
- d**  $60 \div 6 = \square$  (10)
- e** Halve 100. (50)
- f**  $80 \div 2 = \square$  (40)
- g**  $60 \div 3 = \square$  (20)
- h**  $90 \div 9 = \square$  (10)
- i**  $100 \div 5 = \square$  (20)
- j**  $90 \div 3 = \square$  (30)

## Lesson 10: Division (of 2-digit numbers)

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.15 Division.

Lesson Objective: Division of two-digit numbers by single-digit numbers.

Lesson Vocabulary: Sharing, share, divide, multiplication, multiply.

Resources: Printed tens (see *Printable Resources*), ten frames, bottle tops.

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
<b>1</b>	$15 \div 3$	5	<b>6</b>	$72 \div 9$	8
<b>2</b>	$30 \div 6$	5	<b>7</b>	$27 \div 3$	9
<b>3</b>	$36 \div 9$	4	<b>8</b>	$36 \div 6$	6
<b>4</b>	$21 \div 3$	7	<b>9</b>	$63 \div 9$	7
<b>5</b>	$42 \div 6$	7	<b>10</b>	$54 \div 9$	6

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

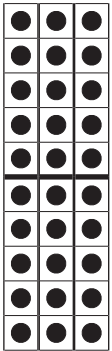

In this lesson, learners will practice division with dividends up to 100, and divisors that are 2, 3, 4 or 5. Make sure that the answers to problems cannot be found on the multiplication table and that learners are given opportunities to work out problems mentally. Make sure that the problems do not include remainders and that the tens and ones that make up the dividends are multiples of the divisors.

Today we are learning to divide two-digit numbers by single-digit numbers.

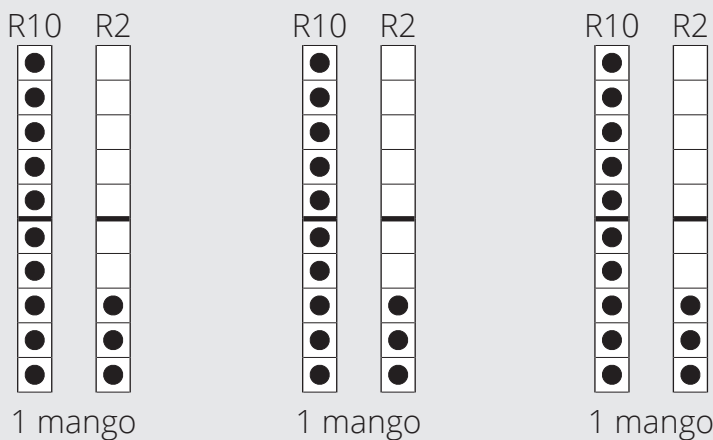
#### Activity 1: Learners work in pairs

- Make sure each pair of learners has a base-ten kit (10 printed tens, a ten frame and 9 bottle tops).
- Write the following story on the board:  
**3 mangoes cost R39.**  
How much does one mango cost?
- Read the problem.
- Underline the numbers (3 and 39).
- Ask: **What is the question?** (How much does one mango cost?)
- Underline the question with a wavy line.

- When the learners understand the story, let them read the word problem until they read it fluently.
- Ask: **What do you think you need to do to solve this problem?** (We need to divide.)
- Ask the learners to write the number sentence in their classwork books ( $39 \div 3 = \underline{\quad}$ ).
- Write the number sentence on the board for corrections.
- Encourage pairs to discuss how they could solve the problem using printed ten frames.
- Ask: **How many tens and ones are there in 36?** (3 tens and 6 ones.)

Tens	Ones
	

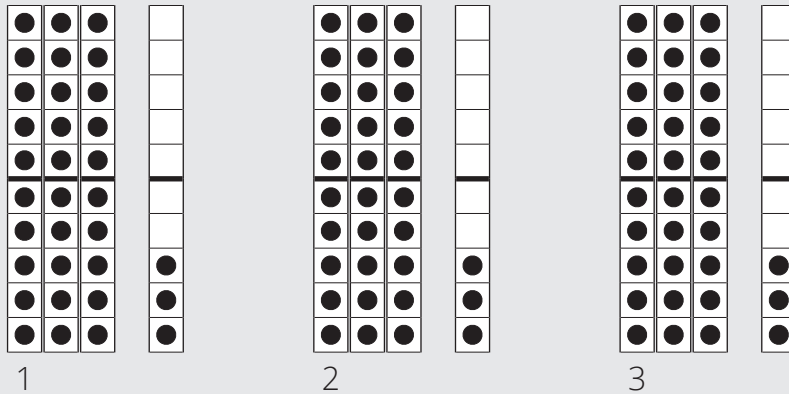
- Write on the board:  
 $30 \div 3 = \square$   
 $9 \div 3 = \square$
- Ask a pair of learners to come to the front of the class to explain how they solved the problem using their printed tens, ten frame and bottle tops.



- Ask the learners to complete the number sentence with the answer (and the units of the answer) in their classwork books.
- Call a learner to the board to complete the number sentences and write the answer:  
 $30 \div 3 = 10$   
 $9 \div 3 = 3$   
 $10 + 3 = 13$   
 $39 \div 3 = 13$   
 R13 for one mango.

**Activity 2: Learners work in pairs**

- Make sure each pair of learners has a base-ten kit (same as for Activity 1).
- Write the following number sentence on the board:  
 $96 \div 3 = \square$
- Ask the learners to write the number sentence in their classwork books.
- Ask: **How many tens and ones are there in 96?** (9 tens and 6 ones.)
- Let the learners set 96 with their base-ten kit.
- Write on the board:  
 $90 \div 3 = \square$   
 $6 \div 3 = \square$
- Encourage pairs to use the base-ten kit to solve the problem. Make sure that the learners discuss what they are doing in their pairs.
- Ask a pair of learners to come to the front of the class to explain how they solved the problem using the base-ten kit.



- Ask: **What do you notice about your printed tens?** (There are three tens in each group.)
- Ask the learners to complete the number sentence with the answer in their classwork books.
- Call a learner to the board to complete the number sentences and write the answer:

$$90 \div 3 = 30$$

$$6 \div 3 = 2$$

$$30 + 2 = 32$$

$$96 \div 3 = 32$$

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

NOTE: Learners may use their base-ten kit if they need them to solve the problems. However, the intention is for the learners to begin to move towards working mentally, so encourage them to do this as they grow in confidence.

Calculate:

**a**  $63 \div 3 = (21)$

**b**  $88 \div 4 = (22)$

**c**  $99 \div 3 = (33)$

**d**  $55 \div 5 = \underline{(11)}$

**e**  $68 \div 2 = \underline{(34)}$

**f**  $48 \div 4 = \underline{(12)}$

**g**  $36 \div 3 = \underline{(12)}$

**h**  $86 \div 2 = \underline{(43)}$

**i**  $28 \div 2 = \underline{(14)}$

#### **4 HOMEWORK ACTIVITY (5 MINUTES)**

Calculate:

**a**  $66 \div 3 = \underline{(22)}$

**b**  $24 \div 2 = \underline{(12)}$

**c**  $44 \div 4 = \underline{(11)}$

**d**  $96 \div 3 = \underline{(32)}$

#### **5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to divide two-digit numbers by single-digit numbers.



# Week 3

## Lesson 11: Division (grouping) with a remainder

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.15 Division.

Lesson Objective: Develop an understanding of division (grouping) with a remainder.

Lesson Vocabulary: Sharing, share, divide, multiplication, multiply, remainder.

Resources: Bottle tops.

Date:

Week

Day

WEEK 3

### 1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
<b>1</b>	$15 \div 5$	3	<b>6</b>	$70 \div 10$	7
<b>2</b>	$30 \div 5$	6	<b>7</b>	$20 \div 10$	2
<b>3</b>	$25 \div 5$	5	<b>8</b>	$80 \div 10$	8
<b>4</b>	$45 \div 5$	9	<b>9</b>	$40 \div 10$	4
<b>5</b>	$35 \div 5$	7	<b>10</b>	$60 \div 10$	6

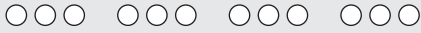

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will practice grouping division without remainders, before moving on to developing an understanding of what happens when there is a remainder. Learners are given opportunities to work out problems by using bottle tops to help them. Encourage the learners to talk about what should happen to the remainder.

Today we are learning to divide with remainders.

#### Activity 1: Learners work in pairs

- Write the following word problem on the board.  
**There are 12 apples.**  
**Each learner gets 3 apples.**  
How many learners can get apples?
- Read the problem.
- Ask: **What is the story about?** (Apples.)
- Ask: **What numbers do you see in the story?** (12 and 3.)
- Underline these numbers.

- Ask: **What is the question?** (How many learners will get apples?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Ask: **How can you solve this problem?** (We can put the apples into groups of 3/we divide 12 by 3.)
- Write the number sentence on the board. ( $12 \div 3 = \underline{\quad}$ )
- Let the learners write the number sentence with the answer in their classwork books. ( $12 \div 3 = 4$ , 4 learners.)
- Allow the learners to discuss how to represent the problem in their pairs, using bottle tops to help them solve the problem.  

- Ask a pair of learners to come to the front of the class to explain to the class how they solved the problem. (When there are 12 apples and they are put into groups of 3, there will be 4 groups of apples; we can use the 3 times table to solve the problem because  $\boxed{4} \times 3 = 12$ .)
- Say: **We can use our multiplication tables to help us solve this division problem. We know that  $4 \times 3 = 12$  so we also know that  $12 \div 3 = 4$ .**
- Ask: **If we change the problem to say ‘There are 13 apples, and each learner gets 3 apples,’ then how many learners can get apples?**
- Let the learners write the numbers sentence in their classwork books and then write the number sentence on the board for corrections. ( $13 \div 3 = \underline{\quad}$ )
- Ask: **How can you solve this problem?** (Let pairs of learners discuss using bottle tops to help them: This time we had 13 apples, so if we put one aside, we can make 12 because 12 is a multiple of 3. We can put the 12 apples into groups of 3; we can think about our multiplication tables; we can remember that  $4 \times 3 = 12$  and use that to help us. And there is 1 left over.)
- Call a pair of learners to the board to show how they solved the problem with their bottle tops.  

- Ask: **How many learners can get 3 apples?** (4 and there is one apple left over.)
- Ask: **What must we do with that one apple?** (We could share it between the 4 learners; we could give it to the teacher.)
- Say: **The leftover apple is called a remainder.**
- Ask: **Is there a quicker way to solve the problem than drawing it out?** (Yes, we know that  $4 \times 3 = 12$  so we can say that 4 learners will get 3 apples, and there will be one apple left over because  $13 - 12 = 1$ .)
- Complete the number sentence with the answer and let the learners write it in their classwork books. ( $13 \div 3 = 4$  with a remainder of 1. 4 learners can get 3 apples and 1 apple is left over.)

**Activity 2: Learners work in pairs**

- Ask: **If we now change the problem to say ‘There are 14 apples, and each learner gets 3 apples’, then how many learners will get apples?**
- Ask: How do you write a number sentence for this problem? ( $14 \div 3 = \underline{\quad}$ )
- Ask: **How can you solve this problem?** (Let pairs of learners discuss using bottle tops. This time we had 14 apples, so if we put 2 aside, we can make 12. We need 12 because 12 is a multiple of 3. We can put the 12 apples into groups of 3; we can think about our multiplication tables; we can remember that  $4 \times 3 = 12$  and use that to help us. And there are 2 left over.)
- Say: **Let’s think about our multiplication tables, and see if they can help us solve the problem.**
- Encourage the learners to discuss the multiplication tables in their pairs.
  - $4 \times 3 = 12$  (12 is 2 less than 14)
  - $5 \times 3 = 15$  (15 is more than 14 which is too much and so can’t be used to solve the problem)
- Ask a pair of learners to come to the board to explain and write how they used the multiplication table to help them.
  - $4 \times 3 = 12$
  - $14 - 12 = 2$
  - $14 \div 3 = 4$  with a remainder of 2, 4 learners will get 3 apples, and 2 apples are left over.
- Let the learners complete the number sentence with the answer in their classwork books.

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

NOTE: The classwork activity for today is another discussion with the whole class of a word problem.

- Write the following word problem on the board.  
**There are 14 sweets.**  
**Each learner gets 4 sweets.**  
How many sweets will be left?
- Read the problem.
- Ask: **What is the story about?** (Sweets.)
- Ask: **What numbers do you see in the story?** (14 and 4.)
- Underline these numbers.
- Ask: **What is the question?** (How many sweets will be left?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Ask: How do you write a number sentence for this problem? (Learners write  $14 \div 4 =$  in their classwork books and you write it on the chalkboard for corrections.)

- Ask: **How can you solve this problem?** (As we did in Activity 2, we can think about the 4 times tables.)
- Say: **Let's think about our multiplication tables, and see if they can help us solve the problem.**
- Encourage the learners to discuss the multiplication tables in their pairs.
  - $3 \times 4 = 12$  (12 is 2 less than 14).
  - $4 \times 4 = 16$  (16 is more than 14 which is too much and so can't be used to solve the problem).
- Ask: **Which multiplication sentence will help us to solve the problem?** ( $3 \times 4 = 12$ )
- Let the learners complete the number sentence with the answer in their classwork books.
- Ask a learner to come to the board to explain how she/he used the multiplication table to find the answer for corrections.
  - $3 \times 4 = 12$
  - $14 - 12 = 2$
  - $14 \div 4 = 3$  with a remainder of 2, 3 learners will get 4 sweets and 2 sweets will be left over.

#### 4 HOMEWORK ACTIVITY (5 MINUTES)

Complete the table:

		Multiple	Remainder	Answer?
<b>a</b>	$16 \div 3 = \square$	( $\boxed{5} \times 3 = 15$ )	$(16 - 15 = 1)$	(5 remainder 1)
<b>b</b>	$18 \div 4 = \square$	( $\boxed{4} \times 4 = 16$ )	$(18 - 16 = 2)$	(4 remainder 2)

#### 5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to divide with remainders.

## Lesson 12: Division and remainders

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.15 Division.

Lesson Objective: Develop an understanding that the remainder must always be smaller than the divisor.

Lesson Vocabulary: Sharing, share, divide, multiplication, multiply, remainder.

Resources: Bottle tops.

Date:

Week

Day

WEEK 3

### 1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
<b>1</b>	$35 \div 7$	5	<b>6</b>	$72 \div 9$	8
<b>2</b>	$63 \div 7$	9	<b>7</b>	$27 \div 9$	3
<b>3</b>	$14 \div 7$	2	<b>8</b>	$45 \div 9$	5
<b>4</b>	$21 \div 7$	7	<b>9</b>	$18 \div 9$	2
<b>5</b>	$42 \div 7$	6	<b>10</b>	$54 \div 9$	6



### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will continue to work with division problems that involve remainders.

Today we are learning to divide with remainders.

#### Activity 1: Whole class activity

- Write the following word problem on the board.  
**Thoko makes bags of 4 oranges each.**  
**There are 18 oranges.**  
**How many bags can Thoko make and how many oranges will be left over?**
- Read the problem.
- Ask: **What is the story about?** (Oranges.)
- Ask: **What numbers do you see in the story?** (4 and 18.)
- Underline these numbers.
- Ask: **What is the question?** (How many bags will there be, and how many oranges will be left over?)
- Underline the question with a wavy line.

- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Ask: **How can you solve this problem?** (We can put the oranges into groups of 4; we do division.)
- Ask: How do you write a number sentence for this problem?
- Let the learners write the number sentence in their classwork books and then write it on the board for corrections. ( $18 \div 4 = \underline{\quad}$ )
- Allow the learners to discuss how to solve the problem in their pairs, using bottle tops and multiplication tables to help them solve the problem.
- Ask a pair of learners to come to the front of the class to explain to the class how they solved the problem. Encourage the learners to realise that they need to look at their multiplication tables.
- Say: **We can use our multiplication tables to help us solve this division problem.**
  - **We know that  $3 \times 4 = 12$  so we could arrange our bottle tops like this:**

- Ask: **What does this tell us?** (Thoko makes 3 bags of 4 oranges, and there are 6 oranges left over.)
- Ask: **Do you think this is the best answer?** (No, because we could actually make another group of 4.)
- Call a learner to the front of the class to show another group of 4.
 
- Ask: **What does this tell us?** (Thoko makes 4 bags of 4 oranges, and there are 2 oranges left over.)
- Ask: **Do you think this is the best answer?** (Yes, because we can't make another group of 4.)
- Let the learners complete the number sentence with the answer in their classwork books and then write them on the board for corrections. ( $18 \div 4 = 4$  with a remainder of 2; Thoko makes 4 bags of 4 oranges and 2 oranges are left over.)
- Keep the word problem written on the chalkboard for Activity 2.

### Activity 2: Whole class activity

- Use the word problem on the board from Activity 1. In this Activity, the total number of oranges will be changed to help learners see the relationship between the divisor and the remainder.  
**Thoko makes bags of 4 oranges each.**  
**There are 19 oranges.**  
**How many bags can Thoko make and how many oranges will be left over?**
- Ask: **What is a number sentence for the problem?**
- Let the learners write the number sentence in their classwork books and then write it on the board for corrections. ( $19 \div 4 =$ )

- Allow the learners to discuss how to solve the problem in their pairs, using bottle tops and multiplication tables to help them solve the problem.



Or

- $4 \times 4 = 16$
- $5 \times 4 = 20$  (20 is more than 19 which is too much and so can't be used to solve the problem.)
- $19 - 16 = 3$
- Let the learners complete the number sentence with the answer in their classwork books and then write them on the board for corrections.
  - $(19 \div 4 = 4 \text{ with a remainder of } 3)$
- Repeat the steps above, but change the total number to 20 this time.
- Ask: **What did you notice about this problem?** (There was no remainder; we could make 5 groups of 4 and there were no oranges left over.)
- Repeat the steps above, but change the total number to 21, then 22, then 23, then 24, then 25.
- Ask the learners to share their responses with the class, and write these on the board:
  - $19 \div 4 = 4 \text{ with a remainder of } 3.$
  - $20 \div 4 = 5$
  - $21 \div 4 = 5 \text{ with a remainder of } 1.$
  - $22 \div 4 = 5 \text{ with a remainder of } 2.$
  - $23 \div 4 = 5 \text{ with a remainder of } 3.$
  - $24 \div 4 = 6$
  - $25 \div 4 = 6 \text{ with a remainder of } 1.$
- Let the learners record all seven number sentences above in their classwork books.
- Ask: **What did you notice about these problems?** (Encourage the learners to think about the relationship between the divisor and the remainder.)
  - The remainder is always smaller than 4.
  - Each time the total number of oranges increased by 1, then the remainder increased by 1 as well.
  - When we got to a remainder of 4 then we could actually make a new group of 4 so we ended up with no remainder.

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

Draw dots to find the answer. The remainder must be smaller than the group size.

		Draw dots to find the answer	Answer
<b>a</b>	$28 \div 3 =$		$28 \div 3 = 9$ remainder 1
<b>b</b>	$26 \div 4 =$		$(26 \div 4 = 6$ remainder 2)
<b>c</b>	$17 \div 5 =$		$(17 \div 5 = 3$ remainder 2)
<b>d</b>	$20 \div 6 =$		$(20 \div 6 = 3$ remainder 2)
<b>e</b>	$22 \div 3 =$		$(22 \div 3 = 7$ remainder 1)
<b>f</b>	$18 \div 4 =$		$(18 \div 4 = 4$ remainder 2)
<b>g</b>	$33 \div 5 =$		$(33 \div 5 = 6$ remainder 3)
<b>h</b>	$37 \div 6 =$		$(37 \div 6 = 6$ remainder 1)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Draw dots to find the answer. The remainder must be smaller than the group size.

		Draw dots to find the answer	Write correct answer
<b>a</b>	$14 \div 3 =$		$(14 \div 3 = 4$ remainder 2)
<b>b</b>	$21 \div 4 =$		$(21 \div 4 = 5$ remainder 1)
<b>c</b>	$19 \div 6 =$		$(19 \div 6 = 3$ remainder 1)

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have developed an understanding that the remainder must always be smaller than the divisor.



## Lesson 13: Division (sharing) with a remainder

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.15 Division.

Lesson Objective: Develop an understanding of division (sharing) with a remainder.

Lesson Vocabulary: Sharing, share, divide, multiplication, multiply, remainder.

Resources: Bottle tops.

Date:

Week

Day

WEEK  
3

### 1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
<b>1</b>	$3 \times 6$	18	<b>6</b>	$8 \times 7$	56
<b>2</b>	$9 \times 7$	63	<b>7</b>	$6 \times 6$	36
<b>3</b>	$4 \times 6$	24	<b>8</b>	$3 \times 7$	21
<b>4</b>	$6 \times 7$	42	<b>9</b>	$9 \times 6$	54
<b>5</b>	$8 \times 6$	48	<b>10</b>	$7 \times 7$	49

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will practice sharing division with an understanding of what happens when there is a remainder. Learners are given opportunities to work out problems by using bottle tops to help them. Encourage the learners to talk about what should happen to the remainder.

Today we are learning to divide with remainders.

#### Activity 1: Whole class activity

- Write the following word problem on the board.  
**There are 16 apples.**  
**They are shared between 3 learners equally.**  
**How many apples can each learner get and how many apples will be left over?**
- Read the problem.
- Ask: **What is the story about?** (Apples.)
- Ask: **What numbers do you see in the story?** (16 and 3.)
- Underline these numbers.
- Ask: **What is the question?** (How many apples will each learner get?)
- Underline the question with a wavy line.

- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Ask: **How can you solve this problem?** (We divide 16 apples into 3 learners.  $16 \div 3 = \underline{\quad}$ )
- Let the learners write the number sentence in their classwork books and then write it on the board for corrections.
- Let the learners discuss using bottle tops to help them: We can share the apples between 3 learners; we can think about our multiplication tables; we can remember that  $3 \times \boxed{5} = 15$  and use that to help us.)
- Call a learner to the board to show how they solved the problem with their bottle tops.

●●●●●	●●●●●	●●●●●	● 1 apple left over
Learner 1	Learner 2	Learner 3	

- Let learners complete the number sentence and write the answer in their classwork books.
- Ask a learner to come to the board to explain and write how he/she used the multiplication table.
  - $3 \times 5 = 15$
  - $16 - 15 = 1$
  - $16 \div 3 = 5$  with a remainder of 1, The 3 learners will get 5 apples and 1 apple is left over.

### Activity 2: Whole class activity

- Write the following word problem on the board.  
**There are 37 pens.**  
**They are shared between 6 learners equally.**  
**How many pens will each learner get and how many pens will be left over?**
- Read the problem.
- Ask: **What is the story about?** (Pens.)
- Ask: **What numbers do you see in the story?** (37 and 6.)
- Underline these numbers.
- Ask: **What is the question?** (How many pens will each learner get?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Ask: **How can you solve this problem?** (We divide 37 pens into 6 learners;  $37 \div 6 = \underline{\quad}$ ; We can share the pens between 6 learners; we can think about our  $6 \times$  multiplication table.)
- Let learners write the number sentence and the answer in their classwork books.
- Ask a learner to come to the board to explain and write how he/she used the multiplication table.

- $6 \times \boxed{6} = 36$
- $37 - 36 = 1$
- $37 \div 6 = 6$  with a remainder of 1, The 6 learners will each get 6 pens, and 1 is pen left over.

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Allow the learners to use bottle tops to help them solve the problems should they need to. While learners do this activity you should help them to know what they need to fill into the table. First they have to record the multiplication table that helps them to find the answer and then they show how they use this to find the remainder. In the final column they record the division number sentence.

Complete the table. The first one is done for you.

		Multiple and remainder	Answer
<b>a</b>	$9 \div 2 =$	$2 \times \boxed{4} = 8, 9 - 8 = 1$	$9 \div 2 = 4$ , remainder 1
<b>b</b>	$5 \div 3 =$	$(3 \times \boxed{1} = 3, 5 - 3 = 2)$	$(5 \div 3 = 1$ remainder 2)
<b>c</b>	$25 \div 7 =$	$(7 \times \boxed{3} = 21, 25 - 21 = 4)$	$(25 \div 7 = 3$ remainder 4)
<b>d</b>	$23 \div 3 =$	$(3 \times \boxed{7} = 21, 23 - 21 = 2)$	$(23 \div 3 = 7$ remainder 2)
<b>e</b>	$52 \div 8 =$	$(8 \times \boxed{6} = 48, 52 - 48 = 4)$	$(52 \div 8 = 6$ remainder 4)
<b>f</b>	$39 \div 9 =$	$(9 \times \boxed{4} = 36, 39 - 36 = 3)$	$(39 \div 9 = 4$ remainder 3)
<b>g</b>	$47 \div 5 =$	$(5 \times \boxed{9} = 45, 47 - 45 = 2)$	$(47 \div 5 = 9$ remainder 2)
<b>h</b>	$28 \div 6 =$	$(6 \times \boxed{4} = 24, 28 - 24 = 4)$	$(28 \div 6 = 4$ remainder 4)
<b>i</b>	$30 \div 4 =$	$(4 \times \boxed{7} = 28, 30 - 28 = 2)$	$(30 \div 4 = 7$ remainder 2)

### 4 HOMEWORK ACTIVITY (5 MINUTES)

Use multiplication to find the answer and the remainder.

- a**  $13 \div 3 = \square$  ( $3 \times \boxed{4} = 12, 13 - 12 = 1$ , 4 remainder 1)  
**b**  $18 \div 5 = \square$  ( $5 \times \boxed{3} = 15, 18 - 15 = 3$ , 3 remainder 3)  
**c**  $35 \div 8 = \square$  ( $8 \times \boxed{4} = 32, 35 - 32 = 3$ , 4 remainder 3)

### 5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to divide with remainders.

## Lesson 14: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 1.15 Division.		
Resources: Printable assessment in teacher's resources.		
Date:	Week	Day

### 1 SETTLE THE CLASS AND ADMINISTER THE ASSESSMENT. (45 MINUTES)

The assessment for today is linked to the work covered in the unit to date.

You will find the printable version of the assessment in the teacher's resource pack.

### 2 DISCUSS ASSESSMENT ITEMS WITH THE CLASS (45 MINUTES)

Take in the learners' work when they are done.

There should be time for you to discuss a few of the items with the class:

- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.

### 3 ASSESSMENT

#### WRITTEN ASSESSMENT (28)

1 Calculate: (4)

a  $48 \div 2 = (24)$

b  $96 \div 3 = (32)$

c  $84 \div 4 = (21)$

d  $66 \div 6 = (11)$

2 Draw dots to find the answer: (8)

		Draw dots to find the answer	Answer
a	$29 \div 3 = \square$	(●●● ●●● ●●● ●●● ●●● ●●● ●●● ●●● ●●● ●●)	$(29 \div 3 = 9$ remainder 2)
b	$45 \div 7 = \square$	(●●●●●●● ●●●●●●● ●●●●●●● ●●●●●●● ●●●●●●● ●●●●●●● ●●●●)	$(45 \div 7 = 6$ remainder 3)
c	$19 \div 2 = \square$	(●● ●● ●● ●● ●● ●● ●● ●● ●● ●)	$(19 \div 2 = 9$ remainder 1)
d	$24 \div 5 = \square$	(●●●●● ●●●●● ●●●●● ●●●●● ●●●●●)	$(24 \div 5 = 4$ remainder 4)

**3** Complete the table: (12)

		Multiple	Remainder	Answer?
<b>a</b>	$22 \div 4 = \square$	$(\boxed{5}) \times 4 = 20$	$(22 - 20 = 2)$	(5 remainder 2)
<b>b</b>	$25 \div 7 = \square$	$(\boxed{3}) \times 7 = 21$	$(25 - 21 = 4)$	(3 remainder 4)
<b>c</b>	$42 \div 8 = \square$	$(\boxed{5}) \times 8 = 40$	$(42 - 40 = 2)$	(5 remainder 2)
<b>d</b>	$39 \div 6 = \square$	$(\boxed{6}) \times 6 = 36$	$(39 - 36 = 3)$	(6 remainder 3)

**4** Calculate: (4)

- a**  $17 \div 3 =$  \_\_\_\_\_ (5 remainder 2)  
**b**  $33 \div 6 =$  \_\_\_\_\_ (5 remainder 3)  
**c**  $30 \div 7 =$  \_\_\_\_\_ (4 remainder 2)  
**d**  $31 \div 4 =$  \_\_\_\_\_ (7 remainder 3)

## Lesson 15: Using multiplication to check division

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.15 Division.

Lesson Objective: Check the answers to division problems by multiplying the divisor and quotient, and then adding the remainder.

Lesson Vocabulary: Sharing, share, divide, multiplication, multiply, remainder.

Resources: Bottle tops.

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
<b>1</b>	$3 \times 8$	24	<b>6</b>	$8 \times 9$	72
<b>2</b>	$5 \times 9$	45	<b>7</b>	$6 \times 8$	48
<b>3</b>	$4 \times 8$	32	<b>8</b>	$3 \times 9$	27
<b>4</b>	$6 \times 9$	54	<b>9</b>	$9 \times 8$	72
<b>5</b>	$7 \times 8$	56	<b>10</b>	$7 \times 9$	63

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will practice checking their answers to division problems. They will use their knowledge that multiplication is the inverse operation to division to help them check and correct their answers. Encourage the learners to verbalise what they are doing so that they develop their confidence.

Today we are learning to check the answers to division problems by multiplying the divisor and quotient and then adding the remainder.

#### Activity 1: Whole class activity

- Write the following word problem on the board.  
**There are 19 sweets.**  
**If Thoko puts 5 sweets into each bag,**  
**how many bags can Thoko fill and how many sweets will be left over?**
- Read the problem.
- Ask: **What is the story about?** (Sweets.)
- Ask: **What numbers do you see in the story?** (19 and 5.)
- Underline these numbers.
- Ask: **What is the question?** (How many bags will Thoko fill with sweets?)

- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Let the learners write the number sentence in their classwork books and then write it on the board for corrections. ( $19 \div 5 =$ )
- Ask: **How can you solve this problem?** (Let the learners discuss using bottle tops to help them: We can put the bottle tops / sweets into groups of 5; we can think about our multiplication tables; we can remember that  $\square \times 5 = 15$  and use that to help us.)
- Call a learner to the board to show the class how they solved the problem with their bottle tops.



- Ask: **Which multiplication table will help us to solve the problem?** ( $3 \times 5 = 15$ )
- Ask a learner to come to the board to explain how they used the multiplication table to help them.
  - $3 \times 5 = 15$
  - $19 - 15 = 4$
  - $19 \div 5 = 3$  with a remainder of 4, Thoko fills 3 bags of 5 sweets, and 4 sweets are left over.
- Ask: **How do you know that you have the correct answer?** (We can check our bottle tops; we can use multiplication tables to help us.)
- Say: **That's correct – you can use multiplication to check your answers to division problems.**
- Write and explain;
  - $3 \times 5 = 15$
  - $15 + 4 = 19$
  - So  $19 \div 5 = 3$  remainder 4 is correct.
- *You may need to model this conversation and help the learners to write the number sentences in their classwork books.*

### Activity 2: Learners work in pairs

- Write the following number sentence on the board.  
 $36 \div 5 = 6$  remainder 3
- Ask: **Does this number sentence look correct?** (Allow the learners time to discuss in pairs.)
- Say: **What do you need to do to see if the answer is correct?** (We need to multiply and then add on the remainder.)
- Allow the learners to discuss how to check the answer in their pairs, using multiplication tables to help them.
- Ask a pair of learners to come to the front of the class to explain to the class and write how they checked the answer.
  - $6 \times 5 = 30$

- $30 + \boxed{3} = 33$
- (In other words)  $6 \times 5 + 3 = 33$
- But the actual starting number was 36 so 6 remainder 3 is not the correct answer.
- Ask: **So what do you need to do now?** (We recalculate the problem.)
- Let learners write their recalculation in their classwork books.
  - $\boxed{7} \times 5 = 35$
  - $36 - 35 = \boxed{1}$
  - $36 \div 5 = 7$  remainder 1
- Ask a learner to come to write the recalculation process for corrections.
- Ask: **Does this look correct now?**
- Let the learners check the answer in their classwork books:
  - $\boxed{7} \times 5 = 35$
  - $35 + \boxed{1} = 36$
  - (In other words)  $7 \times 5 + 1 = 36$
  - 7 remainder 1 is the correct answer.
- Write the checking process as above on the board for corrections.
- Repeat the steps above using the following problems:
  - $25 \div 8 = \boxed{3}$  remainder  $\boxed{2}$ 
    - $(3 \times \boxed{8} + \boxed{2}) = 26 \rightarrow$  is not correct, the remainder should be 1, so the answer is actually  $25 \div 8 = 3$  remainder 1)
  - $40 \div 6 = 6$  remainder 4
    - $(6 \times 6 + 4 = 40 \rightarrow$  is correct)

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Check the answers to the problem and correct the mistakes where necessary:

		Check	Corrections
<b>a</b>	$44 \div 5 = 8$ remainder 4	$(8 \times 5 + \mathbf{4} = 44)$	
<b>b</b>	$29 \div 7 = 4$ remainder 2	$(\mathbf{4} \times 7 + 2 = \mathbf{30})$	$(29 \div 7 = 4$ remainder $\mathbf{1})$
<b>c</b>	$10 \div 3 = 3$ remainder 3	$(3 \times 3 + 3 = \mathbf{12})$	$(10 \div 3 = 3$ remainder $\mathbf{1})$
<b>d</b>	$39 \div 6 = 5$ remainder 9	(the remainder 9 is bigger than 6)	$(39 \div 6 = 6$ remainder $\mathbf{3})$
<b>e</b>	$34 \div 4 = 8$ remainder 3	$(8 \times 4 + \mathbf{3} = \mathbf{35})$	$(34 \div 4 = 8$ remainder $\mathbf{2})$
<b>f</b>	$25 \div 8 = 3$ remainder 1	$(3 \times 8 + 1 = 25)$	
<b>g</b>	$50 \div 7 = 6$ remainder 8	(the remainder 8 is bigger than 7)	$(50 \div 7 = 7$ remainder $\mathbf{1})$
<b>h</b>	$18 \div 4 = 4$ remainder 1	$(4 \times 4 + \mathbf{1} = \mathbf{17})$	$(18 \div 4 = 4$ remainder $\mathbf{2})$



**4 HOMEWORK ACTIVITY (5 MINUTES)**

Check the answers to the problem and correct the mistakes where necessary:

		<b>Check</b>	<b>Corrections</b>
<b>a</b>	$23 \div 3 = 7$ remainder 1	$(7 \times 3 + \underline{1} = \underline{22})$	$(23 \div 3 = 7$ remainder <b><u>2</u></b> )
<b>b</b>	$21 \div 5 = 4$ remainder 3	$(4 \times 5 + \underline{3} = \underline{23})$	$(21 \div 5 = 4$ remainder <b><u>1</u></b> )
<b>c</b>	$30 \div 7 = 3$ remainder 9	(the remainder 9 is bigger than 7)	$(30 \div 7 = 4$ remainder <b><u>2</u></b> )

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to check the answers to division problems by multiplying the divisor and quotient and then adding the remainder.

# Week 4

## Lesson 16: Division with remainders

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.15 Division.

Lesson Objective: Practice division with a remainder.

Lesson Vocabulary: Sharing, share, divide, multiplication, multiply, remainder.

Resources: Bottle tops.

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
<b>1</b>	$3 \times 7$	21	<b>6</b>	$8 \times 9$	72
<b>2</b>	$5 \times 7$	35	<b>7</b>	$6 \times 9$	54
<b>3</b>	$4 \times 7$	28	<b>8</b>	$4 \times 9$	36
<b>4</b>	$6 \times 7$	42	<b>9</b>	$9 \times 9$	81
<b>5</b>	$8 \times 7$	56	<b>10</b>	$7 \times 9$	63

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will practice division with remainders. The learners will have opportunities to apply what they have learned in previous lessons. The learners need to think about what they will do with the remainders, as the problems are given in such a way that they could easily occur in real life. Therefore, learners need to know what they would do with the remainder should such a situation occur in real life.

Today we are practicing division with a remainder.

#### Activity 1: Whole class activity

- Write the following word problem on the board.  
**There are 34 muffins.**  
**5 learners share the muffins.**  
How many muffins will each learner get? How many muffins will be left over?
- Read the problem.
- Ask: **What is the story about?** (Muffins.)
- Ask: **What numbers do you see in the story?** (34 and 5.)

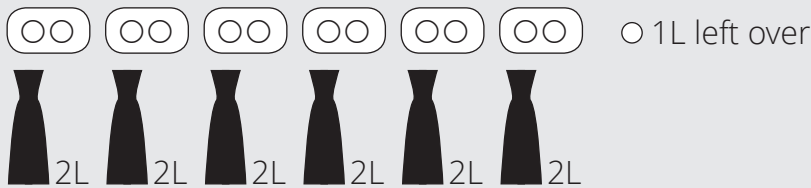
- Underline these numbers.
- Ask: **What is the question?** (How many muffins will each learner get?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Let the learners write the number sentence in their classwork books and then write it on the board for corrections. ( $34 \div 5 = \underline{\quad}$ )
- Ask: **How can you solve this problem?** (Let the learners discuss the problem using bottle tops to help them: we can share the bottle tops between 5 learners; we can think about our multiplication tables.)
- Call a learner to the board to show the class how she/he solved the problem with the bottle tops.

●●●●●●	●●●●●●	●●●●●●	●●●●●●	●●●●●●	●●●●●●
Learner 1	Learner 2	Learner 3	Learner 4	Learner 5	4 muffins left over

- Ask: **Which multiplication table will help us to solve the problem?** ( $5 \times \boxed{6} = 30$ )
- Ask a learner to come to the board to explain how he/she used the multiplication table.
  - $5 \times \boxed{6} = 30$
  - $34 - 30 = 4$
  - $34 \div 5 = 6$  with a remainder of 4, The learners will each get 6 muffins, and 4 muffins are left over.
- Ask: **How do you know that you have the correct answer?** (We can check our bottle tops; we can use multiplication tables to help us.)
- Say: **That's correct – you can use multiplication to check your answers to division problems.**
- Give learners time to check their answers by using multiplication. Encourage the learners to discuss their ideas with the learners sitting near them.
- Call a learner to the front of the class to share with the class how he/she checked their answer.
  - $6 \times 5 = 30$
  - $30 + 4 = 34$
  - So  $34 \div 5 = 6$  remainder 4 is correct.
- Ask: **What could we do with the remainder (the 4 muffins)?** (We could share them between the 5 friends by cutting the muffins into fifths. Each learner would get  $\frac{1}{5}$  of 4 muffins. This means that each learner would get 6 muffins and  $\frac{4}{5}$  of a muffin. We could also give the 4 left over muffins to our teacher / learners who forgot their lunch etc.)

### Activity 2: Whole class activity

- Write the following word problem on the board.  
**There is 13L of juice.**  
**When it is divided into 2L bottles,**  
**how many bottles can you fill and how many litres of juice will be left over?**
- Read the problem.
- Ask: **What is the story about?** (Juice.)
- Ask: **What numbers do you see in the story?** (13 and 2.)
- Underline these numbers.
- Ask: **What is the question?** (How many bottles will you fill with juice?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Let the learners write the number sentence in their classwork books and then write it on the board for corrections. ( $13 \div 2 = \underline{\quad}$ )
- Ask: **How can you solve this problem?** (Let the learners discuss the problem, using bottle tops to help them: we can put the bottle tops into groups of 2; we can think about our multiplication tables.)
- Call a learner to the board to show how they solved the problem using bottle tops.



- Ask: **Which multiplication table will help us to solve the problem?** ( $6 \times 2 = 12$ )
- Let learners write the number sentences to solve the problem.
- Write the following on the board for correction.
  - $6 \times 2 = 12$
  - $13 - 12 = 1$
  - $13 \div 2 = 6$  with a remainder of 1, There will be 6 2L bottles and 1L of juice is left over.
- Ask: **How do you know that you have the correct answer?** (We can check our bottle tops; we can use multiplication tables to help us.)
- Say: **That's correct – you can use multiplication to check your answers to division problems.**
- Give learners time to check their answers by using multiplication in their classwork books. Encourage the learners to discuss their ideas with the learners sitting near them.
- Call a learner to the front of the class to present how she/he checked the answer.
  - $6 \times 2 = 12$
  - $12 + 1 = 13$
  - So  $13 \div 2 = 6$  remainder 1 is correct.

- Ask: **What could we do with the remainder?** (We could drink it. We could also give the 1L left over to our teacher / someone who is thirsty. We could leave the left over 1L in the fridge until some of the juice in the 2L bottles has been drunk, and then we can fill up the 2L bottles with the leftover juice.)

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Check the answers to the problems and correct the mistakes where necessary:

		Check	Corrections
a	$11 \div 3 = 3$ remainder 2	$(3 \times 3 + 2 = 11)$	
b	$37 \div 5 = 6$ remainder 7	(the remainder 7 is bigger than 5)	$(37 \div 5 = \underline{7}$ remainder <u>2</u> )
c	$27 \div 6 = 4$ remainder 5	$(4 \times 6 + \underline{5} = \underline{29})$	$(27 \div 6 = 4$ remainder <u>3</u> )
d	$14 \div 4 = 2$ remainder 6	(the remainder 6 is bigger than 4)	$(14 \div 4 = \underline{3}$ remainder <u>2</u> )
e	$65 \div 7 = 9$ remainder 1	$(9 \times 7 + \underline{1} = \underline{64})$	$(65 \div 7 = 9$ remainder <u>2</u> )
f	$46 \div 9 = 5$ remainder 1	$(5 \times 9 + 1 = 46)$	
g	$50 \div 8 = 6$ remainder 3	$(6 \times 8 + \underline{3} = \underline{51})$	$(50 \div 8 = 6$ remainder <u>2</u> )
h	$26 \div 3 = 7$ remainder 5	(the remainder 5 is bigger than 3)	$(26 \div 3 = \underline{8}$ remainder <u>2</u> )

### 4 HOMEWORK ACTIVITY (5 MINUTES)

Check the answers to the problems and correct the mistakes where necessary:

		Check the answers	Write correct answer
a	$39 \div 6 = 5$ remainder 9	(the remainder 9 is bigger than 6)	$(39 \div 6 = 6$ remainder <u>3</u> )
b	$27 \div 7 = 3$ remainder 6	$(3 \times 7 + 6 = 27)$	
c	$38 \div 8 = 4$ remainder 7	$(4 \times 8 + \underline{7} = \underline{39})$	$(38 \div 8 = 4$ remainder <u>6</u> )

### 5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have practiced division with a remainder.

## Lesson 17: Division with remainders in context

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 1.15 Division.

Lesson Objective: Practice division with a remainder in context.

Lesson Vocabulary: Sharing, share, divide, multiplication, multiply, remainder.

Resources: Bottle tops.

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
<b>1</b>	$54 \div 6$	9	<b>6</b>	$56 \div 7$	8
<b>2</b>	$35 \div 7$	5	<b>7</b>	$30 \div 6$	5
<b>3</b>	$24 \div 8$	3	<b>8</b>	$28 \div 7$	4
<b>4</b>	$63 \div 9$	7	<b>9</b>	$64 \div 8$	8
<b>5</b>	$48 \div 8$	6	<b>10</b>	$45 \div 9$	5

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will continue to practice division with remainders. Learners will have opportunities to apply what they have learned in previous lessons, and to clarify any misconceptions that may have developed. The emphasis in this lesson is on the context of the problems. It is essential that learners recognise that situations involving remainders can occur in everyday life, and that they need to know how they would deal with these remainders.

Today we are practicing division with a remainder in context.

#### Activity 1: Whole class activity

- Write the following word problem on the board.  
**There are 27 learners.**  
**6 learners can sit on each bench.**  
**All learners have to sit on benches for the assembly.**  
**How many benches do we need?**
- Read the problem.
- Ask: **What is the story about?** (Benches.)
- Ask: **What numbers do you see in the story?** (27 and 6.)
- Underline these numbers.

- Ask: **What is the question?** (How many benches do we need?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Let the learners write the number sentence in their classwork books and then write it on the board for corrections. ( $27 \div 6 = \underline{\quad}$ )
- Ask: **Do you think we will have a remainder or no remainder? Why?** (We will have a remainder because there is no 27 in the answers of 6 times table.)
- Ask: **How can you solve this problem?** (Let the learners discuss how to solve the problem: We can put bottle tops into groups of 6; we can think about our multiplication tables.  $\boxed{4} \times 6 = \quad$ )
- Let the learners solve the problem using multiplication tables.
  - $\boxed{4} \times 6 = 24$
  - $27 - 24 = 3$
  - $27 \div 6 = 4$  with a remainder of 3
- Let the learners represent the story with bottle tops.



- Ask: **Do those three learners stand without a bench?** (No. we need 1 more bench even though only 3 learners will sit on it, because all learners must sit on benches for the assembly.)



- Ask: **What is the answer to the problem?** (We need 5 benches.)
- Say: **There is another way to find the answer to the problem.**
- Show the learners how to represent the problem using a table:

Number of benches	1	2	3	4	5	6	
Number of learners $\times 6$	6	12	18	24	30	36	

When we have 4 benches, 24 learners can sit on them, but 3 learners don't have a place to sit.

So we have to have 5 benches to accommodate those 3 learners even the fifth bench is not full.

- Ask: **Can we use  $4 \times 6 = 24$  to help us solve the problem?** (No – it is too small; our total number of learners is 27 so we must use  $5 \times 6 = 30$  to have all 27 learners sit on benches.)
- Help the learners to realise that they need to answer this question by saying that 5 benches are needed because the 3 remaining learners still need a bench on which to sit.
- Confirm the answer with the learners:
  - $\boxed{4} \times 6 = 24$

- $27 - 24 = 3$
- $27 \div 6 = 4$  with a remainder of 3, We need 1 more bench to accommodate all 27 learners. The answer is 5 benches.

### Activity 2: Whole class activity

- Write the following word problem on the board.  
**Thoko sells bags of oranges.**  
**Each bag holds 4 oranges.**  
**She has 38 oranges.**  
How many bags can she sell?
- Read the problem.
- Ask: **What is the story about?** (Bags of oranges.)
- Ask: **What numbers do you see in the story?** (38 and 4.)
- Underline these numbers.
- Ask: **What is the question?** (How many bags can Thoko sell?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Let the learners write the number sentence in their classwork books and then write it on the board for corrections. ( $38 \div 4 = \underline{\quad}$ )
- Ask: **How can you solve this problem?** (Let the learners discuss how to solve the problem: we can think about our multiplication tables:  $9 \times 4 = 36$ ; we can use a table like we did in Activity 1.)
- Let the learners solve the problem using a multiplication table.
  - $9 \times 4 = 36$
  - $38 - 36 = 2$
  - $38 \div 4 = 9$  with a remainder of 2.
- Ask: **Can Thoko make another bag of 4 oranges with those 2 leftover oranges?** (No. She cannot make a bag with 2 oranges.)
- Let the learners check if the answer 9 is correct using their tables.
- Ask the learners to come to the board to help you fill in the table so that it is completed as shown below:

Number of bags	1	2	3	4	5	6	7	8	9	10
Number of oranges $\times$ 4	4	8	12	16	20	24	28	32	36	40

- Ask: **What happens when Thoko uses 10 bags?** (The 10<sup>th</sup> bag will only have 2 oranges instead of 4 oranges.)
- Ask: **So, what do you think we should do?** (Allow the learners time to talk about this amongst themselves.)



- Help the learners to realise that Thoko would not be able to sell a bag of 2 oranges for the same price as a bag of 4 oranges. Learners could suggest that the 2 left over oranges be given away to someone in need, or they could put the 2 left over oranges in the 10<sup>th</sup> bag and sell it for half the price.
- Confirm the answer with the learners:
  - $9 \times 4 = 36$
  - $38 - 36 = 2$
  - $38 \div 4 = 9$  with a remainder of 2, Thoko cannot make 1 bag with 2 oranges. The answer is 9 bags.
- Ask: **What is the difference between the problems in Activity 1 and Activity 2?** (In Activity 1, we had to think about how to accommodate the remainder and have an extra bench to accommodate the remaining learners. In Activity 2 we have to disregard the remainder, so we give the remaining oranges away.)

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: The classwork activity for today is another discussion with the whole class of a word problem.

- Write the following word problem on the board.  
**There are 44 people.**  
**There are cars which can each hold 7 passengers.**  
**How many cars do you need to transport all the people?**
- Read the problem.
- Ask: **What is the story about?** (Cars.)
- Ask: **What numbers do you see in the story?** (44 and 7.)
- Underline these numbers.
- Ask: **What is the question?** (How many cars do you need to transport the people?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, following after you sentence by sentence.
- Let the learners write the number sentence in their classwork books and then write it on the board for corrections. ( $44 \div 7 =$  )
- Ask: **How can you solve this problem?** (Let the learners discuss how to solve the problem: we can think about our multiplication tables:  $6 \times 7 = 42$ ; we can use a table like we did in Activity 1.)
- Let the learners solve the problem using multiplication tables and write them down in their classwork books.
  - $6 \times 7 = 42$
  - $44 - 42 = 2$
  - $44 \div 7 = 6$  with a remainder of 2, 6 cars remainder 2 people.
- Ask: **What must we do with the remaining 2 people?** (Because we have to transport all the people, we cannot have 2 people stay there. We have to prepare 1 more car. We need 7 cars.)

- Ask learners to come to the board to help you fill in the table so that it is completed as shown below:

Number of cars	1	2	3	4	5	6	7			
Number of people $\times$ 7	7	14	21	28	35	42	49			

- Ask: **Can we use  $6 \times 7 = 42$  to help us solve the problem?** (If we use  $6 \times 7 = 42$  then we will have 2 people left over that can't fit into a car.)
- Ask: **So, does that mean we must use  $7 \times 7 = 49$  to help us solve the problem?** (Yes. Even though the 7<sup>th</sup> car won't be completely full, we still need the 7<sup>th</sup> car to be able to transport the remaining 2 people.)
- Let the learners write the answer in their classwork books. (We need 7 cars).

#### 4 HOMEWORK ACTIVITY (5 MINUTES)

Calculate:

- a  $48 \div 9 = (5 \text{ remainder } 3)$
- b  $31 \div 3 = (10 \text{ remainder } 1)$
- c  $75 \div 8 = (9 \text{ remainder } 3)$
- d  $19 \div 4 = (4 \text{ remainder } 3)$

#### 5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have practised how to work with the remainder in context.

## Lesson 18: Assessment

### Teacher's notes

This lesson should be used for assessment of the content covered in this unit to date.

CAPS topics: 1.15 Division.

Resources: Printable assessment in teacher's resources.

Date:

Week

Day

### 1 SETTLE THE CLASS AND ADMINISTER THE ASSESSMENT. (45 MINUTES)

The assessment for today is linked to the work covered in the unit to date.

You will find the printable version of the assessment in the teacher's resource pack.

Take some time to do the *oral and practical assessment* (see checklist below).

### 2 DISCUSS ASSESSMENT ITEMS WITH THE CLASS (45 MINUTES)

Take in the learners' work when they are done.

There should be time for you to discuss a few of the items with the class:

- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.

### 3 ASSESSMENT

#### WRITTEN ASSESSMENT

(18)

- 1 Check the answers to the problems and correct the mistakes where necessary:

(8)

		Check	Corrections
<b>a</b>	$17 \div 3 = 5$ remainder 1	$(5 \times 3 + \mathbf{1} = \mathbf{16})$	$(17 \div 3 = 5$ remainder $\mathbf{2})$
<b>b</b>	$56 \div 6 = 9$ remainder 2	$(9 \times 6 + \mathbf{2} = 56)$	(Correct)
<b>c</b>	$39 \div 5 = 7$ remainder 3	$(7 \times 5 + \mathbf{3} = \mathbf{38})$	$(39 \div 5 = 7$ remainder $\mathbf{4})$
<b>d</b>	$42 \div 4 = 9$ remainder 6	(the remainder is bigger than 4)	$(42 \div 4 = \mathbf{10}$ remainder $\mathbf{2})$

**2 Solve the problem:** (10)

<p>There are 27 sweets.                  You need to put 4 sweets in a bag to sell at the tuck shop.                  How many bags will you need?</p>								
Write the number sentence with answer:	<ul style="list-style-type: none"> <li>• <math>27 \div 4 =</math></li> <li>• <math>\boxed{6} \times 4 = 24</math></li> <li>• <math>27 - 24 = 3</math></li> <li>• <math>27 \div 4 = 6</math> with a remainder of 3</li> </ul> <p>We cannot make a complete bag with 3 sweets.</p>							
Fill in the table:	Bags	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Sweets $\times 4$	(4)	(8)	(12)	(16)	(20)	(24)	(28)
How many bags will you need?	I need (6) bags and there are (3) sweets left over.							

**ORAL AND PRACTICAL**

<p><b>CAPS: Number operations and relationships – multiplication and division strategies</b></p> <p><b>Activity: Observe learners' ability to solve word problems that involve multiplication and division.</b></p>		<p><b>Mark: 7</b></p>
Mark	Criteria – Checklist: (1 mark for each criterion achieved)	
1	Knows multiplication tables up to 10 x 10	
1	Able to use basic multiples to calculate multiplication or division with bigger numbers	
1	Able to solve multiplication problems involving rectangular arrays	
1	Able to solve division problems involving grouping	
1	Able to solve division problems involving sharing	
1	Able to solve division problems involving grouping with remainders	
1	Able to solve division problems involving sharing with remainders	

## Unit 2 Introduction

This unit focuses on data handling. Learners will investigate tables and graphs and how to draw and label them. Learners will discover how to use tallies to find tally totals (how often something happens). Learners will learn how to organise and represent data on a bar graph, and then they will be given opportunities to analyse and interpret the data.

In this unit you will be able to focus on the four framework dimensions in the following way:

- **Conceptual understanding:** The learners will develop their understanding of graphs and tables, and how to organise, represent and analyse data.
- **Procedural fluency:** Learners will practice the layout of graphs and tables and develop their confidence in representing and analysing data.
- **Strategies:** Learners will use strategies they have learned over the course of the year to help them read and analyse data.
- **Reasoning:** Learners need to be given opportunities to verbalise their understanding of the data and to give reasons for their interpretation.

Building a **learning centred classroom** in this unit will involve (amongst other things) attention to:

- **Purposeful assessment:** The assessment in this unit provides an opportunity for learners to demonstrate what they have learned in the unit.
- **Explaining concepts and procedures:** Learners need to be able to explain concepts and procedures as they organise, represent and analyse data. This demonstrates learners' understanding of their new knowledge and skills.
- **Concept development:** Learners will develop an understanding of data handling, recognising that graphs and tables are used to communicate information in a simple way that is quick and easy to interpret.
- **Connecting representations:** Learners will see the connections between representations as they use information provided in tables (as numbers or tallies) to draw up columns in bar graphs to show this information in a simple way.

## Lesson 19: Data Handling – tallies

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 5.4 Collect and organise data; 5.5 Represent data; 5.6 Analyse and Interpret data.

Lesson Objective: Represent data in a tally table.

Lesson Vocabulary: Tally, tally table, column, table, record.

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Give the number between:	Answer		Give the number between:	Answer
<b>1</b>	753 and 755	754	<b>6</b>	729 and 731	730
<b>2</b>	120 and 122	121	<b>7</b>	456 and 458	457
<b>3</b>	445 and 447	446	<b>8</b>	199 and 201	200
<b>4</b>	154 and 156	155	<b>9</b>	268 and 270	269
<b>5</b>	610 and 612	611	<b>10</b>	510 and 512	511

### 2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, you will create tally tables together with the learners and then make sense of the data that you found. You should refer to the Mathematics dictionary to look up the meanings of the specialised mathematical vocabulary for this lesson if necessary.

Today we are learning how to tally and to represent data in a tally table.

#### Activity 1: Whole class activity

- Ask all the learners in the class to think about their favourite colour.
- Create a table on the board, and make a tally mark as each learner names their favourite colour.

Favourite colour	Tally	Total
Red		
Green		

The examples illustrate the steps for teaching how to make tallies in a tally table. Your class' responses will differ based on their favourite colours.

- As you mark the learners' choices on the table, show them how the 5<sup>th</sup> person's choice is shown by a line over the 4 loose tally marks.

- One bundle of 4 tally marks crossed out by the fifth makes a count of 5 (||||). Explain to the class that is how tallying works.

Favourite colour	Tally	Total
Red		
Green		

- Discuss why this approach is useful for counting quickly. (We can use 5 times table and add loose tallies to know the number/ we count in 5s and some loose tallies.)
- After you have shown every learner's favourite colour with a tally mark, let them help you to count the tallies. Show learners how we count in 5s and 1s.
- Count up the total number of tallies to find out how many of each item you counted. The total column helps us to see (for example) how many people chose red as their favourite colour.

Favourite colour	Tally	Total
Red		10
Green		11
Yellow		9

- Discuss the differences between learners' favourite colours.

### Activity 2: Whole class activity

- Ask questions based on the tally table, e.g.
  - Which colour is the most popular? (Green)
  - Which colour is the least popular? (Yellow)
  - How many learners are there in our class? (30)

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

You have collected the following information on some people's favourite fizzy drinks.



- a Complete the tally table.
- b Count up the totals.

Fizzy drink	Tally	Total
Coke	( <del>    </del>     )	(14)
Fanta	( <del>    </del> <del>    </del>   )	(17)
Sprite	( <del>    </del>   )	(12)
Pepsi	( <del>    </del>     )	(13)

- c Which fizzy drink is the most popular? (Fanta.)
- d Which fizzy drink is the least popular? (Sprite.)



**4 HOMEWORK ACTIVITY (5 MINUTES)**

Complete the table by counting the tallies:

	(17)
	(19)
	(18)
	(15)
	(13)
	(14)

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to represent data in a tally table.

## Lesson 20: Drawing a bar graph

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 5.4 Collect and organise data, 5.5 Represent data, 5.6 Analyse and interpret data.

Lesson Objective: Collect, organise and represent data in a bar graph and analyse data from representations.

Lesson Vocabulary: Data, organise, table, bar graph, axis/axes, label, graph title, vertical axis, horizontal axis, represent, more, less, fewer, forwards, backwards, calculate, pictograph.

Resources: Pictures of T-shirts cut from old magazines/advert flyers (6 green, 10 yellow, 8 blue, 12 pink).

Date: \_\_\_\_\_ Week \_\_\_\_\_ Day \_\_\_\_\_

### 1 MENTAL MATHS (10 MINUTES)

	Which number is the smallest?	Answer		Which number is the smallest?	Answer
<b>1</b>	120, 125, 110	110	<b>6</b>	105, 155, 515	105
<b>2</b>	130, 135, 145	130	<b>7</b>	231, 312, 132	132
<b>3</b>	248, 284, 482	248	<b>8</b>	252, 245, 265	245
<b>4</b>	122, 102, 110	102	<b>9</b>	110, 100, 101	100
<b>5</b>	211, 102, 112	102	<b>10</b>	365, 635, 536	365

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will focus on the representation of data in a bar graph. It is essential that learners know about the labels and title of a graph as this helps them to make sense of what the graph is telling them. Make sure that learners understand how to represent the data on the bar graph by drawing the bars. They need to recognise that the height of the bars needs to match the number of items (in this lesson the items are t-shirts).

Today we are learning to collect, organise and represent data in a bar graph and to analyse data from representations.

#### Activity 1: Whole class activity

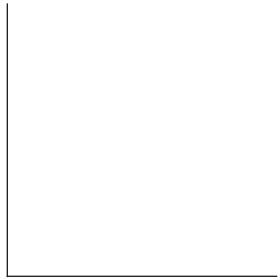
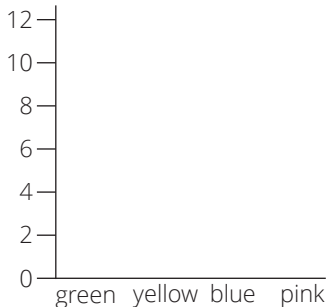
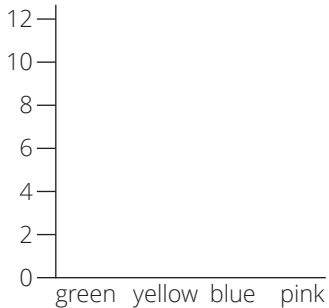
- Place cut-outs of the following items randomly on the board: 6 green t-shirts, 10 yellow t-shirts, 8 blue t-shirts and 12 pink t-shirts.
- Ask 2 learners to come to the chalkboard and help you draw a tally table of t-shirts.
  - One learner crosses out a t-shirt while saying its colour.

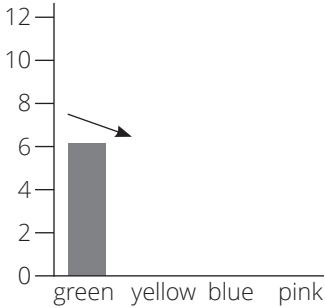
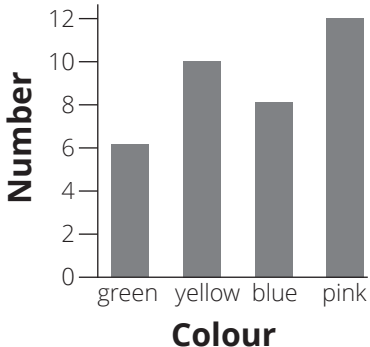
- Another learner draws a tally mark in the table of the corresponding colour. Continue this activity until all the t-shirts are crossed out.
- Say: **Draw the tally table in your classwork books.** (See LAB.)
- Show the learners how to record a t-shirt as a tally and write the totals.

T-shirt colour	Tally	Total
Green	(    )	(6)
Yellow	(        )	(10)
Blue	(       )	(8)
Pink	(           )	(12)

### Activity 2: Whole class activity

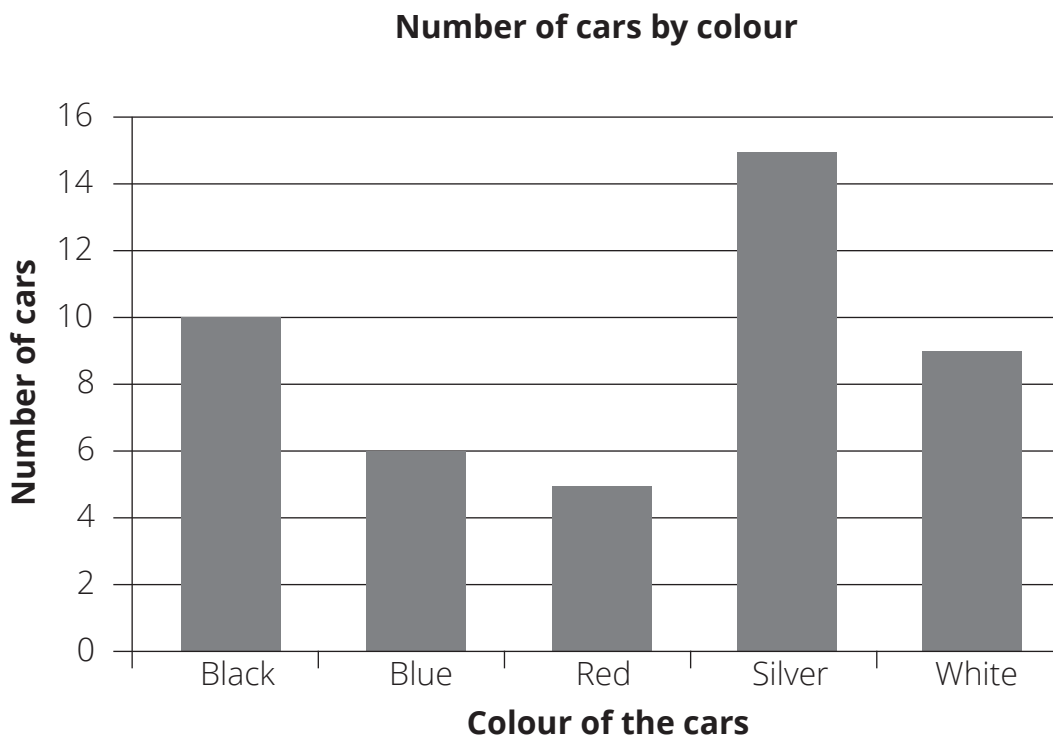
- Represent the data in a bar graph. Take the learners through each of the following steps to do so:

1	Draw the axes of the graph.	
2	Label the axes. Vertical (side) axis- number counts. Point out that the spaces between the numbers should be the same. Horizontal (bottom) axis- colours. The spaces between the colours should also be the same.	
3	Remind learners that a story has a title. Ask: <b>So, what do you think the title of our bar graph should be?</b> (Our t-shirt collection.) Ask: <b>Where will you write the title of the graph? Above or below the graph?</b> (Above.)	<p style="text-align: center;"><b>T-shirt colours</b></p> 

<p><b>4</b></p>	<p>Represent data on the bar graph by drawing the bars.</p> <p>The height of the bars needs to match the number of t-shirts.</p> <p>Ask: <b>We have 6 green t-shirts, so how will we represent this on the bar graph?</b> (Look at the numbers on the axis with the numbers and match this.)</p>	<p><b>T-shirt colours</b></p> 
<p><b>5</b></p>	<p>Do the same for all the other t-shirts.</p>	<p><b>T-shirt colours</b></p> 
<p><b>6</b></p>	<p>Learners analyse the data by answering questions such as:</p> <ul style="list-style-type: none"> <li><b>a What colour t-shirt is most common?</b> (Pink.)</li> <li><b>b What colour t-shirt is least common?</b> (Green.)</li> <li><b>c Are there more yellow or blue t-shirts?</b> (Yellow.)</li> <li><b>d By how many more?</b> (2)</li> <li><b>e How many t-shirts are there?</b> (36)</li> <li><b>f Is there anything else that you can tell me about the graph?</b> (E.g. there are 4 more yellow t-shirts than green t-shirts, there are no black t-shirts.)</li> </ul>	

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

Use this bar graph to answer the questions that follow.



WEEK 4

- 1 How many cars of each colour were counted?
  - a black \_\_\_\_\_ (10)
  - b blue \_\_\_\_\_ (6)
  - c red \_\_\_\_\_ (5)
  - d silver \_\_\_\_\_ (15)
  - e white \_\_\_\_\_ (9)
- 2 What was the most popular colour? \_\_\_\_\_ (silver)
- 3 What was the least popular colour? \_\_\_\_\_ (red)
- 4 How many more black cars were there than white cars? \_\_\_\_\_ (1)
- 5 How many less blue cars were there than silver cars? \_\_\_\_\_ (9)
- 6 What is the total number of cars? \_\_\_\_\_ (45)

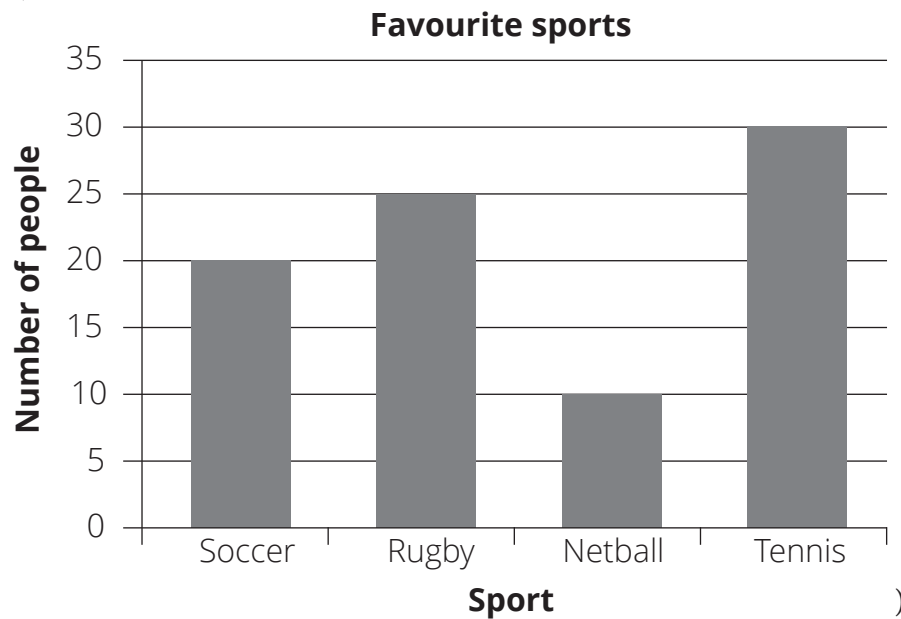
**4 HOMEWORK ACTIVITY (5 MINUTES)**

Draw a bar graph to represent the following data:

<b>Favourite sports</b>	
Soccer	10
Swimming	3
Athletics	8
Cricket	2

Remember to give a title for the graph and to label the axes.

(Solution:



### 5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to collect, organise and represent data in a bar graph and analyse data from representations.

# Week 5

## Lesson 21: Tallies and bar graphs (1)

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 5.4 Collect and organise data; 5.5 Represent data; 5.6 Analyse and Interpret data.

Lesson Objective: Represent data in a table with tallies. Represent data in a graph.

Lesson Vocabulary: Bar graph, tally, tally table, horizontal, vertical, label, most, least.

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Answer the following:	Answer		Answer the following:	Answer
<b>1</b>	What is 10 more than 351?	361	<b>6</b>	What is 10 less than 351?	341
<b>2</b>	What is 20 more than 351?	371	<b>7</b>	What is 20 less than 351?	331
<b>3</b>	What is 30 more than 351?	381	<b>8</b>	What is 30 less than 351?	321
<b>4</b>	What is 40 more than 351?	391	<b>9</b>	What is 40 less than 351?	311
<b>5</b>	What is 50 more than 351?	401	<b>10</b>	What is 50 less than 351?	301

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This is the second Data Handling lesson. It gives you another opportunity to consolidate the mathematical language of Data Handling. Remember to refer to the Mathematics dictionary to look up meanings of the specialised mathematical vocabulary for this lesson if necessary.

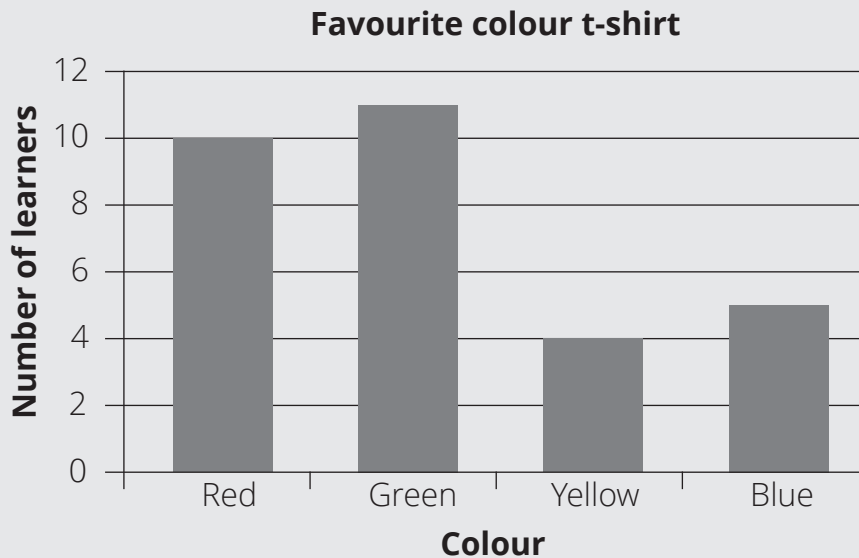
Today we are learning to represent data using tally tables and in a graph.

### Activity 1: Whole class activity

- Using the information in the tally table below. (See LAB.)
- Complete the counts of the tallies.

Favourite colour t-shirt	Tally	Total
Red		(10)
Green		(11)
Yellow		(4)
Blue		(5)

- Draw the bar graph interactively with the learners. (See LAB.)



- Ask: **What does the title of the graph tell us?** (This tells us the class' favourite colour t-shirts.)
- **What does the bottom axis label tell us?** (The colours that the learners like.)
- **What does the side axis label tell us?** (The number of learners.)

































### Activity 2: Whole class activity

- Ask the learners questions referring to the bar graph:
  - **What is the most popular colour?** (Green.)
  - **What is the least popular colour?** (Yellow.)
  - **How many more people like green than yellow?** (7)
  - **How many less people like blue than red?** (5)
  - **What is the difference between the people who like green and blue?** (6)
  - **How many learners are there in our class?** (30)
  - Etc.



**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

The learners in your class have these dogs, cats, spiders, fish and birds as pets.

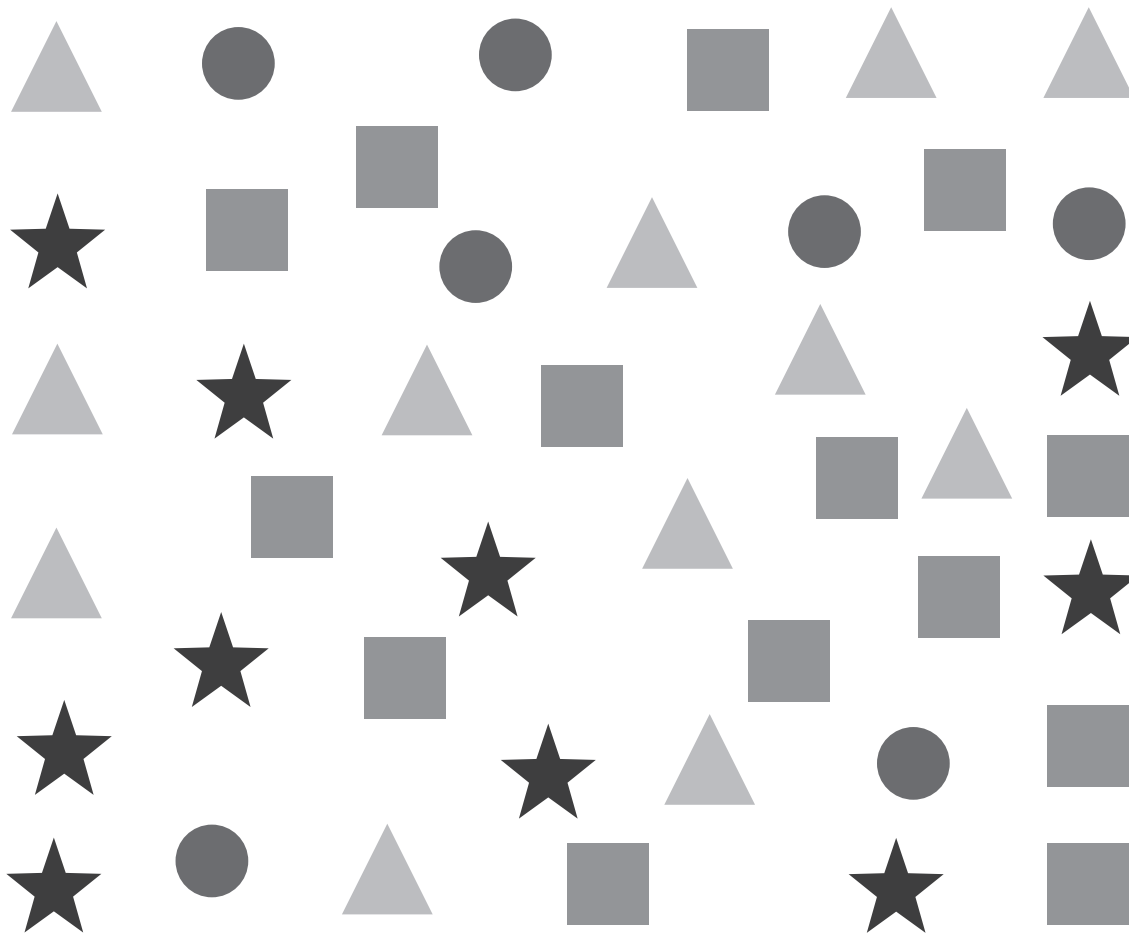
a Use the tally table to sort the data and find the total of each type of pet.

Pet	Tally	Total
Dogs	(           )	(11)
Cats	(            )	(12)
Spiders	( )	(1)
Fish	(    )	(5)
Birds	(   )	(3)

- b What is the most popular pet? \_\_\_\_\_ (Cats.)
- c What is the least popular pet? \_\_\_\_\_ (Spiders.)
- d How many learners are there in the class? \_\_\_\_\_ (32)
- e What is the difference between the number of dogs and the number of birds as pets?  
\_\_\_\_\_ (8)
- f What is the difference between the number of cats and the number of spiders as pets?  
\_\_\_\_\_ (11)
- g What else do you notice that is interesting about the information? \_\_\_\_\_  
\_\_\_\_\_ (Various responses e.g. Nobody has a tortoise.)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Complete the tally table for this collection of shapes.



Shape	Tally	Total
Triangle	(        )	(12)
Circle	(    )	(7)
Star	(       )	(10)
Square	(         )	(14)

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to represent data in a table with tallies and in a graph.

## Lesson 22: Tallies and bar graphs (2)

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 5.4 Collect and organise data; 5.5 Represent data; 5.6 Analyse and Interpret data.

Lesson Objective: Draw a bar graph from data collected using a tally table.

Lesson Vocabulary: Tallies, tally table, bar graph, label.

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Which number is the biggest?	Answer		Which number is the biggest?	Answer
<b>1</b>	120, 125, 110	125	<b>6</b>	105, 213, 578	578
<b>2</b>	130, 135, 145	145	<b>7</b>	487, 458, 132	487
<b>3</b>	248, 489, 698	698	<b>8</b>	252, 245, 265	265
<b>4</b>	122, 578, 10	578	<b>9</b>	102, 104, 101	104
<b>5</b>	689, 102, 487	689	<b>10</b>	301, 105, 605	605

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This is the third Data Handling lesson and learners will continue to develop their understanding of organising tally marks on a table and drawing bar graphs. Allow the learners many opportunities to use the mathematical language of Data Handling.

Today we are learning to draw a bar graph from data collected using a tally table.

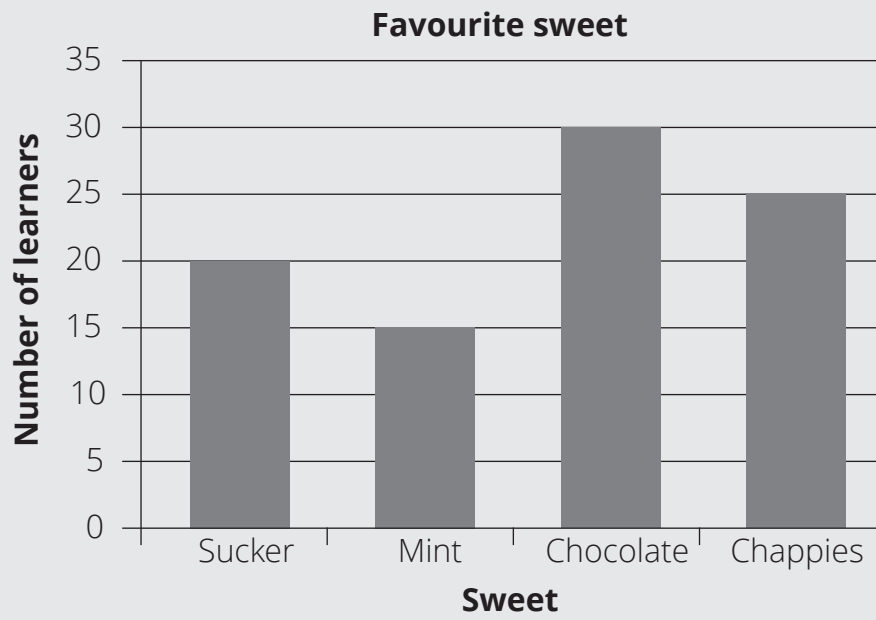
#### Activity 1: Whole class activity

- Using the information in the tally table below. (See LAB.)
- Complete the counts of the tallies.
- Explain to the class that this data was collected by asking children about their favourite sweets.

Sweet	Tally	Total
Sucker		(20)
Mint		(15)

Sweet	Tally	Total
Chocolate		(30)
Chappies		(25)

- Draw the bar graph interactively with the learners. (See LAB.)



### Activity 3: Whole class activity

- Ask the learners to tell you anything that is interesting about the graph.
  - Favourite sweet. (chocolate)
  - Least favourite sweet. (mint)
  - Differences between different numbers of sweets.
  - Etc.

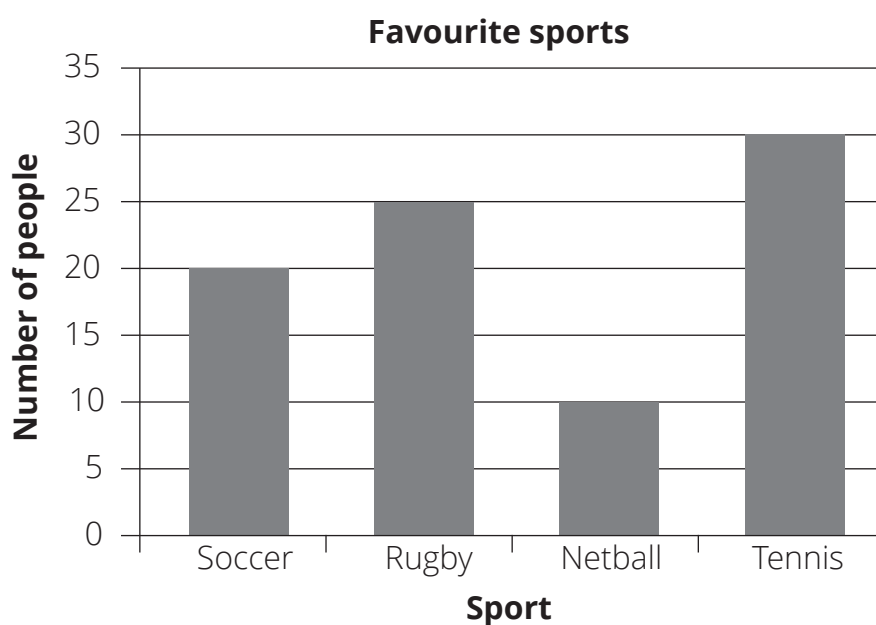
**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

**1** Count the tally totals and complete the table.

Sport	Tally	Total
Soccer		(20)
Rugby		(25)
Netball		(10)
Tennis		(30)

**2** Represent information in a bar graph.

(Solution:

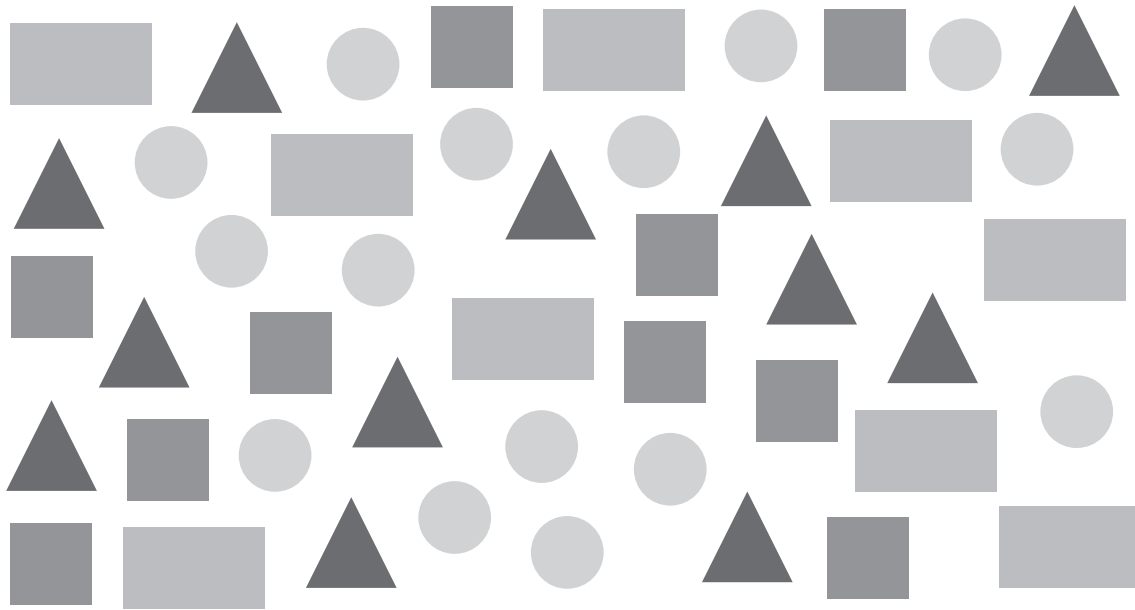


**3** Which is the most popular sport? \_\_\_\_\_ (Tennis.)

**4** List the sports in order from the least popular to the most popular.  
 \_\_\_\_\_ (Netball, soccer, rugby, tennis.)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Complete the tally table for this collection of shapes.



Shape	Tally	Total
Rectangle	(     )	(9)
Circle	(        )	(15)
Triangle	(       )	(12)
Square	(       )	(10)

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to draw a bar graph from data collected using a tally table.

## Lesson 23: Interpreting data (1)

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 5.4 Collect and organise data, 5.5 Represent data, 5.6 Analyse and interpret data.

Lesson Objective: Analyse data from representations provided (in tables and bar graphs).

Lesson Vocabulary: Data, pictograph, bar graph, represent, analyse, information.

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer		Calculate:	Answer
<b>1</b>	What is 10 more than 750?	760	<b>6</b>	What is 20 more than 750?	770
<b>2</b>	What is 11 more than 750?	761	<b>7</b>	What is 100 more than 750?	850
<b>3</b>	What is 10 less than 750?	740	<b>8</b>	What is 50 more than 750?	800
<b>4</b>	What is 9 less than 750?	741	<b>9</b>	What is 60 more than 750?	810
<b>5</b>	What is 1 less than 750?	739	<b>10</b>	What is 80 more than 750?	830

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This lesson gives the learners an opportunity to interpret data given in a table and in a bar graph. It is important to allow the learners opportunities to discuss what information they can read from the graph. They can then make sense of this information by analysing and interpreting the data. Learners must be encouraged to explaining their thinking and reasoning so that their understanding of the graph becomes more evident.

Today we are learning to analyse data from representations provided (in tables and bar graphs).

**Activity 1: Whole class activity.**

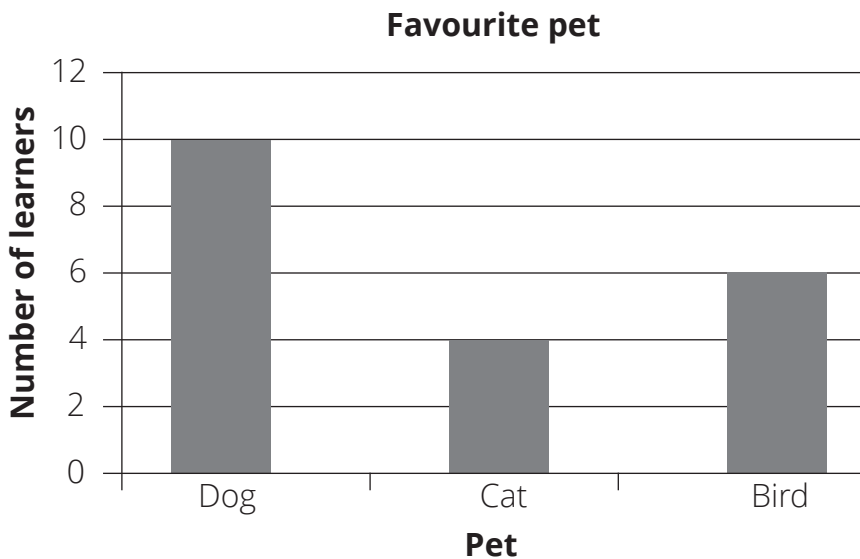
- Write the following information on the board. (See LAB.)
- This is what people ordered at a restaurant on Friday night:

Food	Total orders
Hamburgers	10
Hot dogs	5
Pap and meat	15
Rice and chicken	10
Curry pies	20

- Look at your table and answer these questions – and make up other similar questions if there is time:
  - **What is the most popular meal?** (Curry pies.)
  - **What is the least popular meal?** (Hot dogs.)
  - **How many meals were ordered?** (60)
  - **What is the second most popular meal?** (Pap and meat.)
  - **What is the difference in orders between pap and meat and hot dogs?** (10)
  - **What is the difference in orders between the most popular and the least popular meal?** (15)

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

Use the bar graph on *Favourite pets* to answer the questions that follow.



- 1 Which 3 pets are represented in the bar graph? \_\_\_\_\_ (Cats, dogs and birds.)
- 2 Which pet is the most popular? \_\_\_\_\_ (Dog.)
- 3 Which pet is the least popular? \_\_\_\_\_ (Cat.)



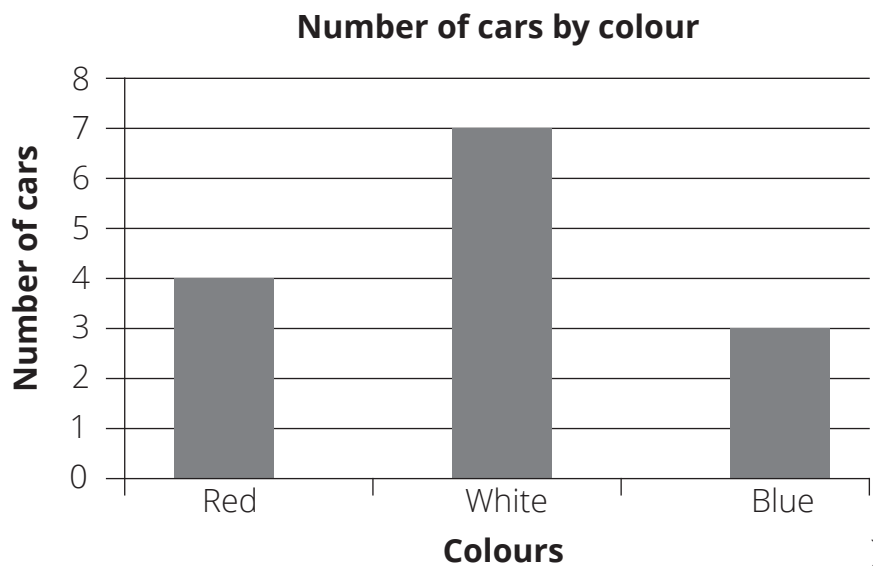
- 4 What is the difference in number between learners who like dogs and learners who like birds? \_\_\_\_\_ (4 learners.)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

- 1 Use a bar graph to show the data in the table below. Remember to give your graph a title and to label the axes.

Car colour	Number
Red	4
White	7
Blue	3

(Answer:



- 2 Write two sentences that tell us about the data in the graph. (Various.)

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to analyse data from representations provided (in tables and bar graphs).

## Lesson 24: Interpreting data (2)

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.  
 CAPS topics: 5.4 Collect and organise data, 5.5 Represent data, 5.6 Analyse and interpret data.  
 Lesson Objective: Analyse data from representations provided (in tables and bar graphs).  
 Lesson Vocabulary: Data, pictograph, bar graph, represent, analyse, information.  
 Resources: n/a

Date: \_\_\_\_\_ Week \_\_\_\_\_ Day \_\_\_\_\_

### 1 MENTAL MATHS (10 MINUTES)

	Which number is the biggest?	Answer		Which number is the smallest?	Answer
<b>1</b>	145, 154, 150	154	<b>6</b>	154, 120, 145	120
<b>2</b>	120, 122, 102	122	<b>7</b>	130, 152, 153	130
<b>3</b>	800, 700, 600	800	<b>8</b>	848, 747, 346	346
<b>4</b>	321, 312, 333	333	<b>9</b>	998, 987, 989	987
<b>5</b>	102, 103, 101	103	<b>10</b>	100, 102, 105	100

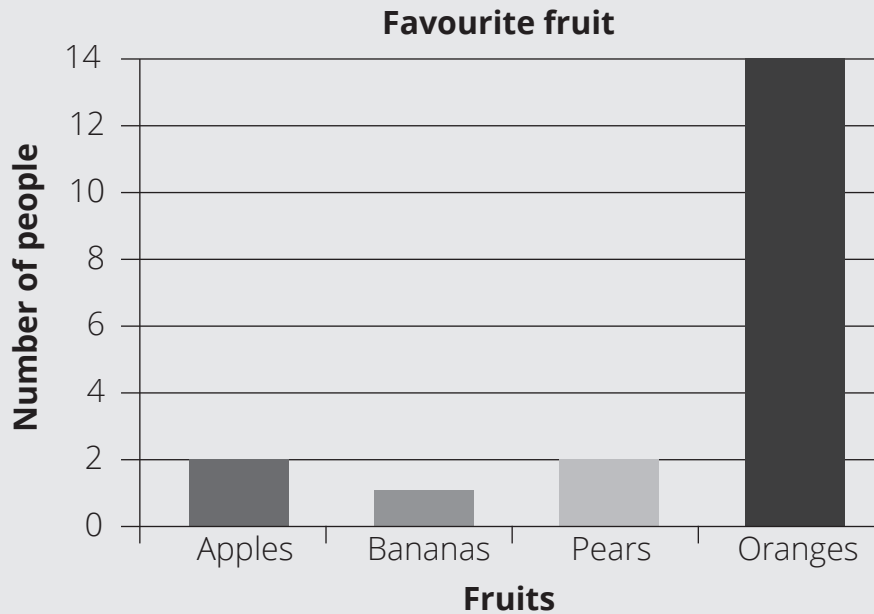
### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This lesson provides learners with another opportunity to interpret data given in a table and in a bar graph. It consolidates what was covered in lesson 23. Remember that it is important to allow the learners opportunities to discuss what information they can read from the graph. They can then make sense of this information by analysing and interpreting the information. Learners must be encouraged to explain their thinking and reasoning so that their understanding of the graph becomes more evident.

Today we are learning to analyse data from representations provided (in tables and bar graphs).

**Activity 1: Whole class activity.**

- Draw the following bar graph on the board. (See LAB.)



- Using the information presented in the graph, answer the following questions:
  - **How many people like apples?** (2)
  - **How many people like bananas?** (1)
  - **How many people like pears?** (2)
  - **How many people like oranges?** (14)
  - **What is the least favourite fruit?** (Bananas.)
  - **What is the second most popular fruit?** (Apples and pears.)
  - **What is the difference between the number of people who like oranges and the number of people who like bananas?** (13)
  - **What is the difference between the number of people who like oranges and the number of people who like apples?** (12)
  - **How many people were interviewed?** (19)

**Activity 2: Whole class activity**

- Draw the following table on the board. (See LAB.)

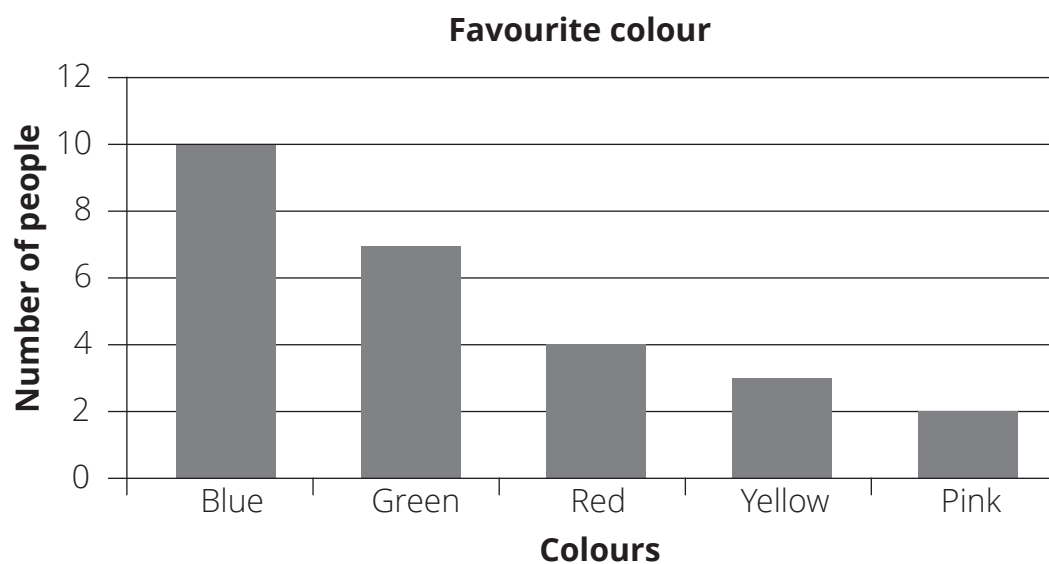
Car colour	Number
Red	22
Silver	65
Blue	20
Black	15

- Discuss the information in the table with the class. Ask questions such as:
  - **How many people like red cars?** (22)

- How many people like white cars? (65)
- How many people like blue cars? (20)
- How many people like black cars? (15)
- What is the least popular car? (Black.)
- What is the most popular car? (Silver)
- What is the difference between the number of people who like silver cars and the number of people who like black cars? (50)
- What is the difference between the number of people who like silver cars and the number of people who like red cars? (43)

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Answer the questions based on the information in the bar graph.



- 1 What is the favourite colour? \_\_\_\_\_ (Blue)
- 2 What is the least favourite colour? \_\_\_\_\_ (Pink)
- 3 What is the difference between the number of people who like green and the number of people who like red? \_\_\_\_\_ (1)
- 4 How many people were interviewed? \_\_\_\_\_ (24)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Answer the questions based on the information in the table.

<b>Favourite colour</b>	<b>Number</b>
Red	16
Yellow	3
Blue	47
Green	39

- 1 What is the favourite colour? \_\_\_\_\_ (Blue.)
- 2 What is the least favourite colour? \_\_\_\_\_ (Yellow.)
- 3 What is the difference between the number of people who like green and the number of people who like red? \_\_\_\_\_ (23)

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to analyse data from representations provided (in tables and bar graphs).

## Lesson 25: Assessment

### Teacher's notes

This lesson should be used for assessment of the content covered in this unit to date.

CAPS topics: 5.4 Collect and organise data, 5.5 Represent data, 5.6 Analyse and interpret data.

Resources: Printable assessment in teacher's resources.

Date:

Week

Day

### 1 SETTLE THE CLASS AND ADMINISTER THE ASSESSMENT. (45 MINUTES)

The assessment for today is linked to the work covered in the unit to date.

You will find the printable version of the assessment in the teacher's resource pack.

Take some time to do the *oral and practical assessment* (see checklist below).

### 2 DISCUSS ASSESSMENT ITEMS WITH THE CLASS (45 MINUTES)

Take in the learners' work when they are done.

There should be time for you to discuss a few of the items with the class:

- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.

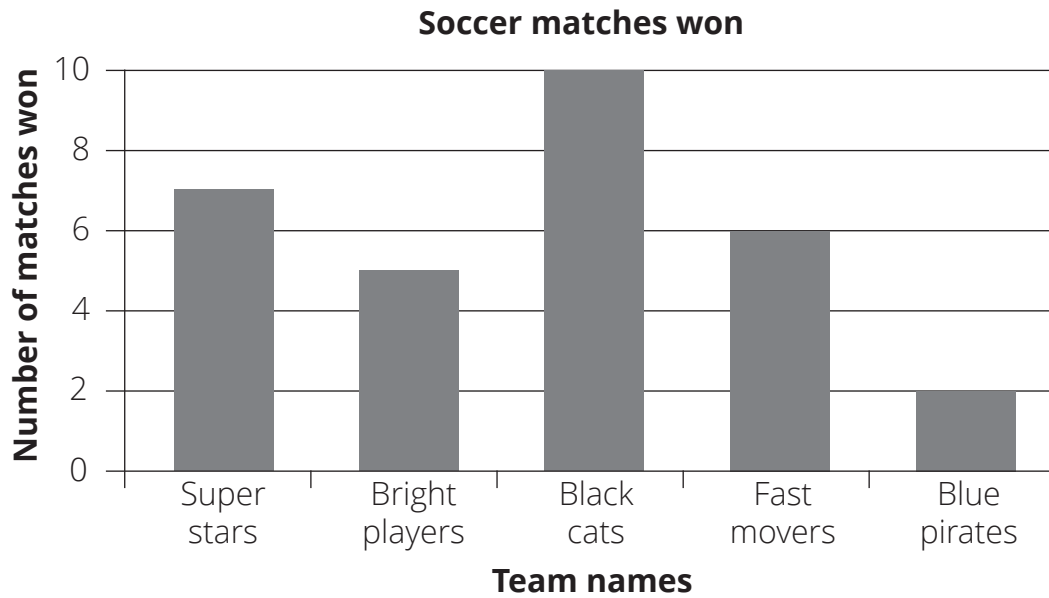
### 3 ASSESSMENT

#### WRITTEN ASSESSMENT (16)

Answer the questions using the information in the table below:

Team	Number of soccer matches won
Super Stars	7
Bright Players	5
Black Cats	10
Fast Movers	6
Blue Pirates	2

- 1 Use the data in the table to draw a bar graph. (5)



- 2 How many matches did each of these teams win? (5)
- a Super Stars     (7)
  - b Bright Players     (5)
  - c Black Cats     (10)
  - d Fast Movers     (6)
  - e Blue Pirates     (2)
- 3 Who won the most matches? \_\_\_\_\_ (Black Cats) (1)
- 4 Who won the fewest matches? \_\_\_\_\_ (Blue Pirates) (1)
- 5 Who came second? \_\_\_\_\_ (Super Stars) (1)
- 6 Who came second last? \_\_\_\_\_ (Bright Players) (1)
- 7 What is the difference in wins between the Super Stars and Black Cats?     (3)     (1)
- 8 How many people were interviewed?     (30)     (1)

WEEK 5

**ORAL AND PRACTICAL**

<b>CAPS: Data handling – the data handling cycle</b>		<b>Mark: 7</b>
<b>Activity: Observe learners’ ability to collect, sort, represent and interpret data.</b>		
Mark	Criteria – Checklist: (1 mark for each criterion achieved)	
1	Able to sort the data (e.g. using tallies).	
1	Able to describe the sorted data.	
1	Able to organise data in a table.	
1	Able to answer questions posed by the teacher about the collected data (e.g. tallies).	
1	Able to draw a bar graph	
1	Able to label the bars on a bar graph	
1	Able to answer questions about the data on a bar graph	

# Week 6

## Unit 3 Introduction

In this unit, learners will learn about capacity and volume. These concepts are part of measurement. *Capacity* refers to how much a container, e.g. an ice-cream container, can hold when it is full. A 2-litre ice cream container has a capacity of 2 litres. *Volume* refers to how much space something, e.g. 1 litre of ice cream, occupies in a container. There can be 1 litre of ice cream in a 2-litre container.

Measurement is part of our daily lives. In Grade 2, the learners learned about litres as the standard unit of measurement. In Grade 3, the learners learn about millilitres and that  $1000\text{ml} = 1\text{ litre}$ . Before introducing the standard unit of measurement, which is millilitres, we need the learners to understand the basic concept of measurement using non-standard units. A non-standard unit is an object that is not normally used for measurement. We begin with non-standard units as they are meaningful to the learner and are readily available. Once the learners have grasped the concept of volume and capacity, we introduce the standard unit of measurement. We allow the learners time to explore and identify the importance of using standard units. We use standard units as we need to have a measurement system that means the same to everyone who uses it. Imagine the problems that would occur if we didn't have standard units of measurement.

In this unit, you will be able to focus on the four framework dimensions in the following way:

- **Conceptual understanding:** This unit addresses the key concepts of capacity and volume.
- **Procedural fluency:** Learners will develop procedural fluency in the ability to measure capacity and volume through a variety of tasks involving standard and non – standard units.
- **Strategies:** Learners will discover that it is essential for them to use a standard unit of measurement to compare volume and capacity.
- **Reasoning:** Learners will be able to justify why there is a need for standard units of measurement, as well as to differentiate between standard and non-standard units of measurement.

Building a **learning centred classroom** in this unit will involve (amongst other things) attention to:

- **Active learning:** Learners are actively involved in the lessons in this unit, as they are expected to measure, record and compare units of measurement.
- **Making sense of mathematics:** In this unit, learners are making sense of mathematics as they deepen their knowledge of measurement. This knowledge relates to real-life situations. Being able to measure volume and capacity is part of what we do every day, which helps learners to see Mathematics as an important part of life, rather than just a school subject.
- **Applying maths in context:** Learners are able to see how mathematics is relevant as they see connections between the knowledge of volume and capacity in their lessons as well as in their everyday lives.



## Lesson 26: Capacity: litres

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 4.4 Capacity/volume.

Lesson Objective: Estimate, measure, compare, order and record the capacity of litre objects.

Lesson Vocabulary: Forwards, backwards, capacity, standard measures, calibration lines, litres, calculate, estimate, measure, compare, order, record, hold more, hold less, most, and least.

Resources: Empty 1, 2, 2.5, 3, and 5 litre containers (collect), old newspaper adverts for pictures of products.

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

		Answer			Answer
1	$\square + 70 = 100$	30	6	$90 + \square = 100$	10
2	$\square + 50 = 100$	50	7	$\square + 30 = 100$	70
3	$20 + \square = 100$	80	8	$\square + 80 = 100$	20
4	$40 + \square = 100$	60	9	$\square + 20 + 100$	80
5	$60 + \square = 100$	40	10	$10 + \square = 100$	90

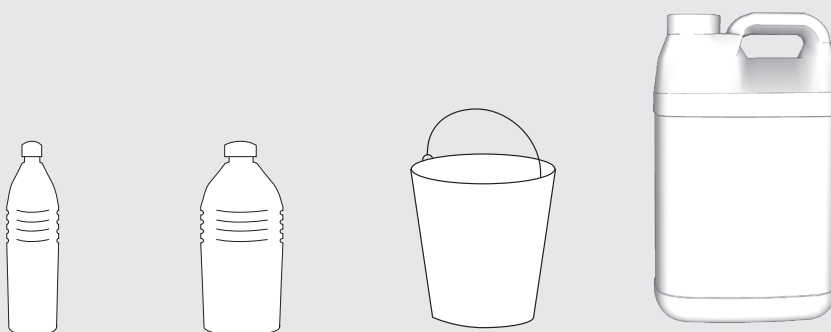
### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This is the first of four lessons on capacity. In this lesson, the standard unit of a litre ( $\ell$ ) is used. The standard unit of capacity (litre) was introduced in Grade 2. Learners should know the litre and be able to work with and understand approximately what it represents.

Today we are learning to work with litres as units of measurement of capacity.

#### Activity 1: Whole class activity

- Before the lesson draw these pictures on the board. (See LAB.)



- Write the following on the board:
  - 5 litres
  - 2 litres
  - 4 litres
  - 1 litre
- Ask the learners to decide which containers can hold what amount of water.
- Discuss the answers as a class. **How did they make their choices?** (The larger containers are able to hold more. They have a bigger capacity.)

### Activity 2: Learners work in groups

- Use the containers that you and the learners have collected for this activity. It is important that each group of learners gets a set of containers of varying capacity. For example:



- Ask the learners to discuss in their groups how much each container can hold according to the label on the container, and to place these containers in order, from the container that can hold the **most** to the container that can hold the **least**.
- Each group should present their sorted containers and discuss with the whole class to confirm that their sorting was correct.

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: In this lesson, if you don't have old magazines or newspapers to cut from, the learners could draw the containers they used in the group work activity instead.



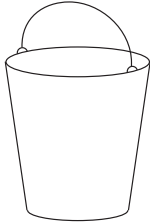

- 1 Use adverts to cut out pictures of five containers with different capacities.
- 2 Stick the pictures in your classwork book from the container that holds the least to the container that holds the most.
- 3 Write the capacity of each container under the picture. (answers will vary.)
- 4 Mom buys 2 litres of milk and Dad buys another 5 litres. How many litres did they buy altogether? ( $2 + 5 = 7$ , 7 litres.)
- 5 Jabu buys 1 litre of coke and Vusi buys 2 litres of coke. How many litres of coke do they have together? ( $1 + 2 = 3$ , 3 litres)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

**1** Write the following measurements from the least to the most. 2 litres, 5 litres, 4 litres, 1 litre, 3 litres.

(1 litre, 2 litres, 3 litres, 4 litres, 5 litres.)

**2** Estimate how much water each container can hold.

<b>a</b> 	<b>b</b> 	<b>c</b> 	<b>d</b> 
___ litre	___ litres	___ litres	___ litres
(1 litre)	(2 litres)	(4 litres)	(5 litres)

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned about litres.

## Lesson 27: Teaspoons and cups

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 4.4 Capacity/volume.

Lesson Objective: Estimate and measure the capacity of various containers using cups and teaspoons as informal units of measurement.

Lesson Vocabulary: Capacity, volume, compare, estimate, estimation, measure, measurement, record, standard unit, non-standard unit, litre, millilitre, calculate, calculation.

Resources: Teaspoon, cup, margarine tub and jam tin (for demonstration), lots of small empty containers and teaspoons to use in group work.

Date: \_\_\_\_\_ Week \_\_\_\_\_ Day \_\_\_\_\_

### 1 MENTAL MATHS (10 MINUTES)

	Calculate the following:	Answer		Calculate the following:	Answer
<b>1</b>	$\_ \times 10 = 50$	5	<b>6</b>	$\_ \times 10 = 90$	9
<b>2</b>	$\_ \times 10 = 30$	3	<b>7</b>	$\_ \times 2 = 18$	9
<b>3</b>	$\_ \times 2 = 12$	6	<b>8</b>	$\_ \times 2 = 14$	7
<b>4</b>	$\_ \times 2 = 20$	10	<b>9</b>	$\_ \times 10 = 70$	7
<b>5</b>	$\_ \times 10 = 60$	6	<b>10</b>	$\_ \times 2 = 0$	0

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This is the second of four lessons on capacity. In this activity, you will use non-standard units. The non-standard units suggested in the lesson activities are spoons (which you will use to fill cups with sand). Working with the non-standard unit gives you the opportunity to introduce the language for measuring capacity and the concept of capacity (*how much something can hold*).

First you demonstrate to the whole class how to fill the containers to measure and then they work in groups to experience the measuring themselves.

While you do this activity with the class you are revising the process of measuring by counting a certain number of units. Estimation is an important part of this activity. Learners need to develop the ability to make a good approximation (near answer) of a measurement.

Today we are learning to estimate and measure using spoons and cups.

**Activity 1: Whole class activity**

Draw the table shown below on the board before the lesson. (Learners refer to the same table in the LAB.)

	Capacity in spoons		
	Estimate	Measure	Difference
Cup			
Margarine tub			
Jam tin			

- Place a cup, a small margarine tub and a jam tin on the table.
- Ask the learners to estimate how many spoons of sand it will take to fill each of the containers.
- Record the estimations of the measurements using teaspoons.
- Use the sand and teaspoons to measure the capacity of the cup in teaspoons.
- Ask: **What is the capacity of this cup?** (The learners should count the number of teaspoons of sand used to fill the cup along with you.)
- Record the actual measurement of the capacity of the cup using teaspoons (... spoons of sand).
- Do the same for the margarine tub and jam tin that you displayed to the class.
- The learners should now copy this table from the board into their classwork books to record their findings and to compare the estimations with the actual measurements when they measure the capacity of the other containers in the group activity that follows:

**Activity 2: Learners work in groups**

- Continuation of whole class activity in small groups. Learners now work in groups; each group needs a few small containers, some sand and some teaspoons.
- Estimate how many spoons of sand will fill each of the containers (to the brim). (Record your estimation.)
- Measure how many spoons of sand will fill each of the containers (to the brim). (Record your measurement.)
- Calculate the difference between your estimation and the actual measurement. (Record the difference.)
- Complete the columns in the table, for all of the containers provided for this activity.

**Activity 3: Whole class activity**

- Discuss the findings as a whole class. Learners' estimates and measurements might differ.

- Discuss the importance of good estimates. Estimates should be close to the actual measurements.
- Discuss why measurements are different even though they are measuring the same container. (Because my spoonful of sand and my friend's spoonful of sand are different. I scooped a heaped spoonful, but my friend scooped a little bit of sand. We cannot measure the capacity precisely with this way of measuring.)

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

Draw up to where you think the cups will fill each bottle. The bottle can hold 1 litre.



**4 HOMEWORK ACTIVITY (5 MINUTES)**

NOTE: Learners' answers will vary.

Find pictures of three containers that have different capacities. Paste or draw one in each block.

<p><b>a</b> Large capacity.</p>	<p><b>b</b> Small capacity.</p>
---------------------------------	---------------------------------

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to estimate and measure using spoons and cups.

## Lesson 28: Millilitres

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 4.4 Capacity/volume.

Lesson Objective: To understand that a standard cup is 250 ml and that a teaspoon is 5 ml.

Lesson Vocabulary: Capacity, litres, millilitres, most, least, more than, less than, compare, record, standard cup, teaspoon, fill, full, container.

Resources: Collect containers with the following capacities for this lesson: 300 ml, 500 ml, 1 l, 2 l, 3 l, 5 l.

Date: \_\_\_\_\_ Week \_\_\_\_\_ Day \_\_\_\_\_

### 1 MENTAL MATHS (10 MINUTES)

	Calculate the following:	Answer		Calculate the following:	Answer
<b>1</b>	$\_ \times 10 = 60$	6	<b>6</b>	$\_ \times 10 = 70$	7
<b>2</b>	$\_ \times 10 = 40$	4	<b>7</b>	$\_ \times 2 = 18$	9
<b>3</b>	$\_ \times 2 = 10$	5	<b>8</b>	$\_ \times 2 = 20$	10
<b>4</b>	$\_ \times 2 = 44$	22	<b>9</b>	$\_ \times 10 = 100$	10
<b>5</b>	$\_ \times 100 = 600$	6	<b>10</b>	$\_ \times 100 = 0$	0

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This is the third of four lessons on capacity. In this lesson, learners are introduced to millilitres as a standard unit of measurement of capacity. The learners are also introduced to the standard measurement of a litre as 1000ml, a cup as 250ml and a teaspoon as 5ml.

Today we are learning about millilitres.

#### Activity 1: Whole class activity

- Explain: **Yesterday, we used non-standard measurements (teaspoons of sand) in the activity. Because of this, there might have been differences between the measurements you found.**
- Today we are going to learn more about some of the standard units of measurement for capacity.
- Tell them about the litre and the millilitre – the standard units that we use to measure capacity.
  - **1 litre = 1000 millilitres.**
  - **We often use abbreviations (shortened forms) to write the standard units of measurement. 1 l = 1000 ml**



- **Half a litre = 500 ml**
- **A standard cup holds 250 ml.**
- **A teaspoon holds 5 ml.**
- Learners need to know these standard measurements.
- In the next two activities (and in the classwork and homework activities) you will work with these units.

### Activity 2: Learners work in groups

- Refer learners to the pictures in the LAB below.



- Refer to similar empty containers if you have collected these for this lesson.
- Discuss the capacity of each of the containers for which they have pictures (e.g. the capacity of the water bottle is 3 l, etc.).
- Ask the learners to order the containers from the one that holds the least to the one that holds the most. (300 ml, 500 ml, 1 l, 2 l, 3 l, 5 l.)
- Discuss the order and how to do it correctly. (Check each capacity and work out the comparison. Remember there are 1000 ml in 1 l.)

### Activity 3: Whole class activity

- Talk about filling the bigger container from the smaller container. When you do this, work out how many times you will need to pour from the smaller one into the bigger one in order to fill it (use your product pictures and measurements if they are different to what is pictured here).
- Ask questions such as:
  - **How many yoghurt containers (1 l) will fill the oil container? (2), the water container? (3), the milk container? (5).**

- How many Coke bottles (500 ml) will fill the yoghurt container? (2), the oil container? (4), the water container? (6), the milk container? (10).
- What do you notice about the measurements on the yoghurt container and the Coke bottle? (The yoghurt container has 2 times the capacity of the Coke bottle. The capacity of the yoghurt container is 1 l = 1000 ml, while the Coke bottle is 500 ml. 500 ml is a half of 1000 ml.)
- How many standard cups (250 ml) will fill the Coke bottle? (2); the yoghurt container? (4).
- Etc.

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

- 1 If one cup fills a jug up to the 250 ml mark, how many cups do you need to a 1 litre jug up to:
- 500 ml \_\_\_\_\_ (2 cups)
  - 250 ml \_\_\_\_\_ (1 cup)
  - 750 ml \_\_\_\_\_ (3 cups)
  - 1000 ml \_\_\_\_\_ (4 cups)
  - 1 litre \_\_\_\_\_ (4 cups)
- 2 Look at the items below and complete the table.



Container	Capacity	
	Litre (l)	millilitre (ml)
Sunlight Liquid	(5 l)	(5000 ml)
Milk container	(1 l)	(1000 ml)
Vanish	(3 l)	(3000 ml)
Dettol	(5 l)	(5000 ml)
Green milkshake bottle	( $\frac{1}{2}$ l)	(500 ml)
Fanta		(340 ml)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

NOTE: Learners' answers will vary.

Find three containers at home that have capacities of the following amounts. Paste or draw them in the table.

1 litre	500 ml	250 ml

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned about millilitres.

## Lesson 29: Capacity

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 4.4 Capacity/volume.

Lesson Objective: Compare, order and record the capacity of objects in litres and millilitres.

Lesson Vocabulary: Forwards, backwards, capacity, litres, millilitres, most, least, more than, less than, compare, order, record, standard cup, teaspoon.

Resources: Empty 1, 2, 2.5, 3, and 5 litre containers (collect), 1 ℓ jug, 500 ml bottle and a standard cup (250 ml).

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Calculate the following:	Answer		Calculate the following:	Answer
<b>1</b>	___ × 10 = 70	7	<b>6</b>	___ × 10 = 50	5
<b>2</b>	0 × 10 = ___	0	<b>7</b>	___ × 3 = 0	0
<b>3</b>	9 × ___ = 45	5	<b>8</b>	6 × ___ = 24	4
<b>4</b>	___ ÷ 3 = 11	33	<b>9</b>	___ ÷ 5 = 8	40
<b>5</b>	28 ÷ 4 = ___	7	<b>10</b>	36 ÷ 4 = ___	9

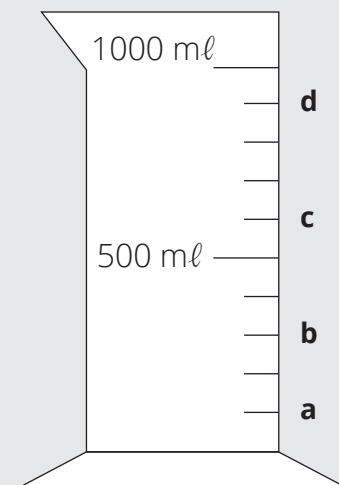
### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This is the last lesson on capacity. In this lesson, standard units are used. Learners should know the standard units of capacity (litre and millilitre) and be able to read and understand approximately what they represent.

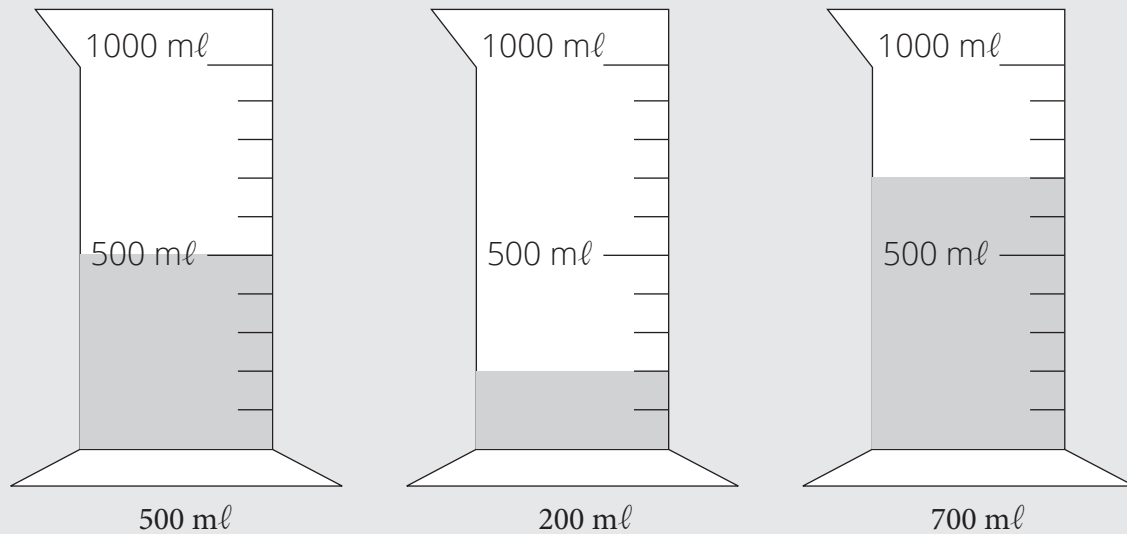
Today we are learning to compare, order and record capacity.

#### Activity 1: Whole class activity

- Refer to the drawing of a measuring jug in the LAB.
- Ask: **What are the measurements shown by a. b. c and d?** (a. 100 ml, b. 300 ml, c. 600 ml, d. 900 ml)
- Discuss with the class how to read these measurements. (Use the calibrations on the jug.)
- Draw to show water of the given volume in each jug. (Refer to LAB – learners can colour in the jugs.)
  - 500 ml
  - 200 ml
  - 700 ml



- The drawings should look like this.



- Discuss how to know how much water to shade. (Use the calibrations.)

### Activity 2: Learners work in groups (if you have collected the containers)

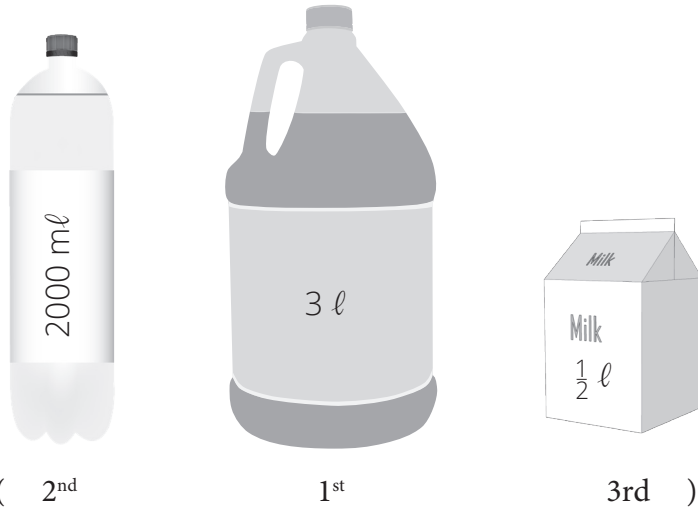
- Learners work with the empty containers you have collected (see lesson 26).
- Learners should fill the bigger container with water by 1 ℓ jug, 500 ml bottle and a standard cup.
- They must record how many times they have to pour water into each container to fill it. e.g.

Container	Measurement		
	1 Litre jug (ℓ)	500 ml bottle	standard cup (250 ml)
Sunlight Liquid	5	10	20
Milk container	1	2	4
Vanish	3	6	12
Dettol	5	10	20
Green milkshake bottle		1	2
Fanta			1 and some

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE. You can fill bigger containers using smaller containers like you did in Activity 2 of this lesson. In this activity learners have to work out how many times will you need to pour from the smaller one into the bigger one in order to fill it in the examples below? Remind learners that  $500 \text{ ml} = \frac{1}{2} \ell$  when they do this activity.

- 1 How many?
  - a 500 ml into 2 litres. \_\_\_\_\_ (4 times)
  - b 1 l into 5 l. \_\_\_\_\_ (5 times)
  - c 500 ml into 1 and  $\frac{1}{2}$  l. \_\_\_\_\_ (3 times)
  - d 250 ml into 500 ml. \_\_\_\_\_ (2 times)
  - e 250 ml into 1 l. \_\_\_\_\_ (4 times)
  - f 250 ml into 1 and  $\frac{1}{2}$  l. \_\_\_\_\_ (6 times)
  - g 250 ml into 2000 ml. \_\_\_\_\_ (8 times)
- 2 Gogo uses 2 cups of milk to make a pudding. If she doubles the recipe, how much milk will she need?
  - a \_\_\_\_\_ cups. (4 cups)
  - b \_\_\_\_\_ millilitres. (1000 millilitres)
  - c \_\_\_\_\_ litres. (1 litre)
- 3 Sort the containers below from those that can hold the most to those that can hold the least.



#### 4 HOMEWORK ACTIVITY (5 MINUTES)

One cup holds 250 ml. How many cups will fill the following containers?

- 1 500 ml jug. \_\_\_\_\_ (2 cups)
- 2 1 l jug. \_\_\_\_\_ (4 cups)
- 3 2 l bottle. \_\_\_\_\_ (8 cups)
- 4 1 and  $\frac{1}{2}$  l bottle. \_\_\_\_\_ (6 cups)

#### 5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to compare, order and record capacity.

## Lesson 30: Assessment

### Teacher's notes

This lesson should be used for assessment of the content covered in this unit to date.

CAPS topics: 4.4 Capacity/volume.

Resources: Printable assessment in teacher's resources.

Date:

Week

Day

### 1 SETTLE THE CLASS AND ADMINISTER THE ASSESSMENT. (45 MINUTES)

The assessment for today is linked to the work covered in the unit to date.

You will find the printable version of the assessment in the teacher's resource pack.

Take some time to do the *oral and practical assessment* (see checklist below).

### 2 DISCUSS ASSESSMENT ITEMS WITH THE CLASS (45 MINUTES)

Take in the learners' work when they are done.

There should be time for you to discuss a few of the items with the class:

- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.

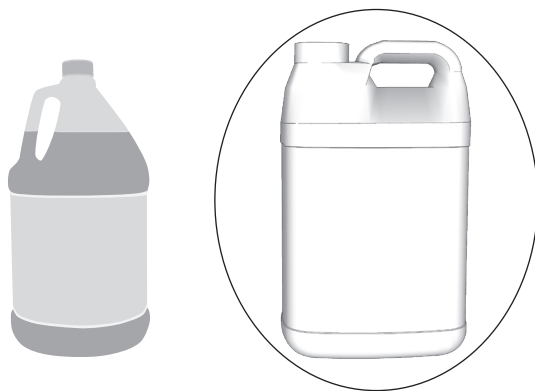
### 3 ASSESSMENT

#### WRITTEN ASSESSMENT

(10)

- 1 Circle the container that can hold more water.

(1)



2



340 ml



1000 ml

(3)

- a What is the capacity of the milk carton? \_\_\_\_\_ (1000 ml)
- b What is the capacity of the Fanta can? \_\_\_\_\_ (340 ml)
- c Which container has the greater capacity? \_\_\_\_\_ (The milk carton.)
- 3 How many standard cups (250 ml) will fill: (2)
- A 1 litre container? \_\_\_\_\_ (4)
  - A 500 ml container? \_\_\_\_\_ (2)
- 4 Nomsa buys 340 ml of coke and Vusi buys 500 ml of coke. How many millilitres of coke do they have together? \_\_\_\_\_ (840 ml) (2)
- 5 Complete: (2)
- 1500 ml + 500 ml = (2000) ml = (2) l

**ORAL AND PRACTICAL**

CAPS: Measurement: Capacity		Mark: 7
Activity: Observe learners' ability to estimate, measure, compare and order according to capacity.		
Mark	Criteria - Checklist: (1 mark for each criterion achieved)	
1	Can use the vocabulary of capacity – e.g. full, empty.	
1	Can estimate capacity in non-standard units. e.g. spoons and cups.	
1	Can estimate capacity in standard units. e.g. using 5 ml teaspoons and 250 ml cups.	
1	Can measure capacity using non-standard units	
1	Can measure capacity using standard units	
1	Can compare two containers according to capacity.	
1	Can order a set of containers according to capacity.	



# Week 7

## Unit 4 Introduction

This unit focuses on 3-D objects. *3-D objects*, also called *three-dimensional objects (or shapes)*, have length, width and depth. During this unit, the learners will explore the properties of the following 3-D objects: prisms, spheres, cylinders and cones. The unit will begin with learners recognising, naming and describing 3-D objects. The learners will then move onto other activities which involve comparing and sorting 3-D objects according to their properties. The learners are also given an opportunity to build 3-D objects using 2-D shapes.

In this unit, you will be able to focus on the four framework dimensions in the following way:

- **Conceptual understanding:** This unit addresses the key concepts of 3-D objects.
- **Procedural fluency:** Learners will develop procedural fluency in the ability to identify and discuss 3-D objects and their properties.
- **Strategies:** Learners will discover how to identify and build 3-D objects using 2-D shapes.
- **Reasoning:** Learners will be able to justify and explain relationships between objects using the properties of 2-D shapes and 3-D objects.

Building a **learning centred classroom** in this unit will involve (amongst other things) attention to:

- **Justifying answers:** Learners justify their answers by discussing the properties of 3-D objects.
- **Speaking Mathematics:** Learners are encouraged to use the vocabulary of 3-D objects when they speak about what they are doing – they should use all the vocabulary related to these concepts.
- **Addressing gaps in learners' knowledge:** This unit provides many good opportunities to address gaps in learners' knowledge around 2-D shapes and 3-D objects. The work in this unit makes a number of connections between them. The teacher is therefore able to revise and build upon previous knowledge.

## Lesson 31: 3-D objects – roll and slide

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 3.2 3-D objects.

Lesson Objective: Describe and compare the characteristics of 3-D objects.

Lesson Vocabulary: Estimate, check, 2-D shapes, 3-D objects, ball shapes, spheres, box shapes, prisms, cylinders, pyramids, cones, curved surface, roll, slide, side, flat surface, calculate.

Resources: An assortment of 3-D shapes collected from home (e.g. boxes, cones, cylinders, etc.), old newspapers/magazines/advertisements.

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Calculate the following:	Answer		Calculate the following:	Answer
<b>1</b>	___ ÷ 10 = 8	80	<b>6</b>	___ ÷ 10 = 1	10
<b>2</b>	___ ÷ 10 = 4	40	<b>7</b>	___ ÷ 10 = 7	70
<b>3</b>	___ ÷ 10 = 9	90	<b>8</b>	___ ÷ 10 = 2	20
<b>4</b>	___ ÷ 10 = 5	50	<b>9</b>	___ ÷ 10 = 10	100
<b>5</b>	___ ÷ 10 = 3	30	<b>10</b>	___ ÷ 10 = 6	60

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This is the first of five lessons on 3-D objects. There are a lot of vocabulary words that are special in this section. You should make sure that you use all of the shape names and allow learners to practise using them too. The learners have learned the object names in Grade 2. It is vitally important that the learners work with real shapes when they are talking about the characteristics of those shapes, so that they can see these things for themselves. If you do not have enough shapes to give all the groups of learners a set, you should demonstrate using shapes and allow the learners to come to the front of the class and experiment with the real objects when they need to, in order find answers to the activity questions.

Today we are learning about the characteristics of 3-D objects.

#### Activity 1: Learners work in groups

- Take the learners outside to where there is a flat, smooth surface or to the school hall.
- Take different sized balls/spherical objects, boxes/prism objects and cylinders out with you.
- Divide the class into three groups.
- Let each group sit in a circle.

- Give each group a mixture of different objects. (From the objects that you took outside with you.)
- Ask: **Which of the objects do you think you can roll?** (Ball shaped objects)
- Ask: **What are these objects called?** (Spheres.)
- Ask: **Why do spheres/ball shapes roll?** (Because they are curved.)
- Take the ball-shaped/spherical objects out and roll them to one another.
- Ask: **Which of the objects do you think you can slide?** (Box shaped objects)
- Ask: **What are these objects called?** (Prisms.)
- Ask: **Why do box shapes slide?** (Because they have flat sides.)
- Take the box-shaped/prism objects out and slide them to one another.
- Ask: **Which of the objects do you think you can slide and roll?**
- Ask: **What are these objects called?** (Cylinders.)
- Take the cylinders out and first slide and then roll them to one another.
- Ask: **Why do cylinders roll and slide?** (Because they have curved and flat faces.)

## Activity 2: Learners work in groups

Return to the classroom.

- NOTE: Help the learners to become familiar with the shape terminology by asking questions and allowing learners to use the words they have learned.
- Give each group of learners a variety of 3-D objects.
- Discuss the names of the objects with the class. Ask learners to show each of the different objects to the class, so that you can check that they know the names of the objects. Learners from each group should respond at the same time, holding up the objects for which you call:
- **Show me the prisms.** (Check that all the learners are holding up prisms. Remind learners we also call these box shapes but that the mathematical name for them is prisms.)
- **Show me the pyramids.** (Check that all the learners are holding up pyramids.)
- **Show me the spheres.** (Check that all the learners are holding up spheres. Remind learners we also call these ball shapes but that the mathematical name for them is spheres.)
- **Show me the cones.** (Check that all the learners are holding up cones.)
- **Show me the cylinders.** (Check that all the learners are holding up cylinders.)
- Ask the learners to sort the objects into those that can roll (e.g. spheres, cones, cylinders) and those that can slide (e.g. prisms, pyramids).
- Let the learners practise about which objects slide or roll.
- Ask:
  - **Which shapes can slide?** (Prisms, pyramids, cones, cylinders.)
  - **What can you tell me about them?** (They have flat surfaces/faces/sides.)
  - **Which shapes can roll?** (Spheres, cones, cylinders.)
  - **What can you tell me about them?** (They have round surfaces/faces/sides.)

- **Are there any shapes that can roll and slide?** Allow the learners to experiment (cylinders and cones).
- **Why do they roll and slide?** (Because they have flat and curved surfaces.)
- Ask the learners to show which surfaces are flat and which surfaces are curved.
- Discuss the different sizes of the shapes. Use the words bigger, biggest, smaller and smallest.

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

NOTE: You need to have a collection of old newspapers/magazines/advertisements for this lesson activity. If you do not have these, instead let the learners draw the objects. Learners' answers in this activity will vary.

- 1 Use an old magazine/newspaper to find three pictures that each look like one of the following shapes:
  - a Prism
  - b Sphere
  - c Cylinder
- 2 Stick the pictures into the table in size order – from the biggest shape to the smallest shape. (Answers will vary.)

Object	Shapes in order from biggest to smallest
Prism	
Sphere	
Cylinder	

3 Complete the table.

<b>Object</b>	<b>Flat sides or curved sides</b>	<b>Roll/Slide/Roll and slide</b>
Prism	(Flat)	(Slide)
Sphere	(Curved)	(Roll)
Cylinder	(Flat and curved)	(Roll and slide)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

NOTE: Answers will vary. Not shown here.

Draw a picture using box-shaped objects.

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned about the characteristics of 3-D objects.

## Lesson 32: Describing 3-D objects

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 3.2 3-D objects.

Lesson Objective: Describe 3-D objects in terms of the 2-D shapes that make up the faces of 3-D objects.

Lesson Vocabulary: 2-D shapes, 3-D objects, ball shapes, spheres, box shapes, prisms, cylinders, pyramids, cones, curved surfaces, flat surfaces, sides, cube, rectangular prism, more than.

Resources: An assortment of 3-D shapes collected from home, e.g. boxes, cones, cylinders, etc.

Date: \_\_\_\_\_ Week \_\_\_\_\_ Day \_\_\_\_\_

### 1 MENTAL MATHS (10 MINUTES)

	What is 100 more than...?	Answer		What is 100 more than...?	Answer
<b>1</b>	814	914	<b>6</b>	806	906
<b>2</b>	206	306	<b>7</b>	867	967
<b>3</b>	54	154	<b>8</b>	786	886
<b>4</b>	154	254	<b>9</b>	86	168
<b>5</b>	754	854	<b>10</b>	686	786

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This is the second of five lessons on 3-D objects. In this lesson, the learners describe the 2-D shapes that make up 3-D objects. For example, a cylinder is made up of 2 circles and a rectangle. Remember to make sure that you let the learners work with the real objects so that they can see things for themselves. If you do not have enough objects to give each group of learners a set, you should demonstrate using objects and allow the learners to come to the front of the class and experiment with the real objects when they need to, in order to find answers to the activity questions. All of the object names and other vocabulary should be used to talk about the objects and therefore allow learners to practise using the appropriate terminology too.

Today we are learning to identify 2-D shapes in 3-D objects.

#### Activity 1: Whole class activity

Shape characteristics.

- Give learners a variety of 3-D objects, e.g. cylinders (closed on both ends), pyramids, cubes, rectangular prisms, cones.

- Discuss the properties (characteristics) of the 3-D objects with the learners.
- Demonstrate and ask the learners to hold up the rectangular prisms.
- Ask the following questions:
  - **How many faces does the shape have?**
  - **Tell me about the shape of each face.** (Square, circle, flat, curved, etc.)
  - Do this with each 3-D object (**pyramids, cubes, cylinder, cones**).

### Activity 2: Whole class activity





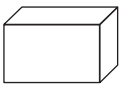















Comparison of 3-D objects.

- Hold up a cylinder and a cone and ask:
  - **What is the same about these objects?** (Both have flat and curved surfaces.)
  - **What is different?** (The cylinder has two flat surfaces but the cone has one flat surface. The cone has one pointy end. Both ends of the cylinder are flat.)
- Do the same with other 3-D objects, comparing them according to their characteristics:
  - Cube and rectangular prism;
  - Cone and the pyramid;
  - Cone and sphere;
  - Prism/cube and pyramid;
  - Sphere and rectangular prism.

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learners must be given empty boxes/objects to cut along the edges when they do this activity. This will help them to work out what faces make up the 3-D objects.

Complete this table:

Object	Draw all the shapes that make up this object
	(    )
	(       )
	(      )
	(   )

**4 HOMEWORK ACTIVITY (5 MINUTES)**

NOTE: Answers will vary. Not shown here.

Draw a picture using cylinder-shaped objects.

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to identify 2-D shapes in 3-D objects.



## Lesson 33: Building 3-D objects

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 3.2 3-D objects.

Lesson Objective: Observe and build 3-D objects.

Lesson Vocabulary: 2-D shapes, 3-D objects, ball shapes, spheres, box shapes, prisms, cylinders, pyramids, cones, curved surfaces, flat surfaces, sides, square, circle, rectangle, triangle, more than, less than.

Resources: Nets (See *Printable Resources*), an assortment of 3-D objects collected from home (e.g. boxes, cones, cylinders, etc.).

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	What is 100 less than...?	Answer		What is 100 less than...?	Answer
<b>1</b>	376	276	<b>6</b>	802	702
<b>2</b>	768	668	<b>7</b>	971	871
<b>3</b>	121	21	<b>8</b>	460	360
<b>4</b>	453	353	<b>9</b>	199	99
<b>5</b>	567	467	<b>10</b>	567	467

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This is the third of five lessons on 3-D objects. In this lesson, the learners build 3-D objects using 2-D shapes. It is essential that the learners work with real shapes and objects in order to gain an understanding of 3-D objects and their characteristics. Try to collect shapes each year, so that you build up a set of shapes to use in lessons like this one.

Today we are learning to build 3-D objects.

#### Activity 1: Whole class activity

Give the learners a variety of 2-D shapes and 3-D objects: e.g. squares, circles, rectangles, triangles and cylinders (closed on both ends if possible), pyramids, cubes, rectangular prisms.

- Discuss the difference between the 2-D shapes and 3-D objects that you have given the learners to work with.
- Say: **Hold up all of the 2-D shapes.** (Learners should hold up the squares, circles, rectangles, triangles.)

- Ask: **What can you tell me about these shapes?** (They are flat, etc. Discuss all observations.)
- Say: **Hold up all of the 3-D objects.** (Learners should hold up the cylinders, pyramids, cubes, rectangular prisms)
- Ask, **what can you tell me about these objects?** (They are NOT flat, the faces of 3-D objects are 2-D shapes, etc. Discuss all observations.)

**Activity 2: Learners work in groups**

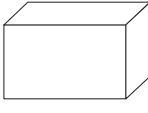



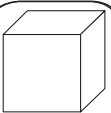
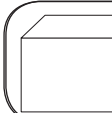
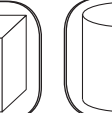




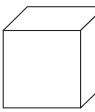
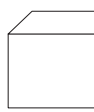
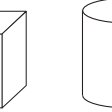




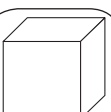
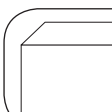
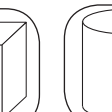
- Learners use the 2-D nets of to make 3-D objects. They should cut and fold the nets to do this.
- *The word net is used to speak about a fold out flat version of a 3-D shape. Learners do not have to use this word, you can just give them the nets to cut out and use to make shapes because this helps them learn about shapes.*
- Use the nets from the back of the LAB to do this activity.
- Each group should produce at least one object.
- The group needs to be able to explain:
  - The shapes that they used.
  - How they joined the shapes.
  - Etc.
- Let each group present their object to the class and discuss something about their object with the class.

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

1 Copy and complete the table: The first one is done for you.

Use these objects for this activity

Object	Circle the objects that can balance on top					

Object	Circle the objects that can balance on top					
						
						
						

- 2 Can a cylinder balance on top of a prism? \_\_\_\_\_ When? \_\_\_\_\_ (Yes, when the flat side of the cylinder is placed on the prism.)
- 3 Can a cube balance on top of a prism? \_\_\_\_\_ When? \_\_\_\_\_ (Yes, when the cube is placed on a rectangular prism or on the triangular face of a triangular prism.)
- 4 Can anything balance on top of a sphere? \_\_\_\_\_ (No.)
- 5 Can a sphere balance on top of anything? \_\_\_\_\_ When? \_\_\_\_\_ (Yes, when it is carefully placed on a flat surface, it could. But it might roll – especially if bumped.)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

NOTE: Answers will vary. Not shown here.

Draw a picture using pyramid-shaped objects.

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to build 3-D Objects.

## Lesson 34: Assessment

### Teacher's notes

This lesson should be used for assessment of the content covered in this unit to date.

CAPS topics: 3.2 3-D objects.

Resources: Printable assessment in teacher's resources.

Date:

Week

Day

### 1 SETTLE THE CLASS AND ADMINISTER THE ASSESSMENT. (45 MINUTES)

The assessment for today is linked to the work covered in the unit to date.

You will find the printable version of the assessment in the teacher's resource pack.

Take some time to do the *oral and practical assessment* (see checklist below).

### 2 DISCUSS ASSESSMENT ITEMS WITH THE CLASS (45 MINUTES)

Take in the learners' work when they are done.

There should be time for you to discuss a few of the items with the class:

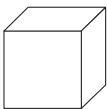

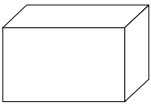
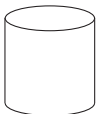
- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.


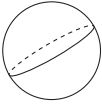
### 3 ASSESSMENT

#### WRITTEN ASSESSMENT (18)

Complete the following table:

(18)

Object	Name	Can it roll?	Can it slide?
	(Cube)	(No)	(Yes)
	(Cone)	(Yes)	(Yes)
	(Prism)	(No)	(Yes)
	(Cylinder)	(Yes)	(Yes)

Object	Name	Can it roll?	Can it slide?
	(Pyramid)	(No)	(Yes)
	(Sphere)	(Yes)	(No)

**ORAL AND PRACTICAL**

<b>CAPS: Space and shape</b>		<b>Mark: 7</b>
<b>Activity: Assess the learners' ability to recognise, sort and compare 3-D shapes (ball shapes (spheres), box shapes (prisms), cylinders, pyramids, cones).</b>		
<b>Mark</b>	<b>Criteria - Checklist: (1 mark for each criterion achieved)</b>	
<b>1</b>	Able to recognise ball shapes (spheres), box shapes (prisms), cylinders, pyramids, cones.	
<b>1</b>	Able to name ball shapes (spheres), box shapes (prisms), cylinders, pyramids, cones.	
<b>1</b>	Able to identify curved faces of 3-D shapes	
<b>1</b>	Able to identify flat faces of 3-D shapes	
<b>1</b>	Able to identify which 3-D shapes can roll or slide	
<b>1</b>	Able to compare ball shapes (spheres), box shapes (prisms), cylinders, pyramids, cones in terms of faces	
<b>1</b>	Able to sort ball shapes (spheres), box shapes (prisms), cylinders, pyramids, cones in terms of size	

## Lesson 35: 3-D objects (1)

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 3.2 3-D objects.

Lesson Objective: Observe and draw given 3-D objects.

Lesson Vocabulary: 2-D shapes, 3-D objects, ball shapes/spheres, box shapes/prisms, cylinders, pyramids, cones, surface, face, circles, triangles, squares, rectangles, roll/slide, more than.

Resources: An assortment of 3-D shapes collected from home (e.g. boxes, cones, cylinders, etc.).

Date: \_\_\_\_\_ Week \_\_\_\_\_ Day \_\_\_\_\_

### 1 MENTAL MATHS (10 MINUTES)

	What is 200 more than...?	Answer		What is 200 more than...?	Answer
<b>1</b>	376	576	<b>6</b>	265	465
<b>2</b>	668	868	<b>7</b>	763	963
<b>3</b>	321	521	<b>8</b>	28	228
<b>4</b>	453	653	<b>9</b>	706	906
<b>5</b>	567	767	<b>10</b>	219	419

### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This is the fourth of five lessons on 3-D objects. In this lesson, learners will draw 3-D objects and they will think more about the 2-D shapes that make up the faces of 3-D objects. Allow the learners to discover and discuss the characteristics of the objects. Ensure that they can discuss the characteristics of the objects using the correct terminology.

Today we are learning to draw 3-D objects.

#### Activity 1: Whole class activity

Revise the names and properties of the following objects (hold up a model of each one as you talk about it, pointing to the faces, edges and vertices as you speak about them):

- **Pyramid:** All the surfaces are flat; has a pointed top.
- **Cylinder:** Two flat round surfaces of the same size; one curved face.
- **Prism:** Base and top are the same size and shape; all faces are flat.
- **Cone:** One flat round surface; one curved face pointed top.
- **Sphere:** Curved all around; one surface.

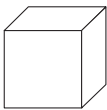
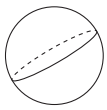
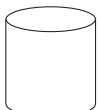

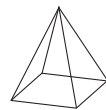
### Activity 2: Whole class activity

Hold up each 3-D object up for the class to see and discuss the shapes that form the surfaces of the object. Discuss what kind of shapes the surfaces are and whether the surfaces are curved or flat.

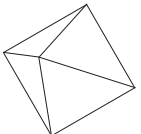

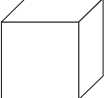

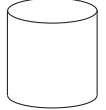
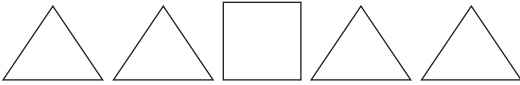
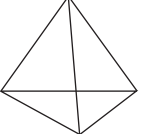

- **Which shapes make up the surfaces of a box/cube?** (Squares; flat.)
- **Which shapes make up the surfaces of a cylinder?** (Circles and rectangles; circles are flat, rectangles are rounded/curved.)
- **Which shapes make up the surfaces of a pyramid?** (Triangles, square/rectangle/triangles; all flat.)
- **Which shapes make up the surfaces of a cone?** (Circles, semicircles; semicircles are curved and one circle is flat.)
- **Which shapes make up the surfaces of a prism?** (Rectangles, triangles, rectangles, squares; all flat.)
- Draw the shapes on the board.
- Allow learners time to practice drawing the shapes on the board and help them if necessary.

### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Draw the following shapes: a cube, a sphere, a cylinder, a cone, a pyramid.

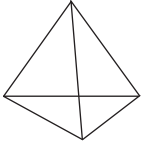
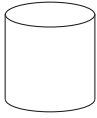
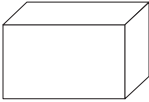


Cube 	Sphere 	Cylinder 	Cone 	Pyramid 
---	---	---	---	--

2 Match each 3-D object with its surfaces. (a-c, b-a, c-d, d-b)

<b>a</b> 	<b>a</b> 
<b>b</b> 	<b>b</b> 
<b>c</b> 	<b>c</b> 
<b>d</b> 	<b>d</b> 

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Write down the number and shape of the faces for each 3-D object. The first one has been done for you.

Shape	Number and shapes of the faces
	4 triangles
	(2 circles and 1 rectangle)
	(2 squares and 4 rectangles)
	(4 triangles and 1 square)
	(1 circle and 1 semi-circular shape – not exactly a semi-circle.)

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned to build 3-D objects.



# Week 8

## Lesson 36: 3-D objects (2)

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.

CAPS topics: 3.2 3-D objects.

Lesson Objective: Recognise, name and compare 3-D objects.

Lesson Vocabulary: 2-D objects, 3-D objects, ball shapes/spheres, box shapes/prisms, cylinders, pyramids, cones, curved, flat, surface, roll/slide, describe, sort, compare, calculate.

Resources: An assortment of 3-D shapes collected from home (e.g. boxes, cones, cylinders, etc.).

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Calculate the following:	Answer		Calculate the following:	Answer
<b>1</b>	$29 + 30 =$	59	<b>6</b>	$1 \times 20 =$	20
<b>2</b>	$4 \times 5$	20	<b>7</b>	$20 \div 5 =$	4
<b>3</b>	Half of 30	15	<b>8</b>	$6 \times 0 =$	0
<b>4</b>	$21 + 22 =$	43	<b>9</b>	$10 \div 2 =$	5
<b>5</b>	6 multiplied by 3	18	<b>10</b>	$7 \times 3 =$	21

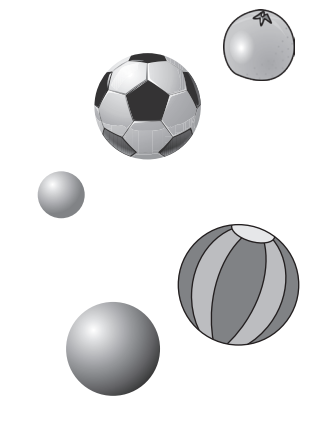


### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

This is the final lesson on 3-D objects. This lesson gives learners another opportunity to consolidate their knowledge and understanding about 3-D objects: their names and properties.

Today we are learning about 3-D objects.

### Activity 1: Whole class activity

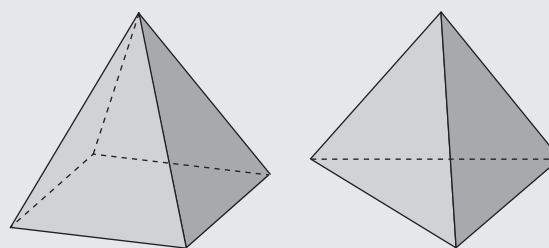
- Show learners a variety of 3-D objects. (Refer to the pictures in the LAB.)

Ball shapes (spheres)	Cylinders	Box shapes (prisms)
		

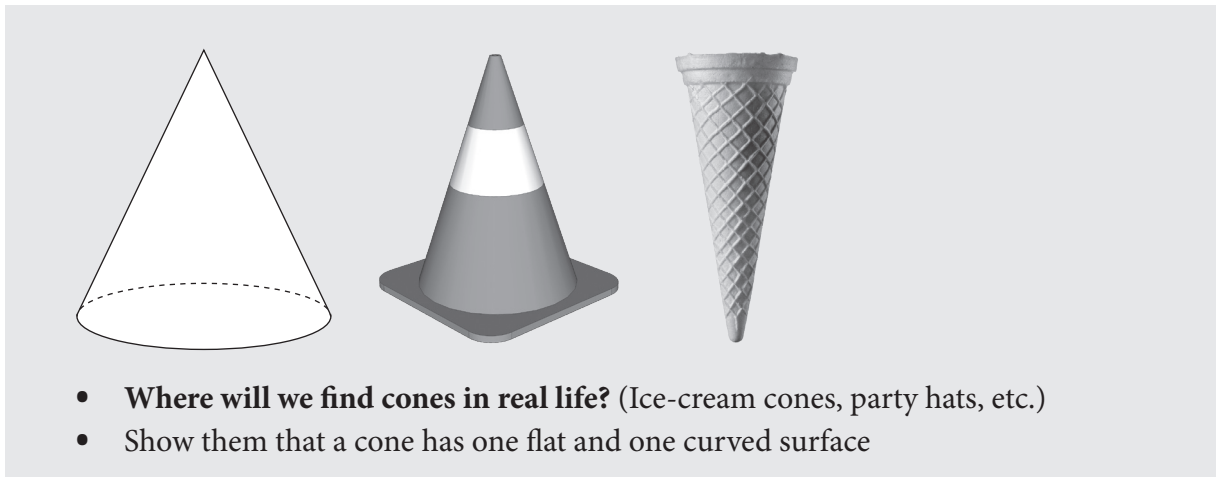
- Revise *curved* and *flat* surfaces with the learners. Ask
  - Does this ball have a flat or curved surface? (Curved.)
  - Does this box have a flat or curved surface? (Flat.)
  - Does this cylinder have a flat or curved surface? (Curved and flat.)
  - Show me 2 objects with flat surfaces. (Prism/box shape.)
  - Show me 2 objects with curved surfaces. (Cylinder, sphere/ball.)
  - Show me 1 object with flat and curved surfaces. (Cylinder/cone.)

### Activity 2: Whole class activity

- Show learners two types of pyramids (triangular and rectangular bases). (Refer to the pictures in the LAB.)



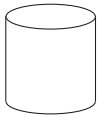
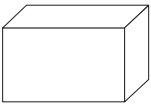
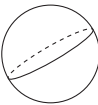


- Ask: **Where could we find pyramids in real life?** (Toys, pyramids in Egypt, etc.)
- Let the learners examine and discuss:
  - Number of faces. (triangular pyramid 4, square pyramid 5)
  - Shapes of faces. (Triangles/rectangles/squares.)
  - Discuss whether the surfaces of a pyramid are flat or curved. (Flat.)
- Show learners a cone. (Refer to the pictures in the LAB.)



- **Where will we find cones in real life?** (Ice-cream cones, party hats, etc.)
- Show them that a cone has one flat and one curved surface

**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

Complete this table in your books.

Object	Name the object-e.g. box	Surface
	(Cylinder)	( <u>2</u> ) flat and ( <u>1</u> ) curved surfaces.
	(Box/prism)	( <u>6</u> ) flat and ( <u>0</u> ) curved surfaces.
	(Ball/sphere)	( <u>0</u> ) flat and ( <u>1</u> ) curved surfaces.
	(Pyramid)	( <u>5</u> ) flat and ( <u>0</u> ) curved surfaces.
	(Cone)	( <u>1</u> ) flat and ( <u>1</u> ) curved surfaces.

**4 HOMEWORK ACTIVITY (5 MINUTES)**

NOTE: Answers will vary. Not shown here.

Draw a picture using ball-shaped and cylinder-shaped objects.

**5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have learned about 3-D Objects.

## Lesson 37: Assessment

### Teacher's notes

This lesson should be used for assessment of the content covered in this unit to date.

CAPS topics: 3.2 3-D objects.

Resources: Printable assessment in teacher's resources.

Date:

Week

Day

### 1 SETTLE THE CLASS AND ADMINISTER THE ASSESSMENT. (45 MINUTES)

The assessment for today is linked to the work covered in the unit to date.

You will find the printable version of the assessment in the teacher's resource pack.

### 2 DISCUSS ASSESSMENT ITEMS WITH THE CLASS (45 MINUTES)

Take in the learners' work when they are done.

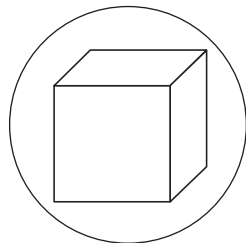
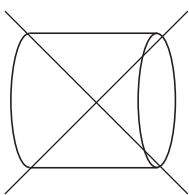
There should be time for you to discuss a few of the items with the class:

- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.

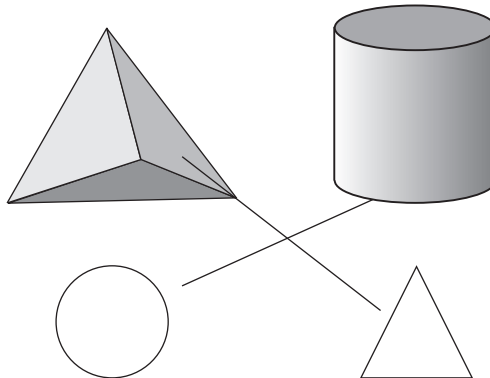
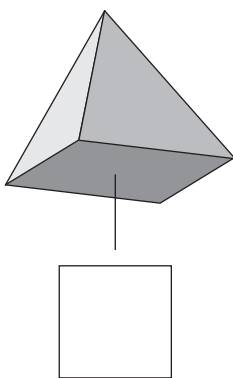
### 3 ASSESSMENT

#### WRITTEN ASSESSMENT (10)

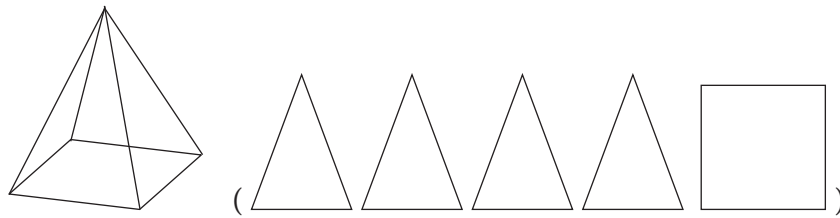
- 1 Circle the object that can slide and then draw a cross over the object that can roll and slide. (2)



- 2 Draw lines to match the base of the 3-D objects with the 2-D shapes. (3)



- 3 Draw the shapes that make up this pyramid: (3)



- 4 Draw one object with a flat surface and one with a curved surface. (Learners' answers will vary. Must have the correct type of surfaces.) (2)

Flat surface	Curved surface

## Lesson 38: Preparing for Grade 4 (1)

### Teacher's notes

This lesson allows for the consolidation of content covered during the year, in preparation for the next grade.

CAPS topics: Number and operations.

Lesson Objective: Revise key concepts taught during the year in order to prepare learners for Grade 4.

Lesson Vocabulary: Add, and, carry, subtract, take way, borrow, trade, hundreds, tens, ones, column, input, output, flow diagram, table, multiply, groups, patterns.

Resources: n/a

Date:

Week

Day

### 1 NOTES FOR THE TEACHER RELATING TO TOPICS SELECTED FOR FINAL REVISION

The topics selected for this lesson cover some key concepts that have been dealt with over the course of the year. The topics covered in this lesson follow a progression of learning which is important to revise in order to consolidate learners' ability to solve addition and subtraction problems. These activities will revise important concepts in preparation for Grade 4.

### 2 LESSON CONTENTS

**Addition with carrying and subtraction with borrowing** – Learners have practised solving problems involving addition with carrying and subtraction with borrowing. Initially, learners used ten frames to solve problems, but learners were able to begin to work mentally as they become more confident and efficient in working with numbers and operations.

**Addition (column method)** – Learners were introduced to the use of the column method when solving addition problems.

**Subtraction (column method)** – Learners were introduced to the use of the column method when solving subtraction problems.

**Number patterns** – Learners discovered how to identify and extend number patterns. They were introduced to flow diagrams and tables to represent number patterns and to solve word problems.

**3 CLASSWORK ACTIVITIES****ADDITION WITH CARRYING AND SUBTRACTION WITH BORROWING  
(TERM 1 UNIT 2)****1** Calculate:

**a**  $8 + 6 = \square$  (14)

**b**  $3 + 9 = \square$  (12)

**c**  $15 - 7 = \square$  (8)

**d**  $13 - 8 = \square$  (5)

**2** Break the number down into tens and ones to find the solution:

**a**  $67 + 5 = \underline{\quad}$

(3)	(2)
-----	-----

$(67 + 3 = 70)$
$70 + 2 = 72$

**b**  $49 + 4 = \underline{\quad}$

(1)	(3)
-----	-----

$(49 + 1 = 50)$
$50 + 3 = 53$

**c**  $35 - 9 = \underline{\quad}$

(20)	(15)
------	------

$(15 - 9 = 6)$
$20 + 6 = 26$

**d**  $76 - 8 = \underline{\quad}$

(60)	(16)
------	------

$(16 - 8 = 8)$
$60 + 8 = 68$

**3** Solve the problems:

**a**  $28 + 4 = (32)$

**b**  $92 - 6 = (86)$

**ADDITION (COLUMN METHOD) (TERM 1 UNIT 2)**

Solve the following using the column method:

**a**  $64 + 59 = (123)$

	H	T	O
		1	
		6	4
+		5	9
	1	2	3

**b**  $88 + 59 = (147)$

	H	T	O
		1	
		8	8
+		5	9
	1	4	7

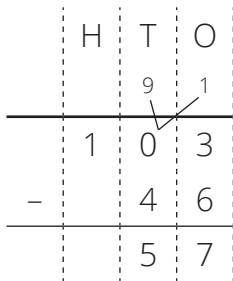
**c**  $49 + 86 = (135)$

	H	T	O
		1	
		4	9
+		8	6
	1	3	5

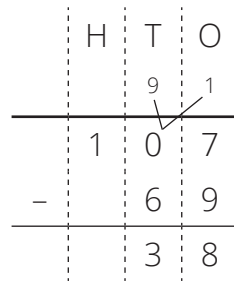
**SUBTRACTION (COLUMN METHOD) (TERM 1 UNIT 2)**

Solve using the column method:

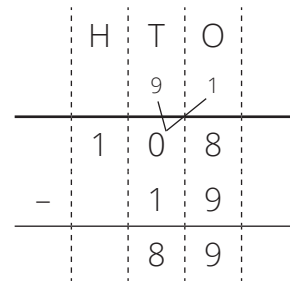
**a**  $103 - 46 = (57)$



**b**  $107 - 69 = (38)$



**c**  $108 - 19 = (89)$



**NUMBER PATTERNS (TERM 1 UNIT 4)**

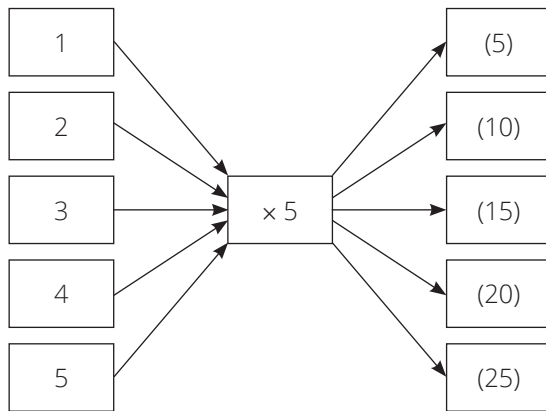
**1** Extend the patterns:

**a** 345, 350, 355, \_\_, \_\_, \_\_, \_\_ (360, 365, 370, 375)

**b** 492, 496, 500, \_\_, \_\_, \_\_ (504, 508, 512)

**2** Busi eats 5 sweets a week. How many sweets will she have eaten after 5 weeks?

Solve this word problem using the flow diagram and table below.



**4 REFLECTION AND SUMMARY OF LESSON**

Call the whole class to attention and summarise the key concepts of the lesson.

Today, we have consolidated our understanding of the some of the key concepts and skills covered over the course of Grade 3.



## Lesson 39: Preparing for Grade 4 (2)

### Teacher's notes

This lesson allows for the consolidation of content covered during the year, in preparation for the next grade.

CAPS topics: Number and operations.

Lesson Objective: Revise key concepts taught during the year in order to prepare learners for Grade 4

Lesson Vocabulary: Multiples, number patterns, counting, extend, difference, increasing, forwards, backwards, calculate, multiply, times, multiplication, sharing, share, group, grouping, divide, half, halve, halving, double, doubling, more, less.

Resources: Multiplication cards (see Term 2 *Printable Resources*).

Date:

Week

Day

### 1 NOTES FOR THE TEACHER RELATING TO TOPICS SELECTED FOR FINAL REVISION

The topics selected for this lesson cover some key concepts that have been dealt with over the course of the year. The topics covered in this lesson follow a progression of learning which is important to revise in order to consolidate learners' ability to solve multiplication and division problems. These activities will revise important concepts in preparation for Grade 4.

### 2 LESSON CONTENTS

**Multiplication tables** – Learners have practised solving problems involving multiplication tables. It is important for learners to become confident with these, as this will increase their efficiency in solving problems.

**Division (sharing)** – Learners were introduced to division as sharing. Learners need to be able to understand what a problem is asking them to do, so they need to be clear on this type of problem.

**Division (grouping)** – Learners were introduced to division as grouping. Learners need to be able to differentiate between grouping and sharing problems in order to develop strategic competence.

**Sharing leading to fractions** – Learners were introduced to the relationship between sharing and fractions. They need to be able to use their understanding of halving to solve fraction problems.

### 3 CLASSWORK ACTIVITIES

#### MULTIPLICATION TABLES (TERM 2 UNITS 1 & 2; TERM 3 UNIT 1)

NOTE: Give each learner, each pair, or each group of learners a set of multiplication cards of the 1 to 9 times tables with the answers written at the back (these should have been prepared in Term 2 and were used in the first two lessons of this term, prepare more if necessary). Activity 2 is important as it consolidates teaching on the commutative law. The intention of these activities is to help the learners to begin to memorise the multiplication tables.

#### Rules of the game

- 1** Learners work in pairs.
  - a** Learners shuffle the cards.
  - b** One learner holds up a number sentence.
  - c** The second learner must read the number sentence and give the answer.
  - d** Learners check the answer by looking at the back of the card.
  - e** The second learner then holds up a number sentence card for the first learner.
  - f** Keep going until all the cards have been read.
- 2** Learners work in pairs.
  - a** Learners shuffle the cards.
  - b** Learners lay out the cards with the answers facing up.
  - c** One learner holds up an answer.
  - d** The second learner gives a number sentence for which the answer is shown.
  - e** Learners check the number sentence by looking at the back of the card. (Note that they might find the factors written in reverse relative to what they have said because of the commutative law.)

**1** Play the 1 to 9 multiplication card game. Your teacher will explain the rules.

**2** Calculate:

- a**  $8 \times 5 = \square$  (40)
- b**  $6 \times 6 = \square$  (36)
- c**  $7 \times 9 = \square$  (63)
- d**  $0 \times 4 = \square$  (0)

**DIVISION (SHARING) (TERM 3 UNIT 1)**

Solve the following problems:

<b>a</b>	There are 36 pencils. Share the pencils equally between 4 learners. How many pencils will each learner get?	
	Write the number sentence.	$(36 \div 4 = \square)$
	Turn it into multiplication.	$(4 \times \boxed{9} = 36)$
	Write the answer.	$(36 \div 4 = 9, 9 \text{ pencils})$
<b>b</b>	There are 48 sweets. Share the sweets equally between 8 learners. How many sweets will each learner get?	
	Write the number sentence.	$(48 \div 8 = \square)$
	Turn it into multiplication.	$(8 \times \boxed{6} = 48)$
	Write the answer.	$(48 \div 8 = 6, 6 \text{ sweets each})$

**DIVISION (GROUPING) (TERM 3 UNIT 1)****1** Solve the following problem:

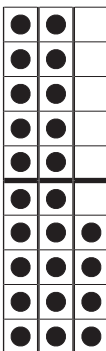
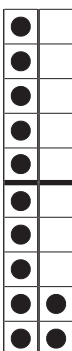
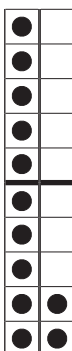
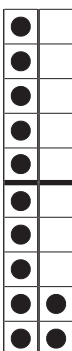
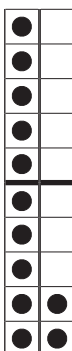
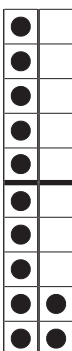
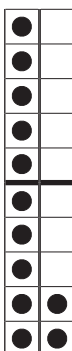
There are 21 children. The children must be put in groups of 7. How many groups will there be?	
Write the number sentence.	$(21 \div 7 = \square)$
Turn it into multiplication.	$(\boxed{3} \times 7 = 21)$
Write the answer.	$(21 \div 7 = 3, 3 \text{ groups})$

**2** Calculate:




- a**  $35 \div 5 = \square$  (7)  
**b**  $54 \div 6 = \square$  (9)  
**c**  $72 \div 9 = \square$  (8)  
**d**  $40 \div 4 = \square$  (10)

**SHARING LEADING TO FRACTIONS (TERM 3 UNIT 2; TERM 4 UNIT 1)**

**1** Solve the problem:

Themba has 24 flowers. She gives $\frac{1}{2}$ of her flowers to her friend. How many flowers does she give to her friend?					
Draw the diagram. <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr><td style="padding: 2px 5px;">Dots</td></tr> <tr><td style="padding: 2px 5px;">Fractions</td></tr> </table>	Dots	Fractions	a whole 24 flowers <div style="text-align: center; margin: 10px 0;">  </div>		
Dots					
Fractions					
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center; padding: 5px;"><math>(\frac{1}{2})</math></td> <td style="width: 50%; text-align: center; padding: 5px;"><math>(\frac{1}{2})</math></td> </tr> <tr> <td style="text-align: center; padding: 10px 0;">  </td> <td style="text-align: center; padding: 10px 0;">  </td> </tr> </table>	$(\frac{1}{2})$	$(\frac{1}{2})$		
$(\frac{1}{2})$	$(\frac{1}{2})$				
					
Write the number sentences to show $\frac{1}{2}$ of 24.	$(24 \div 2 = 12)$				
Write the answer.	(Themba gave 12 flowers to her friend.)				

**2** Shade half of each fraction strip and write the fraction:

		Fraction
<b>a</b>		$(\frac{3}{6})$
<b>b</b>		$(\frac{4}{8})$
<b>c</b>		$(\frac{2}{4})$

#### **4 REFLECTION AND SUMMARY OF LESSON**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have consolidated our understanding of the some of the key concepts and skills covered over the course of Grade 3.

## Lesson 40: Preparing for Grade 4 (3)

### Teacher's notes

This lesson allows for the consolidation of content covered during the year, in preparation for the next grade.

CAPS topics: Fractions, Measurement, Shape and Space, Data Handling.

Lesson Objective: Revise key concepts taught during the year in order to prepare learners for Grade 4.

Lesson Vocabulary: Half, quarter, eighth, third, fifth, sixth, seventh, tenth, fraction, subtract, take away, less, add, and, more, divide, share, perimeter, area, estimate, investigate, symmetry, 2-D, geometrical, non-geometrical shapes, vertical line, horizontal line, line of symmetry.

Resources: n/a

Date:	Week	Day
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### 1 NOTES FOR THE TEACHER RELATING TO TOPICS SELECTED FOR CONSOLIDATION

The topics selected for this lesson cover some key concepts that have been dealt with over the course of the year. The topics covered in this lesson follow a progression of learning which is important to revise in order to consolidate learners' ability to solve problems. These activities will revise important concepts in preparation for Grade 4.

### 2 LESSON ACTIVITIES - TOPICS

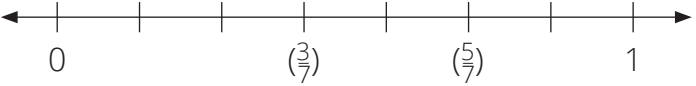
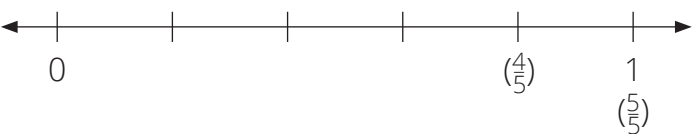
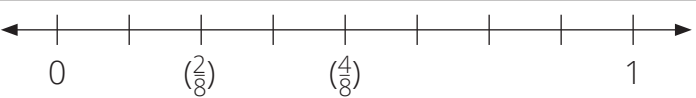
**Fractions**– Learners have learned about unitary and non-unitary fractions. Learners have identified fractions of whole numbers and where they use division together with fractions. They have also practiced adding and subtracting fractions that have the same denominator.

**Measurement** – Learners revised the different aspects of measurement (time, length, mass, capacity/volume, perimeter and area) and solved problems and calculations involving measurement. In this lesson, perimeter and area will be revised as they were only introduced in Grade 3.

**Shape and Space** – Learners revised and explored the properties of shapes and objects. These were covered this term. The focus of the revision will be on symmetry.

**3 CLASSWORK - TOPICS**  
**FRACTIONS (TERM 3 UNIT 2)**

1

				Write the fractions in the correct place on the number lines.	Which fraction is smaller?
<b>a</b>	$\frac{5}{7}$	and	$\frac{3}{7}$		$(\frac{3}{7})$
<b>b</b>	$\frac{4}{5}$	and	$\frac{5}{5}$		$(\frac{4}{5})$
<b>c</b>	$\frac{2}{8}$	and	$\frac{4}{8}$		$(\frac{2}{8})$

2 Calculate:

**a**  $\frac{2}{5} + \frac{1}{5} = \square (\frac{3}{5})$

**b**  $\frac{3}{6} + \frac{2}{6} = \square (\frac{5}{6})$

**c**  $\frac{7}{8} - \frac{3}{8} = \square (\frac{4}{8})$

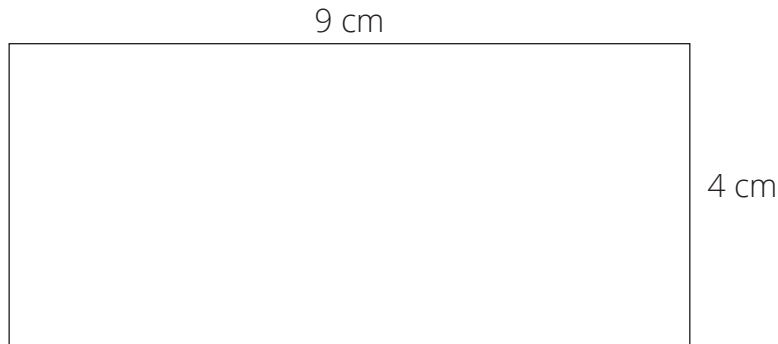
**d**  $\frac{9}{10} - \frac{7}{10} = \square (\frac{2}{10})$

3 Solve the following problem:

Themba has 20 flowers. She gives $\frac{4}{5}$ of her flowers to her teacher. How many flowers does she give to her teacher?	
Draw the diagram.	a whole (20 flowers)
Dots	$(\frac{1}{5})$ $(\frac{1}{5})$ $(\frac{1}{5})$ $(\frac{1}{5})$ $(\frac{1}{5})$
Fractions	$(\bullet\bullet\bullet\bullet)$ $(\bullet\bullet\bullet\bullet)$ $(\bullet\bullet\bullet\bullet)$ $(\bullet\bullet\bullet\bullet)$ $(\bullet\bullet\bullet\bullet)$
Write the number sentences to show $\frac{4}{5}$ of 20.	$(20 \div 5 = 4,$ $4 \times 4 = 16)$
Write the answer.	(Themba gave 16 flowers to her teacher.)

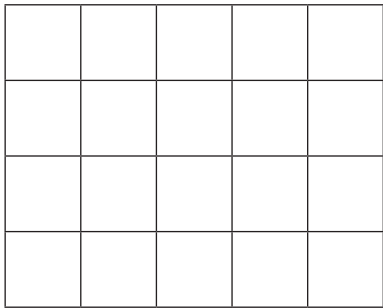
**MEASUREMENT - AREA AND PERIMETER (TERM 3 UNIT 3)**

1 Calculate the perimeter of this rectangle.



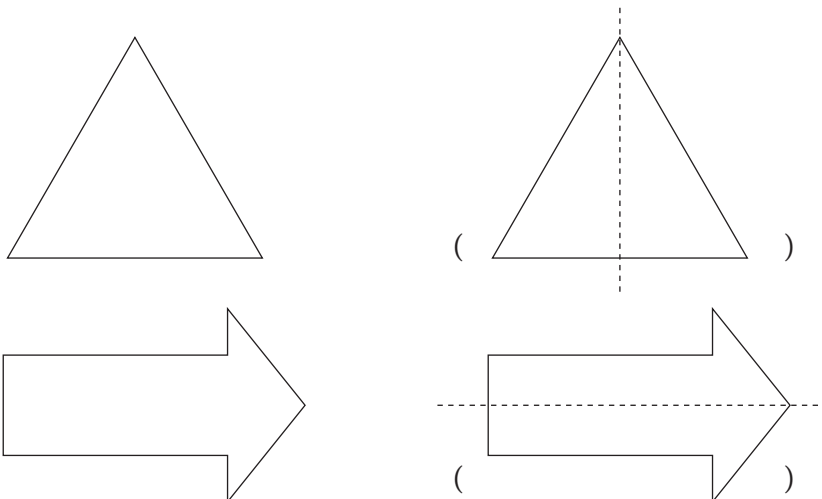
$(9 + 9 + 4 + 4 = 26 \text{ cm})$

2 What is the area of this rectangle? \_\_\_\_\_ tiles. ( 20 tiles)



**SHAPE AND SPACE - SYMMETRY (TERM 2 UNIT 4)**

Draw the line of symmetry.



**4 REFLECTION AND SUMMARY OF LESSON**

Call the whole class to attention and summarise the key concepts of the lesson.

Today we have consolidated our understanding of the some of the key concepts and skills covered over the course of Grade 3.