MATHEMATICS

Grade 2

TERM 4 2019

Lesson Plans

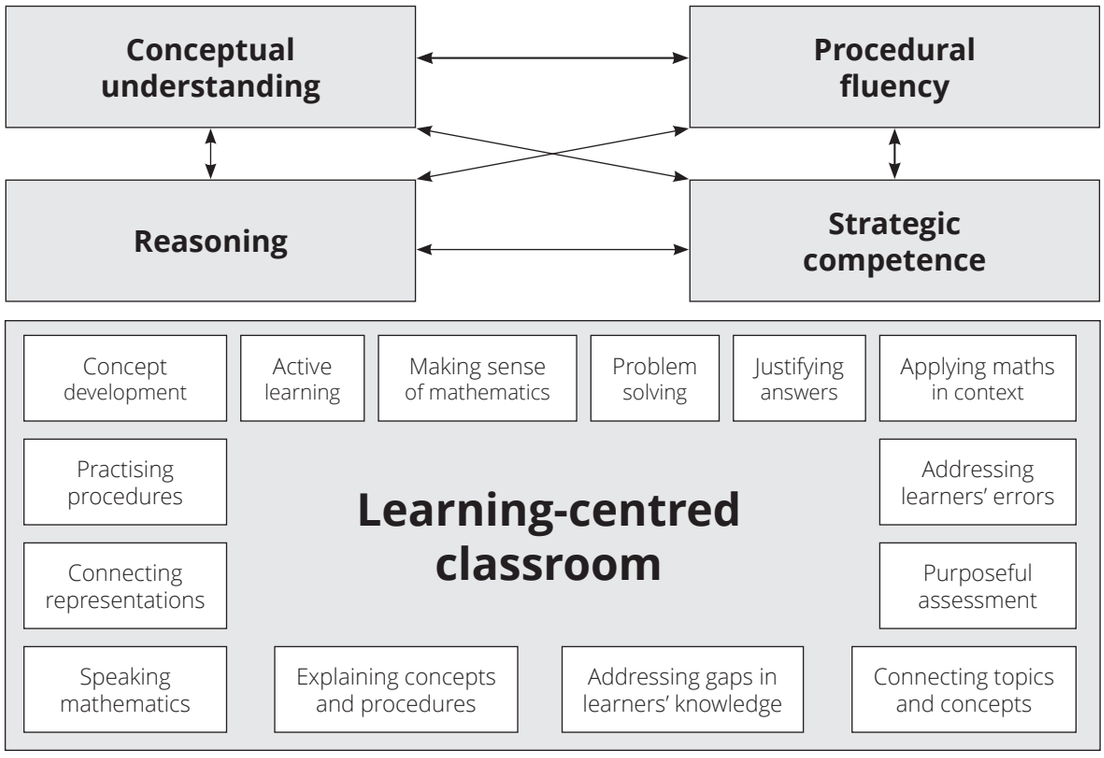
Acknowledgement:

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.

Contents

Teaching mathematics for Understanding (TMU)

You are participating in the pilot implementation of the Mathematic 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

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 is 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

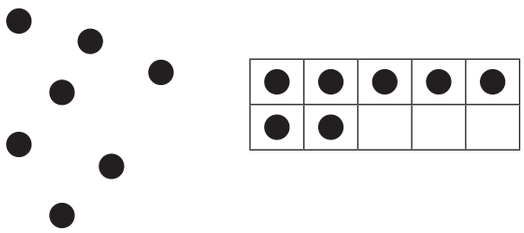
A calculation technique that consists of building up (composition) and breaking down (decomposition). For instance, 4 can be broken down into 1 and 3, 2 and 2 and 3 and 1. These are the number bonds of 4. The number bonds of 10 are the most important since they are used in all calculation strategies.

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.

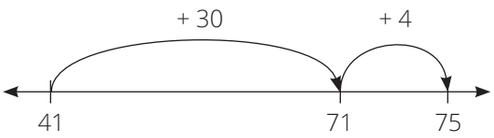
SUBITISING

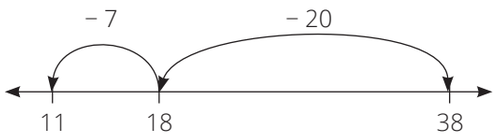
Subitising is 'an instant cognition of the number of objects'. This is one of the most important skills that learners should acquire in the Foundation Phase. A ten frame is a useful tool to help learners to subitise objects. In the example below, it is easier to recognise the number of dots by putting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

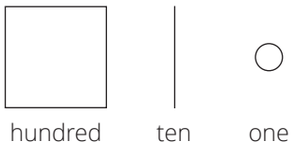
CPA APPROACH

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 '+', '–', '×', '÷'.

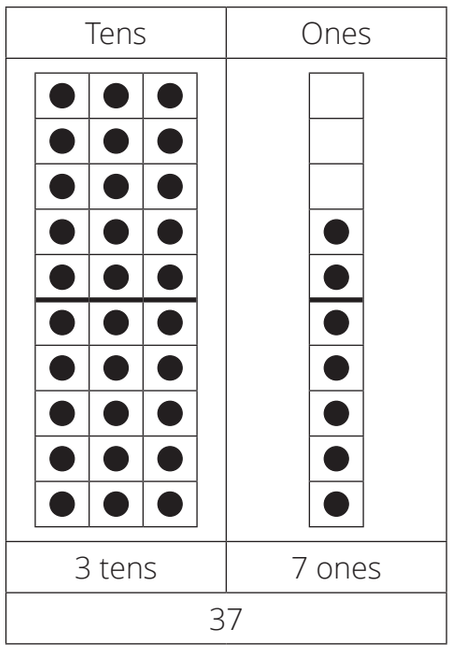
SIMPLIFIED PICTORIALS

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.



ARRAY DIAGRAM

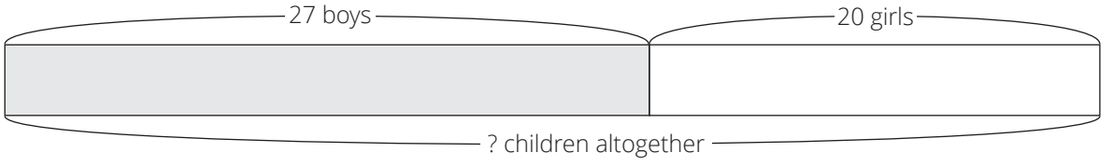
The following is the array diagram of 2 × 4. The order of multiplication is important and it is consistent with CAPS.

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 ❑ × 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

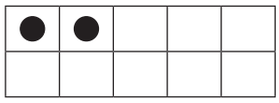
These are concrete apparatus such as counters, printed tens, printed hundreds, box and ball shapes, etc. that can be manipulated by learners.

COUNTERS

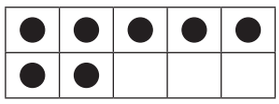
These are any (loose) concrete objects that learners can manipulate when counting. In the TMU bottle tops are recommended since they are freely available but other counters can also be used such as interlocking cubes (e.g. Unifix cubes). Teachers are expected to use concrete counters such as bottle tops 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 × 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:

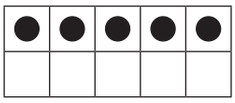


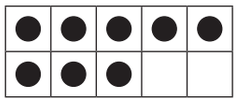
This is the number 7 represented on a double decker ten frame (visual of 5 plus 2):



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)

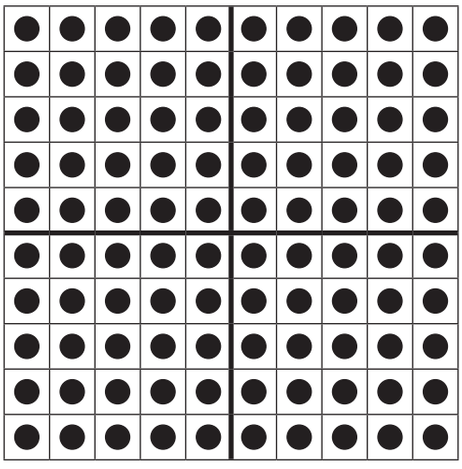
A ten frame which is straight. The thicker line in the middle shows the 5. This line is important because it helps learners to recognise the numbers 6 to 10 by using the building up skill of 5 and … (numbers 1 to 5). A straight ten frame is helpful to deal with numbers bigger than 10.

PRINTED TEN

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

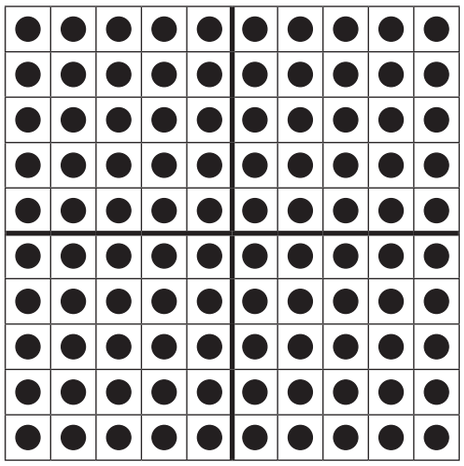
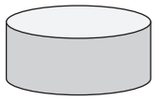
PRINTED HUNDRED (GR 2, 3)

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.

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 2 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. Lessons 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 2 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 are 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, www.thutong.doe.gov.za/InclusiveEducation.
- Directorate Inclusive Education, Department of Basic Education (2010) *Guidelines for Inclusive Teaching and Learning. Education White Paper 6. Special needs education: Building an inclusive education and training system.* Pretoria. www.education.gov.za, www.thutong.doe.gov.za/InclusiveEducation.

Lesson Plan Outline

Each lesson plan has several components. Information about each 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

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)

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)

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)

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 has 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)

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)

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 multiplication.

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

- **Conceptual understanding**: In this unit conceptual understanding is developed through learners' discussion of solutions and strategies. Learners begin to understand the relationships and patterns between numbers in multiplication. They will verbalise their thought processes and exchange ideas with their peers.
- **Procedural fluency**: Some of the activities in this unit are quite repetitive. This is done intentionally so that learners develop procedural fluency as they become confident in working repeatedly with their times tables in a problem solving setting.
- **Strategies**: Learners need to understand and develop strategies to solve problems. Learners should be encouraged to verbalise their solutions to problems so that they can see other ways of finding answers by exploring strategies.
- **Reasoning**: Learners will be given opportunities to justify their thoughts, solutions and strategies. It is important to allow learners opportunities to discuss and explain their strategies so that they can develop their knowledge and understanding of the concepts through reasoning.

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

- **Addressing learners' errors**: In this unit there are a number of consolidation and assessment opportunities that will make it possible to identify and address learners' errors. There are clear links between lessons which enable learners to build upon their knowledge and to correct misunderstandings they may have formed.
- **Explaining concepts and procedures**: Learners are required to discuss their thoughts, observations and strategies with their peers. This is an important way of extending and deepening their conceptual understanding.

Lesson 1: Multiplication Tables Revision (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.14 Repeated addition leading to multiplication.
Lesson Objective: Revise the 2 – 5 times tables.
Lesson Vocabulary: Multiples, number patterns, counting, extend, difference, increasing, forwards, backwards, calculate, multiply, times.
Resources: Array diagram (see ***Printable Resources***), demo array diagram (teacher), multiplication cards (× 2, × 3, × 4 and × 5) (see Term 3 ***Printable Resources***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
1	5 × 4	20	**6**	2 × 2	4
2	4 × 2	8	**7**	5 × 5	25
3	2 × 3	6	**8**	4 × 4	16
4	3 × 3	9	**9**	5 × 3	15
5	5 × 2	10	**10**	4 × 3	12

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson the learners will solve multiplication word problems and they will revise their understanding of the concept of multiplication. They will solve multiplication word problems using array diagrams. In the classwork activity the learners will play multiplication games to help them memorise the tables. The multiplication cards (× 2, × 3, × 4 and × 5) will be used. They should have been cut up and prepared in Term 3.

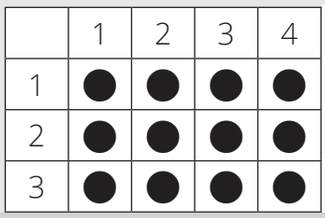
Today we are revising times tables 2 to 5.

Activity 1: Whole class activity

- Ask learners to look at the array diagram at the back of the LAB.
- Put an demo array diagram on the board.
- Write the following problem on the board :
  You have 3 boxes
  which each have 4 oranges in them.
  How many oranges do you have?
- Read the problem several times.
- Ask: **What is the story about?** (Oranges)

- Ask: **What numbers do you see in the story?** (3 and 4)
- Underline these numbers.
- Ask: **What is the question?** (How many oranges do you have?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let the learners read the problem until they read it fluently.
- Let the learners represent the story with bottle tops.

- Let them write a multiplication number sentence for the problem in their classwork books.
- Write the multiplication number sentence on the board for correction: 3 × 4 = __
- Say: **Let's find the answer using the array diagram.**
- Give the learners time to use the array diagram to solve the problem. *This is experimental. You will show them how to use the array diagram after they have had a bit of time to experiment.*
- Ask: **How did you use the array diagram to find the answer?**
- Let some learners explain to the class how they found the answer to the problem.
  - Put Paper 1 on the side of column of 4 so that 4 columns remain open. The number of columns gives us the size of the group: 3 × 4 = __ needs groups of 4 (see below).
  - Put paper 2 below the third row as shown below. The number of rows gives us the multiple we need (in 3 × 4 = __ the multiple is 3 ×).
  - Paper 2 can be moved up and down, to show different multiples of 4.
  - The answer is at the corner of Papers 1 and 2.
  - The diagram below shows an array and pieces of paper to show 3 × 4 = 12.



Paper 1

4 columns are shown – we have 4 dots in a row

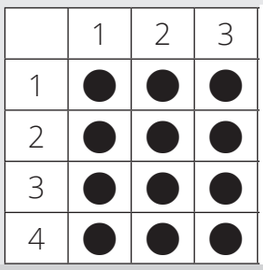
Paper 2

Move this paper up or down to show different multiples of 4.

This position shows 3 groups of 4.

- By sliding paper 2 down from row 1 to row 3, row by row, learners can count the first three multiples of 4: 4, 8 and 12. (counting in 4s)
- Ask: **What is the answer to the word problem?** (12 oranges)

- Let the learners record the number sentence and its answer in their classwork books. (3 × 4 = 12, 12 oranges)
- Repeat the above steps using the array to solve 4 boxes of 3 eggs = __ eggs.
- Let the learners use the array diagram to show the multiple and find the answer.



	1	2	3
1	●	●	●
2	●	●	●
3	●	●	●
4	●	●	●

Paper 1

Shows the correct group size by revealing the correct number of columns.

Paper 2

Move this paper down one row at a time to show 1 × 3, 2 × 3, 3 × 3, 4 × 3, ...

- Help the learners to see that they can find the answers by counting in 3s.
- *As the number of groups (represented by the rows) increases, so the answer increases by 3 each time.*
- *The array diagram should always be used in the way shown above, i.e. by hiding unnecessary parts with pieces of paper.*
- Let learners record the number sentence 4 × 3 = and its answer in their classwork books. (4 × 3 = 12, 12 oranges)
- Discuss with the learners the relationship between 3 × 4 and 4 × 3. (The answer is the same. It is 12).

Activity 2: Learners work in pairs

- Using the 2 to 5 times table cards explain the following games.
- Explain one game at a time.
- The learners should play the games in pairs.

Game 1

1 One learner picks up one card at a time and reads the multiplication number sentence on it out loud.

2 The other learner gives the answer.

3 Learners take turns to ask and answer questions, checking the answers on the back of the card each time.

Game 2

1. Both learners draw a card from the pile (with the multiplication number sentences facing up).
2. They say the answer to each other.
3. The learner who gets the bigger answer is the winner.
4. When you have completed the cards, you can play the game again but this time the learner who gets the smaller answer is the winner.

Game 3

1. Lay all the cards out with the answers facing up.
2. Pick a card and say the multiplication number sentence to which the number you chose is the answer.
3. Take turns.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Let the learners play the games discussed in Activity 2. When the quicker learners become tired of the first game, let them move on to the next game. You should walk around the class and make sure all of the learners are playing a game and having fun learning/revising the 2 to 5 times tables.

Play the multiplication card games. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

Complete the table.

	Reverse the factors
4 × 3 = 12	3 × 4 = 12
5 × 2 = 10	(2 × 5 = 10)
3 × 2 = 6	(2 × 3 = 6)
4 × 1 = 4	(1 × 4 = 4)
3 × 5 = 15	(5 × 3 = 15)

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 revised the 2 to 5 times tables.

Lesson 2: Multiplication Tables Revision (2)

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.		
CAPS topics: 1.14 Repeated addition leading to multiplication.		
Lesson Objective: Revise the 2–5 times tables.		
Lesson Vocabulary: Multiples, number patterns, counting, extend, difference, increasing, forwards, backwards, calculate, multiply, times		
Resources: Bottle tops.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
1	6 × 4	24	**6**	7 × 3	21
2	8 × 2	16	**7**	8 × 5	40
3	9 × 3	27	**8**	9 × 4	36
4	7 × 5	35	**9**	6 × 5	30
5	6 × 2	12	**10**	8 × 3	24

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson the learners will be solving multiplication word problems and they revise their understanding of the concept of multiplication. They will solve multiplication word problems using bottle tops. In the classwork activity the learners will play multiplication games to help them memorise the tables. The multiplication cards (× 2, × 3, × 4 and × 5) will be used. They should have been cut up and prepared in Term 3.

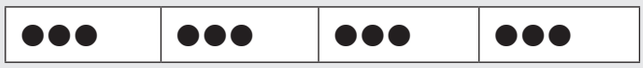
Today we are revising 2 to5 times tables.

Activity 1: Whole class activity

- Write the following word problem on the board:
  There are 2 children in a group.
  How many children are there altogether **in 3 groups?**
- Read the problem.
- Ask: **What is the story about?** (Children)
- Ask: **What numbers do you see in the story?** (2 and 3)
- Underline these numbers.
- Ask: **What is the question?** (How many children are there?)
- Underline the question with a wavy line.

- When the learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let the learners use bottle tops to solve this problem. Walk around and check their answers.

- Let the learners write the number sentence and its answer in their classwork books. (3 × 2 = 6, 6 children)
- **Now there are 3 children in a group.**
- **How many children are there altogether in 4 groups?**
- Let the learners use bottle tops to solve this problem. Walk around and check their answers.



- Let the learners write the number sentence and its answer in their classwork books. (4 ×3 = 6, 6 children)
- Repeat this exercise with:
- **There are 4 children in a group.**
- **How many children are there altogether in 5 groups?** (5 × 4 = 20, 20 children)
- **There are 5 children in a group.**
- **How many children are there altogether in 4 groups?** (4 × 5 = 20, 20 children)
- *Learners can use the array diagram to get the answer if necessary. They must not count bottle tops.*

Activity 2: Whole class activity

- Write the following word problem on the board:
  There are 7 bikes.
  Each bike has 2 tyres.
  How many tyres are there altogether?
- Read the problem.
- Ask: **What is the story about?** (Tyres)
- Ask: **What numbers do you see in the story?** (7 and 2)
- Underline these numbers.
- Ask: **What is the question?** (How many tyres are there?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let the learners write the number sentence and use the array diagram to solve the problem. (7 × 2 = 14, 14 tyres)
- **How many tyres are there if we have 2 more bikes?**
- Let the learners write the number sentence and use the array diagram to solve the problem. (9 × 2 = 18, 18 tyres)

- *It is important to confirm which number must be changed, 7 or 2. The number of tyres per bike cannot change. The number of bikes increases from 7 to 9.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Let the learners play the games discussed in Lesson 1 Activity 2. When the quicker learners become tired of the first game, let them move on to the next game. You should walk around the class and make sure all of the learners are playing a game and having fun learning/ revising the 2 to5 times tables.

Play the multiplication card games. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

Complete the table:

	What is ... ?	Answer
a	8 × 4 =	(32)
b	6 × 5 =	(30)
c	5 × 3 =	(15)
d	7 × 4 =	(28)
e	9 × 3 =	(27)

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 revised the 2 to 5 times tables.

Lesson 3: Investigating Multiplication (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.14 Repeated addition leading to multiplication.
Lesson Objective: Find patterns in the multiplication table.
Lesson Vocabulary: Multiples, number patterns, counting, extend, difference, increasing, forwards, backwards, calculate, multiply, times.
Resources: Multiplication table (see ***Printable Resources***), demo multiplication table (teacher), multiplication cards (see Term 3 ***Printable Resources***), 2 pieces of paper.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	4 × 3	12	**6**	6 × 3	18
2	5 × 2	10	**7**	7 × 2	14
3	7 × 3	21	**8**	8 × 2	16
4	3 × 2	6	**9**	6 × 2	12
5	3 × 5	15	**10**	5 × 3	15

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners continue to develop their understanding of the concept of multiplication. The learners will use multiplication tables up to 5 to find and discuss patterns. This will help them to develop procedural fluency.

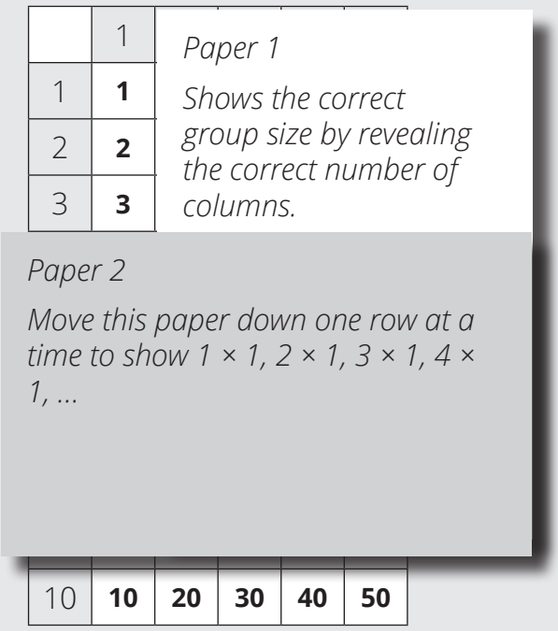
Today we are learning about the multiplication table.

Activity 1: Whole class activity

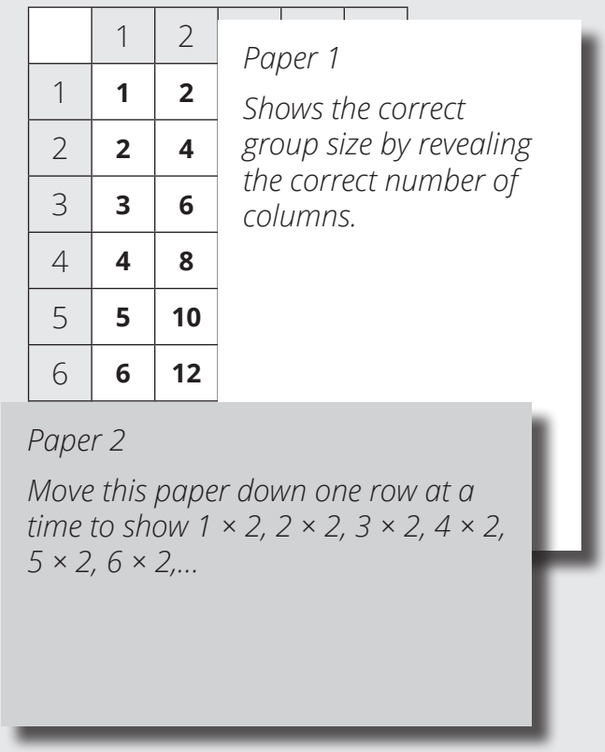
- Ask learners to look at the multiplication table at the back of the LAB.

	1	2	3	4	5
1	**1**	**2**	**3**	**4**	**5**
2	**2**	**4**	**6**	**8**	**10**
3	**3**	**6**	**9**	**12**	**15**
4	**4**	**8**	**12**	**16**	**20**
5	**5**	**10**	**15**	**20**	**25**
6	**6**	**12**	**18**	**24**	**30**
7	**7**	**14**	**21**	**28**	**35**
8	**8**	**16**	**24**	**32**	**40**
9	**9**	**18**	**27**	**36**	**45**
10	**10**	**20**	**30**	**40**	**50**

- Let the learners read the 1 times table, using papers 1 and 2 (move paper 2 down as you read); 1 × 1 = 1, 2 × 1 = 2, 3 × 1 = 3 … 9 × 1 = 9.



- Ask: **What do you notice about the numbers in the 1 times table?** (They increase by 1.)
- Let the learners read the 2 times table, using papers 1 and 2 in the same way: 1 × 2 = 2, 2 × 2 = 4, 3 × 2 = 6 … 9 × 2 = 18



- Ask: **What do you notice about the numbers in the 2 times table?** (They increase by 2.)
- Do the same thing with 3 times, 4 times and 5 times tables.
- Let the learners count forward in 1s up to 10, 2s up to 20, 3s up to 30, 4s up to 40, and 5s up to 50. You should stop them while they count, asking questions like: **how many 2s in 14?** (7), **how many 3s in 24?** (8), **how many 5s in 30?** (6) etc..
- Ask: **What are the similarities between the numbers in the 2 times table and the numbers that appear when you count in 2s?** (The numbers are the same – if you count in 2s, you are counting the multiples of 2.)
- Ask the same question for the other multiples, 3, 4 and 5.

Activity 2: Whole class activity

- Continue working with the multiplication table and with Papers 1 and 2.
- Say: **Use the multiplication table to find the answer to 3 × 4.** (12)
- *Learners find the answer at the corner of Papers 1 and 2.*
- Say: **How many ways can you find 12?** (4 × 3 =12, 6 × 2 =12, there are two.)
- Let the learners write both number sentences with their answers.
- Write both the number sentences with their answers on the board for corrections.
- Ask: **The answer to 3 × 5 is the same as the answer to … ?** (3 × 5 = 15, 5 × 3 = 15)
- Ask: **Find the number sentence with the same answer as** 5 × 2 = __. (5 × 2 = 10, 2 × 5 = 10)

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Let the learners play the games discussed in Lesson 1 Activity 2. When the quicker learners become tired of the first game, let them move on to the next game. You should walk around the class and make sure all of the learners are playing a game and having fun learning/ revising the 2 to5 times tables.

Play the multiplication card games. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

Complete the table:

	1	2	3	4	5	6	7	8	9
× 4	(4)	(8)	(12)	(16)	(20)	(24)	(28)	(32)	(36)

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 learnt about the multiplication table.

Lesson 4: Investigating Multiplication (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.14 Repeated addition leading to multiplication.
Lesson Objective: Investigate multiplication.
Lesson Vocabulary: Multiples, number patterns, counting, extend, difference, increasing, forwards, backwards, calculate, multiply, times.
Resources: Multiplication table (see ***Printable Resources***), multiplication cards (see Term 3 ***Printable Resources***), array diagram (see ***Printable Resources***), demo multiplication table and array diagram (teacher).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	4 × 4	16	**6**	5 × 5	25
2	7 × 5	35	**7**	7 × 4	28
3	2 × 4	8	**8**	5 × 4	20
4	4 × 5	20	**9**	9 × 5	45
5	3 × 5	15	**10**	8 x 4	32

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners continue to develop their understanding of the concept of multiplication. They solve multiplication problems using both the multiplication table and array diagrams. In this way learners are able to continue to develop an understanding of multiplication.

Today we are learning about multiplication using the multiplication table and array diagrams.

Activity 1: Whole class activity

- Ask learners to look at the array diagram at the back of the LAB.
- Put a demo array diagram on the board.
- Ask: **Find 2 multiplication number sentences that have the answer 15. What are they?** (3 × 5 and 5 × 3).
- Learners write the 2 number sentences with their answers in their classwork books.
- Write 3 × 5 = 15, 5 × 3 = 15 on the board for corrections.

- Ask: **How many 4s do you see as answers in the table?** (3) **What are their number sentences?** ($1 \times 4 = 4$, $2 \times 2 = 4$, $4 \times 1 = 4$)
- Learners write 3 number sentences with their answers in their classwork books.
- Write the 3 number sentences with their answers on the board for corrections.
- Ask: **Find 3 number sentences that have the answer 12 in the table.** ($6 \times 2 = 12$, $3 \times 4 = 12$, $4 \times 3 = 12$)
- Learners write the 3 number sentences with answers in their classwork books.
- Write the 3 number sentences with their answers on the board for the correction.

Activity 2: Whole class activity

- Continue working with the array diagram at the back of the LAB.
- Write the following multiples on the board: 3×5 and 5×3, 1×4 and 4×1, 4×3 and 3×4.
- Say: **Let's find the answers using an array diagram.**
- Give the learners time to use the array diagram (in the same way as it has been shown before) to find the multiples.
- Ask: **How did you use the array diagram to find the answers?**
- Let some learners explain to the class how they found the multiples.
- *Confirm that all sets of 2 number sentences have the same answer. Notice that if you rotate the array diagram a), the display of dots is the same as b). Let learners do this and check it for themselves.*

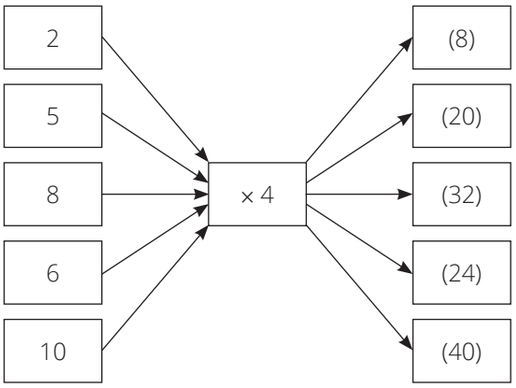
3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Complete the table.

	1	2	3	4	5
1	1	2	3	(4)	5
2	(2)	4	6	8	(10)
3	(3)	6	9	12	(15)
4	4	(8)	12	16	20
5	5	10	(15)	20	25
6	6	(12)	18	24	30
7	(7)	14	(21)	(28)	35
8	8	16	(24)	32	(40)
9	9	(18)	27	36	45

4 HOMEWORK ACTIVITY (5 MINUTES)

Complete:



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 learnt to use the multiplication table and array diagrams to solve multiplication problems.

Lesson 5: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 1.14 Repeated addition leading to multiplication.		
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.

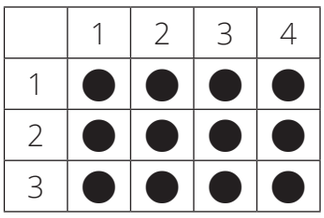
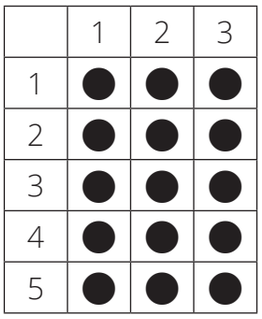
There should be time for you to discuss a few of the items with the class:

- 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 MARKS)

1 Complete the table: (5)

		Number sentence with answer
a		(3 × 4 = 12)
b		(5 × 3 = 15)

		Number sentence with answer
c	7 groups of 2	(7 × 2 = 14)
d	9 groups of 3	(9 × 3 = 27)
e	6 groups of 5	(6 × 5 = 30)

2 Complete: (3)

	3	4	5	(6)	7
× 4	12	(16)	20	24	(28)

3 There are 7 groups. Each group has 5 children in it. How many children are there altogether? (2)

Number sentence: _____ (7 × 5 = 20)

Answer: _____ children. (35 children)

Week 2

Lesson 6: Investigating Multiplication (3)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.14 Repeated addition leading to multiplication.
Lesson Objective: Develop an understanding of the commutative law of multiplication.
Lesson Vocabulary: Multiples, calculate, multiply, times, array, pattern.
Resources: Array diagram (see ***Printable Resources***), multiplication table (see ***Printable Resources***), demo array diagram and multiplication table (teacher), multiplication cards (see Term 3 ***Printable Resources***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is ...	Answer		What is ...	Answer
1	5 × 4	20	**6**	7 × 4	8
2	4 × 2	8	**7**	8 × 4	32
3	6 × 4	24	**8**	5 × 2	10
4	7 × 2	6	**9**	9 × 4	36
5	4 × 2	8	**10**	9 × 2	18

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In today's lesson learners will continue to investigate patterns in multiplication. The focus in this lesson is on the commutative law of multiplication. Learners do not need to learn the name of the law but they need to learn that multiplication is commutative (the factors in a multiplication sentence are reversible, e.g. 5 × 4 = 4 × 5). Ensure that learners are given opportunities to experience (for example) 5 × 4 as being equal to 4 × 5.

Today we are investigating multiplication.

Activity 1: Learners work in pairs

- Ask learners to look at the multiplication table at the back of the LAB.
- Say: **Use the multiplication table to find the same numbers.** (2, 3, 4, 5, 6, 8, 9, 10, 12, 16, 18, 20, 24, 30, 40)

	1	2	3	4	5
1	**1**	**2**	**3**	**4**	**5**
2	**2**	**4**	**6**	**8**	**10**
3	**3**	**6**	**9**	**12**	**15**
4	**4**	**8**	**12**	**16**	**20**
5	**5**	**10**	**15**	**20**	**25**
6	**6**	**12**	**18**	**24**	**30**
7	**7**	**14**	**21**	**28**	**35**
8	**8**	**16**	**24**	**32**	**40**
9	**9**	**18**	**27**	**36**	**45**
10	**10**	**20**	**30**	**40**	**50**

- Say: **Now see if you can find a different number sentence that makes these numbers.** (Learners use their multiplication table to find number sentences that have the same answer.)
- Say: **Write those number sentences with answers in the table below.**

	Number sentences to make ...
2	2 × 1 = 2, 1 × 2 = 2
3	3 × 1 = 3, 1 × 3 = 3
4	4 × 1 = 4, 2 × 2 = 4, 1 × 4 = 4
5	5 × 1 = 5, 1 × 5 = 5
6	6 × 1 = 6, 3 × 2 = 6, 2 × 3 = 6
8	8 × 1 = 8, 4 × 2 = 8, 2 × 4 = 8
9	9 × 1 = 9, 3 × 3 = 9
10	10 × 1 = 10, 5 × 2 = 10, 2 × 5 = 10
12	6 × 2 = 12, 4 × 3 = 12, 3 × 4 = 12
15	5 × 3 = 1, 3 × 5 = 15
16	8 × 2 = 16, 4 × 4 = 16
18	9 × 2 = 18, 6 × 3 = 18
20	10 × 2 = 20, 5 × 4 = 20, 4 × 5 = 20
24	8 × 3 = 24, 6 × 4 = 24
30	10 × 3 = 30, 6 × 5 = 30
40	10 × 4 = 40, 8 × 5 = 40

Activity 2: Learners work in pairs

- Let learners discuss: **What do you notice about the number sentences that have the same answers?** (In those number sentences there are many pairs of number sentences the 2 numbers are swapped.)
- Let learners underline the number sentences where 2 numbers are swapped.
- Ask (this is an advanced question – not for all learners): **What do you think about the number sentences who do not have their pairs?**
  - Like $2 \times 2 = 4$, $3 \times 3 = 9$, $4 \times 4 = 16$, their 2 numbers are the same. So their 2 numbers are not swapped.
  - I assume for example we will find the pair of $6 \times 2 = 12$ as $2 \times 6 = 12$ when we learn 6 times table.
- *The second finding is advanced. If your learners do not notice that, it is fine. You leave it. But if some of your learners notice it, it is good to show them the full multiplication table and confirm their assumption is correct. You will announce that they will learn more about multiplication in Grade 3.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Fill in the missing numbers.

a $3 \times \_\_\_\_ = 9$ (3)
b $5 \times \_\_\_\_ = 15$ (3)
c $2 \times \_\_\_\_ = 10$ (5)
d $6 \times \_\_\_\_ = 18$ (3)
e $4 \times \_\_\_\_ = 20$ (5)
f $6 \times \_\_\_\_ = 30$ (5)
g $7 \times \_\_\_\_ = 28$ (4)
h $9 \times \_\_\_\_ = 36$ (4)
i $8 \times \_\_\_\_ = 24$ (3)
j $7 \times \_\_\_\_ = 21$ (3)
k $9 \times \_\_\_\_ = 45$ (5)
l $8 \times \_\_\_\_ = 32$ (4)

4 HOMEWORK ACTIVITY (5 MINUTES)

Complete the table:

	Reverse the factors
$4 \times 5 = 20$	$(5 \times 4 = 20)$
$3 \times 2 = 6$	$(2 \times 3 = 6)$
$4 \times 3 = 12$	$(3 \times 4 = 12)$
$5 \times 1 = 5$	$(1 \times 5 = 5)$
$2 \times 5 = 10$	$(5 \times 2 = 10)$

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 learnt about the commutative law of multiplication.

Lesson 7: Investigating Multiplication (4)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.14 Repeated addition leading to multiplication.
Lesson Objective: Develop an understanding of the distributive law.
Lesson Vocabulary: Multiples, calculate, multiply, times, array, pattern.
Resources: Multiplication table (see ***Printable Resources***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	4 × 5	20	**6**	4 × 8	32
2	4 × 4	16	**7**	3 × 4	12
3	3 × 8	24	**8**	3 × 6	18
4	4 × 9	36	**9**	4 × 7	28
5	3 × 7	21	**10**	3 × 5	15

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In today's lesson, learners will continue to investigate patterns in multiplication. The focus in this lesson is on the distributive law of multiplication. Learners do not need to learn the name of the law but they need to learn that multiplication is distributive. Ensure that the learners are given opportunities to experience (for example) $8 \times (4 + 2)$ as being equal to $(8 \times 4) + (8 \times 2)$.

Today we are again investigating multiplication.

Activity 1: Learners work in groups

- Write the following problem on the board:
  There are 4 bags.
  Each bag contains 3 blue marbles and
  2 yellow marbles.
- *The word problem must be written on three lines as shown above to help the learners to identify the critical information/numbers needed to solve the problem.*
- Read the problem to the class.
- Let the learners read the problem until they read it fluently.
- Underline the numbers (4, 3 and 2).
- Let the learners find the total number of marbles in two different ways.

a Find the number of marbles in each bag first and then find the total number of marbles.

b Find the total number of marbles of each colour first and then find the total number of marbles.

- Let the learners reproduce the story using two colours of bottle tops to explain the difference.

- Ask the following questions to help them think through each of the two ways of finding the solution.

a the number of marbles in each bag first.

- Ask: **How many marbles are there in each bag?** (3 + 2 = 5; blue marbles and yellow marbles).
- Ask: **How many marbles are there altogether?** (4 × 5 = 20; 4 bags of 5 marbles).

a Find the number of marbles in each bag first.

○○○ ●●	3 + 2 = 5,
○○○ ●●	4 × 5 = 20
○○○ ●●	20 marbles
○○○ ●●	

b the total number of marbles of each colour first.

- Ask: **Can you work out the total number of blue marbles?** (4 × 3 = 12; 4 bags of 3 blue marbles).
- Ask: **Can you work out the total number of yellow marbles?** (4 × 2 = 8; 4 bags of 2 yellow marbles).
- Ask: **How many marbles do we have altogether?** (We have 12 + 8 = 20 marbles).
- All number sentences must be written in full as shown.
- Let the learners record all the number sentences in their classwork books.

b the the total number of each colour first.

○○○ ●●	4 × 3 = 12, 4 × 2 = 8
○○○ ●●	12 + 8 = 20
○○○ ●●	20 marbles
○○○ ●●	

Activity 2: Learners work in groups

- Write the following problem on the chalkboard:
  A packet has 2 blue balloons and 3 red balloons.
  If you buy 5 packets,
  how many balloons will you have?
- Learners should solve this problem using the steps outlined in Activity 1.
- Read the problem.
- Let the learners read the problem until they read it fluently.
- Underline the numbers (2, 3 and 5).
- Let the learners find the total number of balloons in two different ways.
  - **a** Find the number of balloons in each bag first and then find the total number of balloons.
  - **b** Find the total number of balloons of each colour first and then find the total number of balloons.
- Let the learners draw circles in an array to represent the story.
  - **a** Find the number of balloons in each packet first. b. Find the the total number of each colour first.

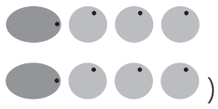
○○ ●●●	2 + 3 = 5, 5 × 5 = 25
○○ ●●●	25 balloons
○○ ●●●	
○○ ●●●	
○○ ●●●	

○○ ●●●	5 × 2 = 10, 5 × 3 = 15
○○ ●●●	10 + 15 = 25
○○ ●●●	25 balloons
○○ ●●●	
○○ ●●●	

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: The learners do not need to write the italic words shown in the solutions below for question 1, but it is good to explain this to the learners, to show them what they are doing and they should also be able to explain it. For question 2 and the homework activity, you should explain the connections between the answers on the left and the right (they are the same even though the number sentences were different).

1 Solve the following word problem.

A packet has 1 mango and 3 oranges. If you buy 2 packets, how many mangoes and oranges will you have? How many fruits will you have altogether?		
Draw a diagram.	()	
Write the number sentences.	(2 × 1 = 2) *Total number of mangoes* (2 × 3 = 6) *Total number of oranges* (2 + 6 = 8) *Altogether*	(1 + 3 = 4) *Number of fruits in a packet* (2 × 4 = 8) *In 2 packets*
Write the answer.	(8 fruits in total)	

2 Complete the table. Compare the answers on the left and the right. What do you notice?

Number sentence	Answer	Number sentence	Answer
a 3 × (2 + 4) =	(18)	**b** (3 × 2) + (3 × 4) =	(18)
c 4 × (2 + 3) =	(20)	**d** (4 × 2) + (4 × 3) =	(20)
e 2 × (3 +4) =	(14)	**f** (2 × 3) + (2 × 4) =	(14)

4 HOMEWORK ACTIVITY (5 MINUTES)

Complete the table. Compare the answers on the left and the right. What do you notice?

Number sentence	Answer	Number sentence	Answer
a 5 × (2 + 3) =	(25)	**b** (5 × 2) + (5 × 3) =	(25)
c 3 × (5 + 1) =	(18)	**d** (3 × 5) + (3 × 1) =	(18)
e 4 × (2 + 5) =	(28)	**f** (4 × 2) + (4 × 5) =	(28)

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 learnt about the distributive law.

Lesson 8: Multiplication consolidation

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.14 Repeated addition leading to multiplication.
Lesson Objective: Revise multiplication.
Lesson Vocabulary: Multiples, calculate, multiply, times, array, pattern.
Resources: Bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	8 × 3	20	**6**	6 × 3	18
2	8 × 5	40	**7**	9 × 5	45
3	7 × 3	21	**8**	8 × 2	16
4	6 × 2	12	**9**	6 × 4	24
5	9 × 2	18	**10**	9 × 3	27

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In today's lesson, learners will continue to investigate multiplication. The learners will identify multiplication rules and patterns and solve multiplication word problems.

Today we are learning more about multiplication.

Activity 1: Whole class activity

- Write the following problem on the chalkboard:
  A bag has 4 green and 3 red apples.
  If you buy 5 bags,
  how many green and red apples will you have?
  How many apples do you have altogether?
- Read the problem.
- Let the learners read the problem until they read it fluently.
- Underline the numbers (4, 3 and 5).
- Let the learners find the total number of apples in two different ways.
  - Find the number of apples in each bag first and then find the total number.
  - Find the total number of apples of each colour first and then find the total number.
- Let the learners draw circles in an array to represent the story.

a Find the number of apples in each packet first.

○○○○ ●●●	4 + 3 = 7, 5 × 7 = 35
○○○○ ●●●	35 apples
○○○○ ●●●	
○○○○ ●●●	
○○○○ ●●●	

b Find the the total number of apples of each colour first.

○○○○ ●●●	5 ×4 = 20, 5 × 3 = 15
○○○○ ●●●	20 + 15= 35
○○○○ ●●●	35 apples
○○○○ ●●●	
○○○○ ●●●	

- *If the learners realise that they have not learnt the 7 times table yet when they try to solve the problem using method a, remind them that you can swap 2 numbers in multiplication. They should know 7 × 5 = as this is a 5 times table.*

Activity 2: Whole class activity

- Draw the following multiplication table on the chalkboard:

	1	2	3	4	5	6	7	8	9
2 ×	2	4	6	8	10	12	14	16	18
3 ×	3	6	9	12	15	18	21	24	27
5 ×	5	10	15	20	25	30	35	40	45

- Ask: **What happens if we add the answers from the 2 times table and the 3 times table?** (They are the same as the answers of the 5 times table.)
- Repeat this exercise with the learners asking: **Do the answers from the 1 times table and the 4 times table add up to the 5 times table?** (Yes.)

- Complete the table, writing in answers for the 1 times table and the 4 times table and confirm that the total of these answers added together is the same as the answer for the 5 times table.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Complete the table:

		Number sentence with answer.
a	9 groups of 4	9 × 4 = 36
b	8 groups of 5	(8 × 5 = 40)
c	9 groups of 3	(9 × 3 = 27)
d	5 groups of 5	(5 × 5 = 25)
e	7 groups of 4	(7 × 4 = 28)
f	8 groups of 3	(8 × 3 = 24)
g	6 groups of 4	(6 × 4 = 24)
h	7 groups of 3	(7 × 3 = 21)
i	6 groups of 2	(6 × 2 = 12)
j	7 groups of 5	(7 × 5 = 35)

4 HOMEWORK ACTIVITY (5 MINUTES)

Complete the table:

		Number sentence with answer.
a	3 groups of 4	3 × 4 = 12
b	8 groups of 5	(8 × 5 = 40)
c	9 groups of 3	(9 × 3 = 27)
d	6 groups of 5	(6 × 5 = 30)
e	7 groups of 4	(7 × 4 = 28)

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 learnt more about multiplication.

Lesson 9: Assessment

Teacher's notes
This lesson should be used for assessment of the content covered in this unit to date.
CAPS topics: 1.14 Repeated addition leading to multiplication.
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 (15 marks)

1 Complete the table: (10)

		Answer
a	3 × 4 =	(12)
b	4 × 5 =	(20)
c	5 × 4 =	(20)
d	9 × 3 =	(27)
e	8 × 2 =	(16)
f	7 × 3 =	(21)
g	7 × 4 =	(28)
h	8 × 3 =	(24)
i	9 × 5 =	(45)
j	6 × 4 =	(24)

2 Solve the following word problem: (5)

I have 3 bags of shapes. In each bag there are 2 triangles and 5 rectangles. How many shapes do I have altogether?		
Draw a diagram.	()	
Write the number sentences.	(3 × 2 = 6) (3 × 5 = 15) (6 + 15 = 21)	or (2 + 5 = 7) (3 × 7 = 21)
Write the answer.	(21 shapes in total)	

Unit 2 Introduction

This unit focuses on developing learners' understanding of numbers up to 999. Learners need to be able to read and represent these numbers, as well as have a clear understanding of place value in 3-digit numbers. Learners work with multiples of 10 and they compare and sequence numbers. Learners progress from the use of concrete apparatus when doing calculations and working with numbers to using more abstract drawings of simplified pictorials to represent numbers. This progression is not linear and learners may go forwards and backwards between different forms of representation over the year while they develop a deep conceptual understanding of numbers and operations.

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

- **Conceptual understanding**: In this unit the concept of 3-digit numbers is addressed – so that learners develop their number concept and also have a conceptual basis for working with numbers when doing operations on numbers.
- **Procedural fluency**: Learners will develop procedural fluency through repeated opportunities to actively engage in the building up and breaking down of numbers according to their place value.
- **Strategies**: Learners will work with several strategies and may discover that a number line /1000 number board is a good visual tool to use when comparing and sequencing numbers.
- **Reasoning**: Learners are encouraged to verbalise their understanding of hundreds, tens and ones as they break down and build up numbers, giving reasons for their answers.

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

- **Concept development**: Learners need opportunities to construct their understanding of 3-digit numbers, through the use of different representations of these numbers.
- **Practising procedures**: Learners practise procedures through the repetitive nature of the lessons in this unit. This helps them to create connections between the values of numbers using the base 10 number system.

Lesson 10: Numbers up to 999 (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.1 Count objects, 1.3 Number symbols and number names.
Lesson Objective: Understand how to read and represent numbers up to 999 (hundreds).
Lesson Vocabulary: Number symbols, number names, base ten, digit, units, tens, hundreds.
Resources: At least 257 bottle tops in a container, base ten kit (see ***Printable Resources***), place value table (see ***Printable Resources***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Count forwards and backwards from 80 to 100 in 1s and 2s.

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners will read and represent numbers up to 999. Learners will have an opportunity to compare numbers and to represent numbers using base ten kits. Learners are consolidating their understanding of place value in this lesson as they use the base ten kits. Note that iit is important to move learners away from counting individual counters. Learners need to be able to represent the counters using the base ten kit. This shows an understanding of place value and numeration as the learners can recognise that 10 counters make up one 10, and that 10 tens make up 100.

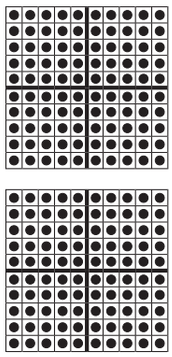
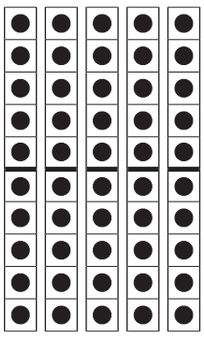
Today we are learning to read and represent numbers up to 999.

Activity 1: Learners work in groups

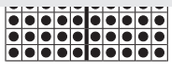
- Give each group of 4 learners a container filled with bottle tops and a place value table with ones, tens and hundreds. (The containers must have more than 250 bottle tops in it – e.g. 257 bottle tops)
- Draw a big place value table that has 3 places on the board.

	Tens	Ones
	tens	ones

- Discuss how the learners could find out how many bottle tops are in the container. (Counting in 10s using ten frames and the printed tens as they have already learnt about numbers up to 99.)
- Let the learners count out the bottle tops by placing them in a ten frame and move a full ten frame to the Tens place replacing each full ten frame with a printed ten.
- *If the learners cannot remember how to count many bottle tops, show them first step of filling up a ten frame with bottle tops in the Ones place and replacing each full ten frame with a printed ten which they put in the Tens place on the board.*
- *When learners have finished counting the items from the containers, discuss as follows:*
- Ask: **How many tens do you have in the Tens place now?** (We have 25 tens.)
- Explain: Just like we can only have 9 ones in the Ones place, we cannot have 10 tens or more in the Tens place.
- Ask: **What do we do when we get 10 ones in the Ones place?** (We replace 10 ones with a printed ten and move it to the Tens place.)
- Ask: **If so, what do you suggest we do when we get 10 tens in the Tens place?** (We need **a printed hundred**. We replace 10 tens with a printed hundred and move it to the left-hand side place.)
- Explain that the next place is the Hundreds place and write Hundreds in the place value table on the board.
- Make sure all the groups have their place value table as seen below:

Hundreds	Tens	Ones
		
2 hundreds	5 tens	7 ones

- Ask:
  - How many hundreds do you have? (2 hundreds)
  - How many tens do you have? (5 tens)
  - How many ones do you have? (7 ones)
- Let the groups write the numbers of hundreds, tens and ones in their place value tables.
- Write the numbers of hundreds, tens and ones in the big place value table on the board for corrections.

		
2 hundreds	5 tens	7 ones

- Write the number symbol 257 in the place value table on the board and read the name as two hundred and fifty-seven.

		
2 hundreds	5 tens	7 ones
257		

- Let the learners repeat the name after you several times.
- Let the groups write 257 in their place value tables.

Activity 2: Learners work in pairs

- Each pair of learners should have a base ten kit and a place value table.
- Write the following 3-digit numbers on the board.
  138, 392, 614, 759, 486, 247, 581, 923.
- Learners take turns to represent 3-digit numbers using the base ten kit in the place value table.
- One learner will represent the number with the base ten kit, and the other learner will read the number. They will then swap roles.
- Read the numbers and learners repeat them after you to confirm the names of each 3-digit number.
- Learners should do this for all the numbers on the board.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learners need time to practise using the base ten kits. As the teacher, you need to move around the classroom observing learners as they work, and ensuring that their base ten kits are being used correctly. Take time to discuss what the learners are doing, letting them verbalise their actions to show their understanding. While you circulate, ask the learners to *read the numbers to you* and check that they do this correctly using the number names fully.

1 Show these numbers using the base ten kit.
- **a** 149 (1 hundred, 4 tens, 9 ones)
- **b** 276 (2 hundreds, 7 tens, 6 ones)
- **c** 693 (6 hundreds, 9 tens, 3 ones)
- **d** 515 (5 hundreds, 1 ten, 5 ones)
- **e** 999 (9 hundreds, 9 tens, 9 counters)

2 Count forwards from 95 to 105 and 195 to 205 using the base ten kit.

4 HOMEWORK ACTIVITY (5 MINUTES)

Show these numbers using the base ten kit.

1 342 (3 hundreds, 4 tens, 2 counters)
2 198 (1 hundred, 9 tens, 8 counters)
3 567 (5 hundreds, 6 tens, 7 counters)
4 812 (8 hundreds, 1 ten, 2 counters)
5 677 (6 hundreds, 7 tens, 7 counters)

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 learnt to read and represent numbers up to 999.

Week 3

Lesson 11: Numbers up to 999 (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.3 Number symbols and number names.
Lesson Objective: Understand how to read and represent numbers up to 999 (hundreds).
Lesson Vocabulary: Number symbols, number names, base ten, digit, units, tens, hundreds.
Resources: 1000 number board (see ***Printable Resources***), base ten kit (see ***Printable Resources***), flard cards (see ***Printable Resources***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Learners count forwards from 95 to 105, 195 to 205, 295 to 305, 395 to 405 and 495 to 505 in 1s using the 1000 number board.

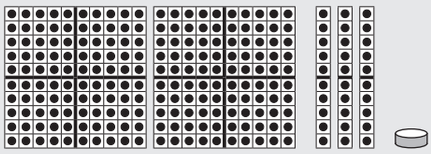
2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners continue to read and write number symbols up to 999. Learners will have an opportunity to represent numbers using base ten kits and flard cards.

Today we are learning to read and write numbers up to 999.

Activity 1: Whole class activity

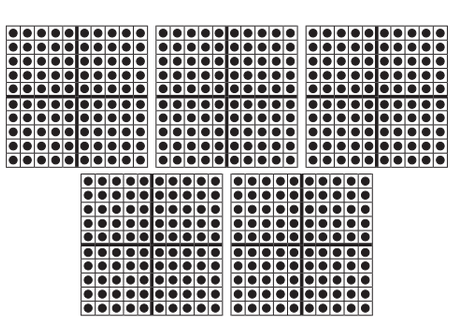
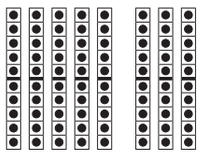
- Show the number 231 using the base ten kit on the board. The display will look like this:



- Ask the learners: **What can you tell me about this number?** (There are 2 hundreds, 3 tens and 1 ones, so the number is 2 hundred and thirty-one.)
- Say: **Write this number using number symbols in your classwork books.** (231)
- Give the learners some time to write the number using number symbols.
- Let some learners write their answers on the board.
- Repeat the activity from the beginning using the base ten kit with other numbers e.g. 869, 197, 958.

Activity 2: Learners work in pairs

- Draw the following place value table on the board.
- Write 582 in the bottom row of the table.
- Show 582 using the base ten kit with the learners. (See below.)
- Confirm with the learners that there are 5 hundreds in the Hundreds place, 8 tens in the Tens place and 2 ones in the Ones place by writing under the base ten kits.

Hundreds	Tens	Ones
		
5 hundreds	**8 tens**	**2 ones**
582		

- Give each pair of learners a set of flard cards
- Ask the learners to show the number 582 using their flard cards.

- Ask the learners to explain why they represented the number in that way. (There are 5 hundreds, 8 tens and 2 ones.)
- Move the flard cards apart to show the hundreds digit as a hundreds number and the tens digit as a tens number. For example, in the example above, the 5 in the hundreds place is shown using a '500' card as 5 hundreds is 500 and the 8 in the tens place is shown using an '80' card as 8 tens is 80.

- Go through the same process with the other numbers, e.g. 415, 283, 819.
- Make sure that you use the *ten* numbers together with the *teen* numbers and look out for learners who confuse these. Discuss the differences and how to read the numbers correctly and interpret what their value is, e.g. 50 and 15.

Activity 3: Learners work in pairs

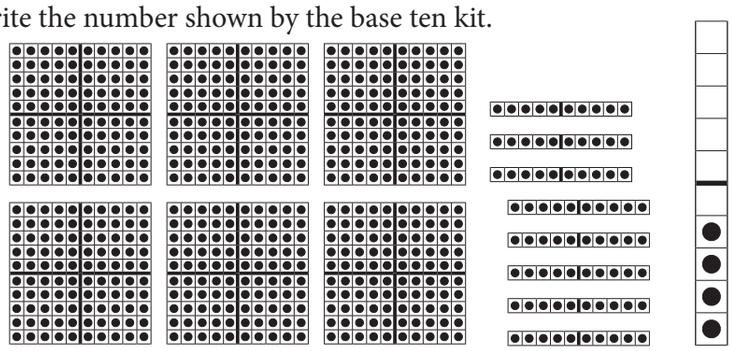
- Ask the learners to use their base ten kits to make different 3-digit numbers.
- The learners then need to discuss what they have done with the person sitting next to them.

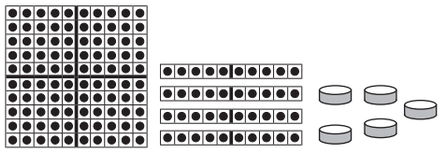
- The learners must then write (in their classwork books) the number symbol shown by their base ten kits.

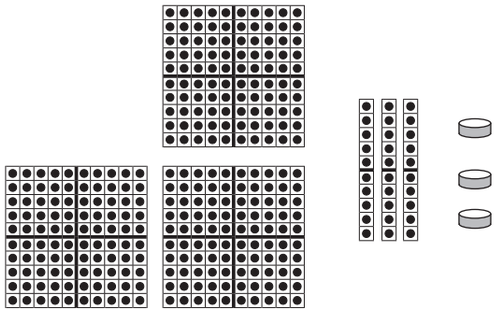
3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Note: In this activity, learners should work with their base ten kits.

1 Write the number shown by the base ten kit.

a  _____ (694)

b  _____ (145)

c  _____ (333)

2 Write using number symbols:

a Seven hundred and thirty-eight. _____ (738)

b One hundred and seventeen. _____ (117)

c The number between 824 and 826. _____ (825)

d The number that is one more than 329. _____ (330)

e The number that is one less than 550. _____ (549)

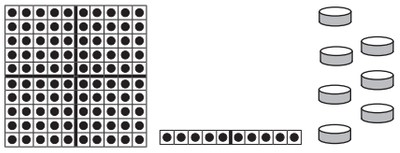
3 Show using flard cards and then write the number symbol.

a 6 hundreds, 3 tens and 4 ones _____ (634)

b 9 hundreds, 1 ten and 7 ones _____ (917)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Write the number shown by the base ten kit.



_____ (117)

2 Write the number names:

a 915 _____ (nine hundred and fifteen)

b 851 _____ (eight hundred and fifty-one)

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 learnt to read and write numbers up to 999.

Lesson 12: 3-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: 1.1 Count objects, 1.3 Number symbols and number names.
Lesson Objective: Represent 3-digit numbers where either the tens or ones are zero. (e.g. 206, 350) – part of reading and writing number symbols up to 999.
Lesson Vocabulary: Number symbols, number names, base ten, digit, units, tens, hundreds
Resources: 1000 number board (see ***Printable Resources***), base ten kit (see ***Printable Resources***), place value table (see ***Printable Resources***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Learners count forwards from 595 to 605, 695 to 705, 795 to 805 and 895 to 905 in 1s using the 1000 number board.

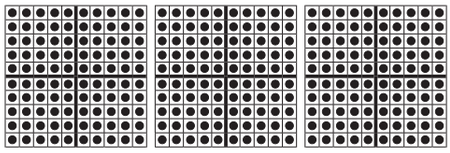
2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners will read and write number symbols up to 999. Learners will have an opportunity to represent numbers using base ten kits. The numbers you select may have a zero as a tens or as a one, helping learners to understand the idea of zero as a place holder.

Today we are learning to read and write numbers up to 999.

Activity 1: Whole class activity

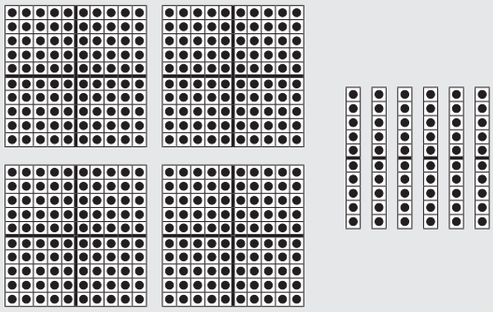
- Learners use their base ten kits and a place value table.
- Say: **This number has 3 hundreds and 2 ones**.
- Ask: **Can you show me the number that has 3 hundreds and 2 ones in a place value table using your base ten kits**.
- Draw the following place value table on the board and write how many hundreds, tens and ones there are for correction.

Hundreds	Tens	Ones
		
3 hundreds	**'0 tens'**	2 ones
302		

- Ask: **How many ones do we have?** (None / Zero).
- Ask: **Do you remember that when there are no tens in the Tens place, we write a zero in the tens place (as we did in the number 302, for example)? So if there are no ones in the ones place, how do we write it?** (We write a zero in the ones place.)
- Give the learners some time to correct their number symbols if necessary.
- Let a learner write 460 in the bottom row of the place value table. The learners should write 460 in their place value table as well**.**
- Ask: **Do we write this number as 46?** (no) **Why?** (Because that is 46. We want 4 hundred (not 4 tens) and 6 tens (not 6 ones), so we need a place holder '0' in the ones place, to show us there are no ones.)
- Confirm**: When there are no ones, a 0 is put where we would write the number of ones, so we write 460.**
- Repeat the activity from the beginning with the base ten kit on a place value table with other numbers that have a zero in the Ones place, e.g. 510, 250 or 980.

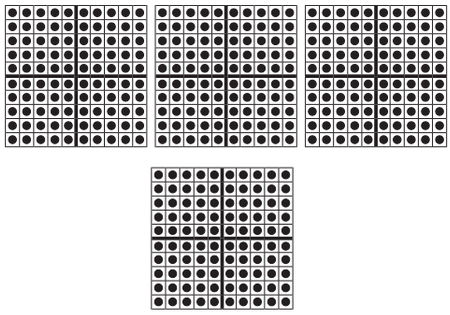
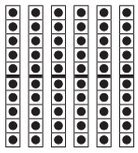
Activity 2: Whole class activity

- Learners use their base ten kits and a place value table.
- Show the number 460 using base ten kits on the board. The display will look like this:



- Ask: **What can you tell me about this number?** (There are 4 hundreds and 6 tens / we don't have ones / we learnt when we don't have any tens we write '0' in the tens place, so when we don't have any ones we write 0 in the ones place).

- Let the learners make the number with base ten kits in their place value tables, saying 4 hundreds in the Hundreds place, 6 tens in the Tens place and 0 ones in the Ones place.
- Ask: **How can we write this number using number symbols?**
- Give the learners some time to write the number using number symbols.
- Draw a place value table and put the base ten kit on it.

Hundreds	Tens	Ones
		
4 hundreds	6 tens	0 ones
460		

- Ask: **How many ones do we have?** (None / Zero).
- Ask: **Do you remember that when there are no tens in the Tens place, we write a zero in the tens place (as we did in the number 302, for example)? So if there are no ones in the ones place, how we do write it?** (We write a zero in the ones place.)
- Give the learners some time to correct their number symbols if necessary.
- Let some learners write their answers on the board.
- Ask: **Do we write this number as 46?** (no) **Why?** (Because that is 46. We want 4 hundred (not 4 tens) and 6 tens (not 6 ones), so we need a place holder '0' in the ones place, to show us there are no ones.)
- Confirm**: When there are no ones, a 0 is put where we would write the number of ones as in 460.**
- Write 460 in the bottom row of the place value table. The learners should write 460 in their place value table as well**.**
- Repeat the activity from the beginning with the base ten kit on a place value table with other numbers that have a zero in the Ones place, e.g. 610, 750 or 180.

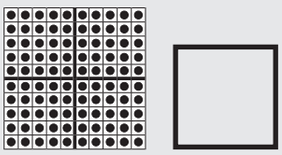
Activity 3: Whole class activity

- Discuss: **Sometimes we may not have our base ten kits with us. What would we do then? Would we not be able to solve problems like the ones we have been solving today?** (We could do something else? We could always try something else. This is a good mathematical habit.)
- Say: **We're going to practise looking at numbers using drawings instead of using the base ten kit.**
- Say: **Let's start by looking at our base ten kits.**

- Ask: **If we look at a bottle top – what could we draw instead that would be quick and easy to draw?** (Learners may provide a variety of answers, but help them to see that a small circle looks similar to a bottle top and is quick and easy to draw.)

- Repeat with the printed full ten frame, helping the learners to see that a line looks similar and is easy to draw. (For the learners who draw sticks as ones, let them discuss if this is a good idea. Hopefully they will realise that it is **not such a good idea** to draw ones as sticks. We should draw a dot to represent 1 and a line to represent 10. This will mean that we don't have to draw so many things when we represent numbers pictorially.)

- Repeat with the printed full hundred frame, helping learners to see that a square looks similar and is easy to draw.



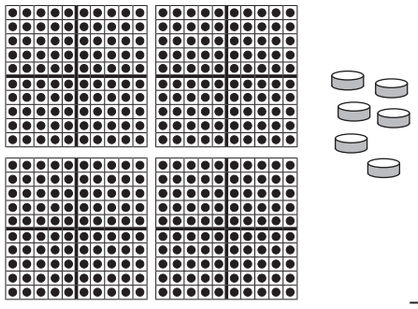
- Ask: **Can you show me 871 using drawings?** (Learners draw 8 squares, seven lines and zero dots.)

- Ask: **What can you tell me about the hundreds in this number?** (There are 8 squares / there are 8 hundreds.)
- Ask: **What can you tell me about the tens in this number?** (There are 7 lines drawn/ there are 7 tens.)
- Ask: **What can you tell me about the ones in this number?** (There is 1 one.)

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

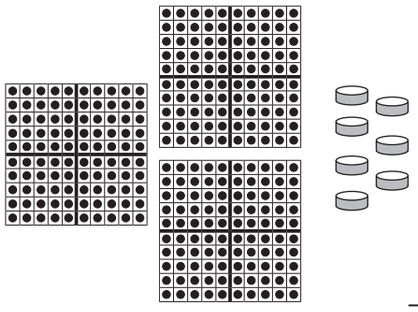
1 Write the number shown by the base ten kit.

a



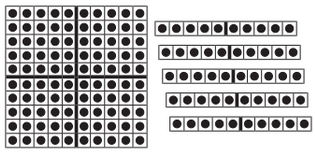
_____ (406)

b



_____ (307)

c



_____ (150)

2 Draw simplified pictorials to show the numbers.

a 435

H	T	O
□□□□	|||	○○○○○

b 569

H	T	O
□□□□□	|||||	○○○○○ ○○○○

c 302

H	T	O
□□□		○○

d 780

H	T	O
□□□□□ □□	||||| |||	

e 200

H	T	O
□□		

3 Write as a number symbol.

a One hundred and eight. _____ (108)

b Three hundred and eighteen. _____ (318)

c Seven hundred and eleven. _____ (711)

d The number between 478 and 480. _____ (479)

e The number that is one more than 699. _____ (700)

f The number that is one less than 900. _____ (899)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Write the number names:

a 145 _____ (one hundred and forty-five)

b 606 _____ (six hundred and six)

2 Write as a number symbol.

a Three hundred and fifty-four. _____ (354)

b Nine hundred. _____ (900)

c Seven hundred and one. _____ (701)

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 learnt to read and write number symbols up to 999.

Lesson 13: Expanded Notation

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.5 Place value.
Lesson Objective: Expanded notation of numbers up to 999.
Lesson Vocabulary: Number symbols, number names, base ten, digit, units, tens.
Resources: 1000 number board (see ***Printable Resources***), place value table (see ***Printable Resources***), flard cards (see ***Printable Resources***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Learners count forwards from 90 to 110, 190 to 210, 290 to 310, 390 to 410 and 490 to 510 in 2s using the 1000 number board.

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners will develop their understanding of expanded notation of numbers up to 999. Learners will have an opportunity to represent numbers using base ten kits. The numbers you select should sometimes have a zero in the tens place or the ones place, helping learners to understand the idea of zero as a place holder.

Today we are learning to read and write numbers up to 999.

Activity 1: Whole class activity

- Make sure that all the learners have a set of flard cards.
- Draw the following place value table on the board.
- Write 451 in the bottom row of the table (as shown).
- Fill in 451 using simplified pictorials with the learners (shown below).

H	T	O
□□□□	|||||	○
451		

- Let the learners draw the place value table and represent 451 using simplified pictorials in their classwork books.
- Ask: **Why did you represent the number in that way?** (There are 4 hundreds, 5 tens and 1 one.)
- Ask: **Which flard cards do you need to represent 451?** (400 50 1)
- Explain and write: **We can also represent 451 as addition.**
  - **This would be done as follows: 451 = 400 + 50 + 1** (on the board)**.**

- Let the learners write 451 = 400 + 50 + 1 under the place value table of 451 in their classwork books.
- Repeat the above activity with 620 and 208.

Activity 2: Whole class activity

- Write **736 has _____ hundreds, _____ tens and _____ ones** on the board.
- Let the learners draw a place value table and represent 736 using simplified pictorials in their classwork books.

H	T	O
□□□□□ □□	|||	○○○○○ ○

- Ask: **What numbers should be in the underlined spaces?** (7 hundreds, 3 tens and 6 ones.)
- Give the learners time to represent 736 in expanded notation in their classwork books. (736 = 700 + 30 + 6)
- Repeat with other numbers, for example: 459, 210, 803.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Write as a number symbol.

a 4 hundreds, 2 tens and 6 ones _____ (426)

b 9 hundreds, 0 tens and 3 ones _____ (903)

c 5 hundreds, 9 tens and 8 ones _____ (598)

d 8 hundreds, 1 ten and 0 ones _____ (810)

e 7 hundreds, 0 tens and 9 ones _____ (709)

2 Draw simplified pictorials to show the numbers.

a 593

H	T	O
□□□□□	||||| ||||	○○○

b 780

H	T	O
□□□□□ □□	||||| |||	

c 601

H	T	O
□□□□□ □		○

3 Write the following numbers in expanded notation:

a 280 = _____ (200 + 80)

b 156 = _____ (100 + 50 + 6)

c 701 = _____ (700 + 1)

4 Write the number symbol:

a Between 789 and 791. _____ (790)

b That is one more than 899. _____ (900)

c That is one less than 700. _____ (699)

4 HOMEWORK ACTIVITY (5 MINUTES)

Write the number symbol:

1 3 hundreds, 9 tens and 0 ones _____ (390)

2 7 hundreds, 1 ten and 2 ones _____ (712)

3 5 hundreds, 0 ten and 6 ones _____ (506)

4 8 hundreds, 4 tens and 0 ones _____ (840)

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 learnt to use the expanded notation of numbers up to 999.

Lesson 14: Assessment

Teacher's notes
This lesson should be used for assessment of the content covered in this unit to date.
CAPS topics: 1.1 Count objects, 1.3 Number symbols and number names, 1.5 Place value.
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 (15 MARKS)

1. Write using number symbols. (3)

a 3 hundreds, 6 tens and 0 ones _____ (360)

b 8 hundreds, 0 tens and 5 ones _____ (805)

c 4 hundreds, 1 ten and 2 ones _____ (412)

2 Draw simplified pictorials to show the numbers. (9)

a 836

H	T	O
□□□□□ □□□	|||	○○○○○ ○

b 620

H	T	O
□□□□□ □	||	

c 409

H	T	O
□□□□		○○○○○ ○○○○

3 Write using number symbols. (3)

a Seven hundred and ten. _____ (710)

b The number after 559. _____ (560)

c The number before 990. _____ (989)

Lesson 15: How many tens?

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.5 Place value.
Lesson Objective: Understand how many tens make up a number.
Lesson Vocabulary: Number symbols, number names, base ten, digit, tens.
Resources: Base ten kit (see ***Printable Resources***), 1000 number board (see ***Printable Resources***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Learners count forwards from 590 to 610, 690 to 710, 790 to 810 and 890 to 910 in 2s using the 1000 number board.

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This lesson focuses on multiples of ten. The activities consolidate learners' knowledge of place value, multiplication and multiples of 10. The learners will practise how many tens make up a particular number using their base ten kits.

Today we are learning how to find out how many tens make up a number. For example there are 4 tens in 40.

Activity 1: Learners work in pairs

- Give each pair of learners a base ten kit.
- Let each pair set out 15 tens using their printed tens.
- Ask: **How much does 15 tens give us?** (150)
- Let a learner explain their answer using their base ten kit.
- Discuss with the learners that 10 tens is a hundred, but you still have 5 tens left over, so 15 tens is 150.
- Repeat this exercise with 16 tens, 32 tens and 50 tens. (160, 320 and 500)
- Allow a different learner to write the answer each time.

Activity 2: Whole class activity

- Write the number symbols 40 and 200 on the board.
- Ask: **How many 10s are there in 40? How many in 200?**
- Let the learners draw tens as simplified pictorials to represent 40 and 200 in their classwork books.

|||| ||||| |||||
(4 tens) ||||| ||||| (20 tens)

- Ask different learners to demonstrate their answers using their base ten kits.
- Repeat with 80, 370 and 400.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Fill in the missing numbers.

a	There are	(18)	tens in	180
b	There are	(25)	tens in	250
c	There are	(32)	tens in	320
d	There are	(70)	tens in	700
e	There are	14	tens in	(140)
f	There are	21	tens in	(210)
g	There are	36	tens in	(360)
h	There are	60	tens in	(600)

2 Circle the correct answer:

a 240 is 22 or (24) groups of 10.
b 390 is 30 or (39) groups of 10.
c 850 is (85) or 87 groups of 10.
d 560 is (56) or 55 groups of 10.
e 910 is 90 or (91) groups of 10.

4 HOMEWORK ACTIVITY (5 MINUTES)

Fill in the missing numbers.

a	There are	(15)	tens in	150
b	There are	(23)	tens in	230
c	There are	19	tens in	(190)
d	There are	20	tens in	(200)

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 learnt to find out how many tens make up a number.

Week 4

Lesson 16: Ordering numbers to 999

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.2 Count forwards and backwards; 1.4 Describe, compare and order numbers, 2.2 Number patterns.
Lesson Objective: Order (sequence) numbers up to 999.
Lesson Vocabulary: Forwards, backwards, number names, hundreds, tens, ones, number line.
Resources: 1000 number board (see ***Printable Resources***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Learners count forwards from 80 to 120, 180 to 220, 280 to 320, 380 to 420 and 480 to 520 in 5s using the 1000 number board.

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This lesson focuses on getting learners to count forwards and backwards in 1s and 10s. Counting is useful because counts of multiples can be used to generate number patterns. Remember that counting in itself does not teach conceptual understanding but it can help establish patterns that lay the foundation for conceptual understanding. Counting that bridges the ones to the tens, or from one ten to another, or from the tens to the hundreds place can be used to establish understanding about numbers and place value.

Today we are going to count forwards and backwards up to 999 in 1s and in 10s while thinking about place value.

Activity 1: Whole class activity

- Draw the following number lines on the chalkboard. The number lines are also in the LAB.

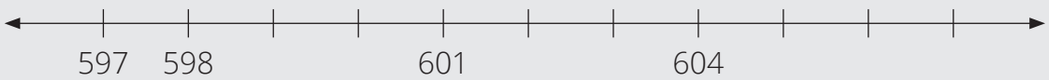
(261, 262, 263, 264, 265, 266, 267, 268, 269, 270)
(270, 280, 290, 300, 310, 320, 330, 340, 350, 360)

(570, 571, 572, 573, 574, 575, 576, 577, 578, 579)
(480, 490, 500, 510, 520, 530, 540, 550, 560, 570)

- Ask: **What number will come after 260 when you count forwards in 1s?** (261)
- Let the learners complete the number line counting forwards in 1s.
- Select learners to come to the board to complete the number line.
- Ask: **What number will come after 260 when you count forwards in 10s?** (270)
- Let the learners complete the number line counting forwards in 10s.
- Select learners to come to the chalk board to complete the number line.
- Ask: **What do you notice about these numbers?** (We are counting in 10s/ multiples of 10)
- Ask: **What number will come before 580 when you count backwards in 1s?** (579)
- Let the learners complete the number line counting backwards in 1s.
- Select learners to come to the board to complete the number line.
- Ask: **What number will come before 580 when you count backwards in 10s?** (570)
- Let the learners complete the number line counting backwards in 10s.
- Select learners to come to the board to complete the number line.

Activity 2: Whole class activity

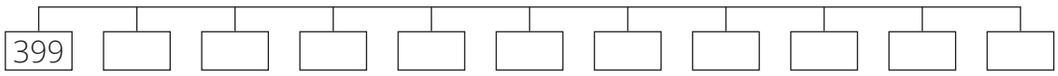
- Draw a number line from 597, 598, … , on the board, leaving out some numbers as follows. The number line is also in the LAB.



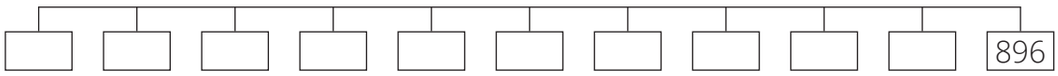
- Let the learners work on it individually.
- Ask a learner to come up to the board to fill in the missing numbers.
- Say: **Tell me about the numbers on the board.** (The numbers get bigger by 1 / counting forwards.)
- Circle the number **601**. Ask the learners to read the number.
- Ask: **Can you give me a number from the number line that is smaller than 601?** (any number from 597 to 600) **and a number that is bigger than 601?** (any number from 602 to 607)**?**
- Ask: **Are those the only two answers?** (No, 600, 599, 598 and 597 are *smaller than* 601, and 602, 603, 604, 605, 606 and 607 are *greater than* 601.)
- Cover the number line. Write the numbers from **597** to **607** randomly on the board. Ask the learners to give you the numbers from the *smallest number* to the *biggest number.* (Uncover the number line for the learners to check their answers.). Then do the same from the biggest number to the smallest number.
- Repeat with different numbers; 745 to755, 892 to 902, and 908 to 920. Correction is done on the 1000 number board each time.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Count forwards in 1s. Fill in the missing numbers on the number line.



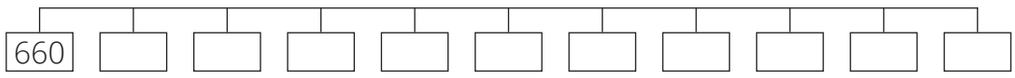
(400, 401, 402, 403, 404, 405, 406, 407, 408, 409)



(886, 887, 888, 889, 890, 891, 892, 893, 894, 895)

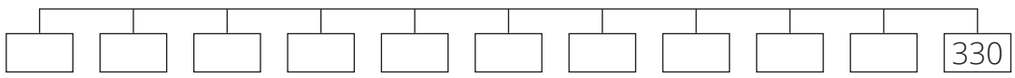
2 Count forwards in 10s. Fill in the missing numbers on the number line.

a



(670, 680, 690, 700, 710, 720, 730, 740, 750, 760)

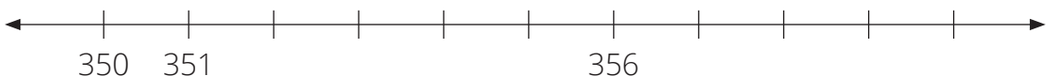
b



(230, 240, 250, 260, 270, 280, 290, 300, 310, 320)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Fill in the missing numbers on the number line.



(352, 353, 354, 355, 357, 358, 359, 360)

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 learnt to count forwards and backwards up to 999 in 1s and in 10s while we think about place value.

Lesson 17: Comparing and ordering numbers to 999

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.2 Count forwards and backwards; 1.4 Describe, compare and order numbers, 2.2 Number patterns.
Lesson Objective: Compare and order numbers to 999.
Lesson Vocabulary: Forwards, backwards, hundreds, tens, ones, less than, greater than.
Resources: 1000 number board (see ***Printable Resources***), base ten kit (see ***Printable Resources).***
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Learners count forwards from 580 to 620, 680 to 720, 780 to 820 and 880 to 920 in 5s using the 1000 number board.

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners will compare and order numbers up to 999. It is important for learners to realise that, when determining the size of a number, they must first look at the hundreds number. If the numbers being compared have the same number of hundreds, then the learners should look at the tens number and so on.

Today we are learning to sequence and compare numbers up to 999.

Activity 1: Whole class activity

- Write the following numbers on the chalk board: 347 (Red), 289 (Blue) and 350 (Yellow).
- Say: **These are the results at the end of the school sports day.**
- Ask:
  - **Which team won the event?** (Yellow)
  - **Which team came third?** (Blue)
  - **Which team came second?** (Red)
- Ask: **How do you know the Blue team came third?** (You have to compare the scores.)
- Discuss with the learners how to compare 347 and 289.
- Write 347 and 289 vertically in the place value table as follows:

	H	T	O
Blue	**2**	**8**	**9**
Red	**3**	**4**	**7**

- Explain: **When you compare numbers, you start by comparing the highest place, which is the hundreds in this case. The Red team scored 347 and the Blue team**

scored 289. The hundreds are different (300 and 200) so we can compare and find the bigger number by looking at the hundreds place.

- Ask: **How do you know the yellow team is the winning team?**
- Ask: **Can we compare the scores of the red and the yellow teams in the hundreds place?** (No, both the red and yellow teams got the same number (300) in the hundreds place.)
- Discuss with the learners which place they have to compare in this case (tens place).
- Write 347 and 350 vertically in the place value table as follows:

	H	T	O
Red	**3**	**4**	**7**
Yellow	**3**	**5**	**0**

- Let the learners explain that the Yellow team scored 350 and the Red team scored 347. The hundreds are the same (300) but the tens are different (40 and 50), so 350 is bigger than 347.

Activity 2: Whole class activity

- Write two numbers on the board, for example: 429 and 392
- Let the learners draw a place value table and represent both numbers vertically in it using simplified pictorials.

H	T	O
□□□□	||	○○○○○ ○○○○
□□□	||||| ||||	○○

- Ask: **Which number is bigger – 392 or 429?** (429)
- Ask: **Why do you say so?** (392 has 3 hundreds and 429 has 4 hundreds. 4 hundreds are more than 3 hundreds)
- Say: **When we compare the numbers, we say 429 is bigger/greater than 392.**
- Write two the numbers 327 and 372 on the board.
- Let the learners draw a place value table and represent both numbers vertically in it using simplified pictorials.

H	T	O
□□□	||	○○○○○ ○○
□□□	||||| ||	○○

- Ask: **Which number is smaller – 327 or 372?** (327) **Why do you say so?** (327 has 3 hundreds and 372 also has 3 hundreds, so they have the same number of hundreds. We therefore need to compare the tens. 327 has 2 tens and 372 has 7 tens. Hence, 327 is smaller.)

- Say: **We have shown that 327 is smaller/less than 372.**

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learners can draw the place value table and write the numbers into it to complete these activities. As the teacher, you need to move around the classroom and observe the learners as they work, ensuring that they write the numbers in each place correctly. Take time to discuss what the learners are doing, letting them verbalise their actions to show their understanding.

1 Underline the smaller number:

a 459 or 549
b 321 or 221
c 699 or 966
d 211 or 112
e 578 or 576

2 Underline the bigger number:

a 691 or 672
b 187 or 178
c 970 or 974
d 342 or 345
e 983 or 981

3 Write these numbers from the smallest number to the biggest number:

145, 457, 45 _____ (45, 145, 457)

4 Write the following numbers from the biggest number to the smallest number:

130, 310, 301 _____ (310, 301, 130)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Underline the bigger number:

a 618 or 816
b 445 or 455
c 739 or 737

2 Write these numbers from the smallest number to the biggest number:

111, 101, 121 _____ (101, 111, 121)

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 learnt to sequence and compare numbers up to 999.

Lesson 18: Assessment

Teacher's notes
This lesson should be used for assessment of the content covered in this unit to date.
CAPS topics: 1.2 Count forwards and backwards; 1.4 Describe, compare and order numbers, 1.5 Place value, 2.2 Number patterns.
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 (15 MARKS)

NUMBERS TO 999 (11)

1 Write using number symbols. (3)

a 3 hundreds, 6 tens and 0 ones _____ (360)

b 8 hundreds, 0 tens and 5 ones _____ (805)

c 4 hundreds, 1 ten and 2 ones _____ (412)

2 Fill in the missing numbers. (6)

a	836	has	(8)	hundreds	(3)	tens	(6)	ones
b	620	has	(6)	hundreds	(2)	tens	(0)	ones

3 Solve the following: (2)

a Write the following numbers from the smallest number to the biggest number: (1)

220, 202, 222 _____ (202, 220, 222)

b Write the following numbers from the biggest number to the smallest number: (1)

302, 323, 333 _____ (333, 323, 302)

PATTERNS (4)

4 Complete these patterns: (2)

a 440, ___, 442, 443, ___, 445. (441, 444)

b 299, ___, ___, 302,303. (300, 301)

5 Complete these patterns: (2)

a 260, 270 ___, 290, ___, ___, 320. (280, 300, 310)

b 620, 610, ___, ___, 580, ___, 560. (600, 590, 570)

ORAL AND PRACTICAL

CAPS: Patterns **Activity: Observe learners' ability to count in 1s, 2s, 5s and 10s and extend patterns in the number range to 999**		**Mark: 7**
Mark	**Criteria – Checklist: (1 mark for each criterion achieved)**	
1	Able to count competently in 1s in the number range to 999	
1	Able to count competently in 2s in the number range to 999	
1	Able to count competently in 5s in the number range to 999	
1	Able to count competently in 10s in the number range to 999	
1	Able to extend increasing patterns of 1s and 2s in the range to 999	
1	Able to extend decreasing patterns of 1s and 2s in the range to 999	
1	Able to fill in missing numbers in increasing and decreasing patterns of 1s and 2s in the range to 999	

Unit 3 Introduction

In this unit, learners will learn about South African money. Money skills are an important part of our lives and learners need to understand the properties of money. Often, learners find this section of mathematics to be one of the easier ones as they use money in their daily lives. In this unit, learners will revise the coins and notes and their values. They will also work out money totals and change using real life word problems.

In this unit, you will focus on the four framework dimensions in the following ways:

- **Conceptual understanding**: In this unit, learners develop their conceptual understanding through practising procedures and verbalising their thoughts, strategies and solutions. As the learners verbalise, they are able to develop their own understanding further.
- **Procedural fluency**: Learners work with money problems that are presented in similar ways so that they can become more confident in using the various solution strategies. This should increase their ability to solve problems more fluently, i.e. quickly and easily.
- **Strategies**: Learners need to understand and develop strategies to solve money problems. Learners should be encouraged to verbalise their solutions to problems so that they can see other ways of finding answers. In this unit, learners will develop their understanding of finding change and totals with South African money.
- **Reasoning**: Learners are encouraged to talk about their understanding of concepts and solutions, and to provide explanations and reasons for the methods they use to find solutions.

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

- **Applying maths in context**: The word problems in this unit enable learners to see the relevance of money in a real-life context. Learners apply maths in context as they select strategies to solve these word problems.
- **Problem Solving**: In this unit learners are given opportunities to develop their problem solving skills as they discuss money word problems, and select strategies to solve them.

Lesson 19: Money (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.11 Money.
Lesson Objective: Recognise and identify the South African coins (10c, 20c, 50c, R1, R2, R5) and bank notes (R10, R20, R50).
Lesson Vocabulary: Cents, rand, change, coins, notes, total, change, more, less.
Resources: Money cut-outs (coins and notes) (see ***Printable Resources***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	If I count in 100s, give me the number before:	Answer		If I count in 100s, give me the number before:	Answer
1	400	300	**6**	250	150
2	500	400	**7**	100	0
3	150	50	**8**	450	350
4	250	150	**9**	800	700
5	550	450	**10**	200	100

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the first of two lessons on money. In this lesson, the learners experience working with money by participating in activities that involve identifying the coins and notes and working out totals and change.

Today we are learning about South African money.

Activity 1: Learners work in groups

- Give each group cut-outs of the following coins and notes: 10c, 20c, 50c, R1, R2, R5, R10, R20, and R50.
- Ask them to show you the following: the coins that will make up 20c, the coins that will make up R1, the coins that will make up R10, the notes that will make up R20, the coins and notes that will make up R20 and the coins and notes that will make up R50.
- After each exercise ask the learners if the answer they gave you is the only correct answer. (There will usually be many different ways to make up an amount of money. Try to get as many different ways as possible by asking lots of learners to give different answers.)

- Discuss how various coins and notes can be used.
- The learners will sometimes be limited in their answers because of the coin and note cut-outs they have received but they could talk about other possible ways if they share resources between the groups.

Activity 2: Whole class activity

- In this activity you work through some different word problems that involve money. The problems involve addition, subtraction, repeated addition (multiplication) and sharing.
- Each time you do a problem, work through it step by step with the class, discussing how you read the problem carefully to find out what to do in order to solve the problem.
- The discussion should involve identifying the numbers involved in the question and the operation that must be used to solve the problem. Make use of money cut outs to demonstrate the problem solving process.
- Here are 4 suggested problems for you to work through with the whole class. You should make up some more problems if you think the class needs more practice before they do the individual classwork activity.
  1. Busi has R30. Her mom gives her R10,50. How much money does she have now? (Addition is needed to solve the problem. The answer is R40,50.)
  2. Jabu has R1,70. He buys a sweet for 90c. How much money does he have left? (Subtraction is needed to solve the problem. The answer is 80c.)
  3. I have 50c. Can I share it equally amongst 5 children? (Sharing is needed to solve the problem. The answer is yes. Each child will get 10c.)
  4. Toffees cost 50c each. Thola bought 5 toffees. How much did she spend? (Repeated addition (multiplication) is needed to solve the problem. The answer is R2,50)

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: In this activity learners can use the money cut-outs if they would like to when they solve the problems.

1. Thandi has 10c. Her mom gives her 90c. How much money does she now have? _____ (100c/ R1,00)
2. I have R1,20. I buy a sweet for 60c. How much money do I have left? _____ (60c)
3. I have 40c. Can I share it equally amongst four children? _____ (Yes – each child will get 10c.)
4. Toffees cost 10c each. Busi spent 50c buying toffees. How many toffees did she buy? _____ (5)
5. A fizz pop costs R2,50. Palesa wants to buy 4 fizz pops.
   a. She has R8. Can she buy four fizz pops? _____ (No because 5 fizz pops will cost R10.)
   b. How much more money does Palesa need in order to buy the 4 fizz pops? _____ (She needs R10 and she only has R8 so she needs R2 more.)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Ask someone at home to show you some coins from their wallet. How much money did they take out of their wallet? (Learners' answers will vary.)

2 I have R15. I buy a packet of chips for R2, 50 and a Fanta Orange for R8.

- **a** How much do I have to pay? _____ (R10, 50)
- **b** Do I get any change? _____ (yes)
- **c** If so, how much? _____ (There is R4,50 change.)

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 learnt about South African money.

Lesson 20: Money (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.11 Money.
Lesson Objective: Solve money problems involving totals and change in cents up to 90c or rands up to R99.
Lesson Vocabulary: Rands, cents, coins, bank notes, total, change, more, less.
Resources: Money cut-outs (coins and notes) (see ***Printable Resources***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	If I count in 50s, give me the number before:	Answer		If I count in 50s, give me the number before:	Answer
1	400	350	**6**	250	200
2	50	0	**7**	100	50
3	150	100	**8**	450	400
4	250	200	**9**	500	450
5	550	500	**10**	200	150

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

Money problems give a context in which to solve problems that involve operations of all kinds. When doing these problems with learners, part of your aim is to familiarise them with South African money and the other part is to give them an opportunity to do calculations in context. You should focus on the way in which they interpret the problems as well as the way in which they find the solutions. Money problems provide an opportunity for learners to see Maths in action/relevant to their own lives.

Today we are learning to solve money word problems.

Activity 1: Whole class activity

- Write the following money problem on the board or read it to the class.
- Suzanne spent R1,20 on sweets that cost 20c each. How many sweets did she buy?
- Say: **We are going to think about: What is the key word? What is the question? What are the numbers?** (We will answer these questions one at a time in this lesson.)
- Draw a picture on the board to show how the money is divided up to buy the sweets.
- Answer these questions step-by-step with your learners, as shown in the table below:

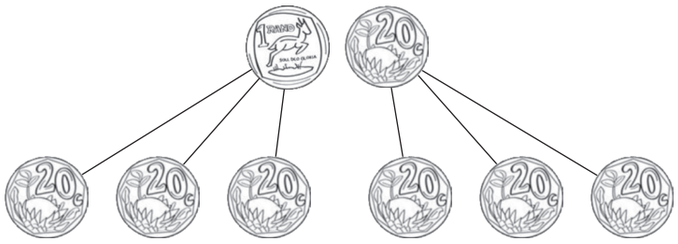
Suzanne spent R1,20 on sweets that cost 20c each. How many sweets did she buy?

What is the question?
How many sweets did she buy?

What are the numbers?

- R1,20 spent
- 20c per sweet

Draw a picture:



Solution:

Suzanne bought 6 sweets.

Activity 2: Whole class activity

- Work through another money problem with the class. Use guiding questions to help them interpret the problem and think of a way to solve it.
- Tanya pays R80 to get to school each month. She pays with R90. How much change does she receive?
- Ask: **What is the key word? What is the question? What are the numbers?**
- Number sentence:
  R90 – R80 = R10
- She will get R10 change.

Activity 3: Whole class activity

Heila sells hotdogs for R4 each. Make a table to help her find the costs for large orders.

-

Number of hotdogs	1	2	3	4	5	6	7	8	9	10
Cost in rands	4	8	12	16	20	24	28	32	36	40

- Show the learners how to read the table to find out the costs of large orders.
  For example,
  - **If she sells 4 hotdogs, she gets R____? (R16)**
  - **If she sells 7 hotdogs, she gets R____? (R28)**
  - **If she sells 9 hotdogs, she gets R____? (R36)**

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Naledi spent R1,80 on sweets that cost 20c each. How many sweets did she buy? (She bought 9 sweets.)

2 Peter babysits. He charges R5 per hour for babysitting. Complete this table for him.

Number of hours	1	2	3	4	5	6	7	8	9	10
Cost in rands	(5)	(10)	(16)	(20)	(25)	(30)	(35)	(40)	(45)	(50)

4 HOMEWORK ACTIVITY (5 MINUTES)

Ntombi pays R10 to get to school in the morning. She pays with a R20 note.

a How much change does she receive? (R10 change in the morning)

b How much money will she have left when she gets home? (R0 when she gets home)

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 learnt to solve money word problems.

Week 5

Lesson 21: Assessment

Teacher's notes
This lesson should be used for assessment of the content covered in this unit to date.
CAPS topics: 1.11 Money.
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 MARKS)

1 Circle the four coins that will make up 50c. (1)

(Circle 20c, 10c, 10c, 10c)

2 Write the values on the three notes to make up R30. (1)

(Write R10 on each note)

3 Buhle spent 60c on sweets. Each sweet cost 10c. How many sweets did she buy? You can draw a picture to show your answer. (2)
(6 sweets)

4 Jabu buys a toy car for R13,75 and pays with a R20 note. How much change will he get? (2)
(R20, 00 – R13, 75 = R6, 25)

5 Phindi babysits. She charges R4 per hour for babysitting. Complete this table for her. The first one has been done for you. (4)

Number of hours	1	2	5	8	10
Cost in Rands	4	(8)	(20)	(32)	(40)

Unit 4 Introduction

This unit focuses on 3-D objects. *3-D objects* are also called *three-dimensional shapes.* They have length, width and depth. During this unit, the learners will explore the properties of the following 3-D objects: prims, spheres and cylinders. Some activities involve recognising, naming and describing 3-D objects while others involve comparing and sorting 3-D objects. The learners are also given an opportunity to build 3-D objects which supports the dimensions outlined in the framework.

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 3 – D objects and their properties.
- **Strategies**: Learners will discover how to work with the properties of 3-D objects.
- **Reasoning**: Learners will be able to justify and explain relationships between objects using the properties of 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.

Lesson 22: Ball and box shapes

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, sort and compare 3-D objects (balls and boxes) in terms of size, objects that roll and objects that slide.

Lesson Vocabulary: 3-D objects, double, small, smaller, smallest, big, bigger, biggest, ball shapes, box shapes, roll, slide, cubes, spheres.

Resources: A range of balls, books, boxes, marbles (all different sizes & colours), pictures of boxes, balls and bricks from old magazines/advertisements for cutting out pictures (collect).

Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Write the numbers from smallest to biggest.

		Answer			Answer
1	8, 5, 9	5, 8, 9	**6**	39, 9, 29	9, 29, 39
2	14, 11, 15	11, 14, 15	**7**	34, 43, 33	33, 34, 43
3	21, 19, 23	19, 21, 23	**8**	29, 11, 37	11, 29, 37
4	40, 14, 41	14, 40, 41	**9**	50, 38, 47	38, 47, 50
5	24, 42, 41	24, 41, 42	**10**	24, 31, 9	9, 24, 31

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

There are five lessons on 3-D objects this term. In this lesson it is important that you do the activities using the real objects that you have collected. You should allow the learners to hold and examine the objects. Speak to the learners about the differences between ball and box shapes – show them how ball shapes can roll and box shapes can slide because of the nature of their sides.

Today we are learning about ball and box shapes.

Activity 1: Whole class activity

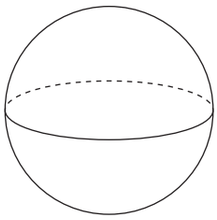
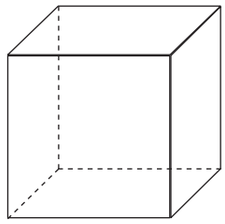
- Display the 3-D objects that you have collected in front of the class. If you did not collect shapes, show learners pictures of shapes. However, it is MUCH better if you can show them real examples of shapes.
- Compare and describe 3-D objects; learners compare the sizes of similar objects.
- Ask the learners to order two different balls according to size.
- For example: The ball on the left/right is bigger than the ball on the right/left.

	
Ball	Smaller ball

- They should use the language of size to compare objects, namely: *big*, *bigger*, *biggest*, *small*, *smaller* and *smallest*.

		
Biggest ball		Smallest ball

- Reinforce this language by using other objects that can be compared, e.g. books of different sizes and pencils of different lengths.
- Ask the learners to compare the colours of similar objects and then sort the coloured balls/boxes.
- They should practise identifying and naming both the objects and their colours, as well as comparing sizes of objects, e.g. the red ball is *bigger* than the blue ball.
- Learners name the balls as spheres and the boxes as cubes/prisms.
- A ball is called a sphere in mathematics.
- A box can be called a cube/prism in mathematics.
- Discuss the properties of a sphere and a cube/prism.
- Refer to the drawings in the LAB.

	
Sphere (ball shape)	Cube (Box shape/prism)

- Compare the edges. (The cube has straight edges and the sphere has round edges)
- Consider if they will roll or slide. (The cube can slide and the ball can roll. The cube cannot roll and the sphere does not slide.)

Activity 2: Whole class activity

- Put your collection of different sized 3-D objects into a plastic or material bag.
- This bag is your *Mystery Bag*.
- Choose a learner to come to the front of the class.
- The learner picks an object out of the bag without looking.
- The learner the looks at the object and describes the object to the class in terms of size, colour, types of surfaces and whether it rolls or slides.
- Allow as many learners as possible to participate in the game. Return the shapes to the bag once they have all been taken out of the bag if you want to reuse them in order to play the game for longer.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Draw a picture of a box shape and a ball shape. (One of each shape should be drawn.)
2 Give the names of two 3-D objects you can see in the classroom (e.g. a box and a ball on the teacher's desk).
3 Do they have round or straight edges? (Learners' answers will vary e.g. the box has straight edges and the ball has round edges.)
4 Say if the following will roll or slide:
   a a ball (roll)
   b a box (slide)

4 HOMEWORK ACTIVITY (5 MINUTES)

NOTE: Learners' answers will vary. Check that they have answered the questions correctly and discuss as needed.

1 Find 3 different objects in your kitchen at home that are ball shaped.
2 Put the objects in order from the smallest object to the biggest object and then draw them.
3 Find 3 different box shaped objects in your bedroom/any room at home.
4 Put the objects in order from the biggest object to the smallest object and draw them.

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 learnt about ball and box shapes.

Lesson 23: Building with 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: Build 3-D objects from materials (experiment with ball and box shapes).
Lesson Vocabulary: 2-D shapes, 3-D objects, incline, slide, roll, on top, underneath, prediction.
Resources: A range of cardboard boxes, building blocks, books, small balls, empty matchboxes (collect beforehand, asking learners to bring too).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Which number is bigger?

		Answer			Answer
1	244 or 188	244	**6**	278 or 287	287
2	128 or 282	282	**7**	398 or 389	398
3	213 or 243	243	**8**	337 or 373	373
4	363 or 336	363	**9**	230 or 233	233
5	320 or 230	320	**10**	307, 377 or 337	377

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the second lesson on 3-D objects this term. In this lesson the learners will experiment with building a variety of structures using ball and box objects. It is important that the learners continue to use the real objects in order to discover and understand the properties of the 3-D objects.

Today we are learning about building structures using ball and box shaped objects.

Activity 1: Learners work in groups

- Give each group a book, a ball and a number of matchboxes.
- Ask the learners to make a slide or incline by placing some matchboxes under one end of a large book.
- Learners can now experiment to see whether objects will slide or roll down the incline.
- The ball rolls down and the box slides down.

Activity 2: Learners work in groups

- Give each group some boxes and some ball shapes.
- Learners should experiment to see whether you can make towers by using only balls and boxes or a mixture of the two kinds of shapes.
- Ask learners: **Can you build a tower using balls and boxes?**
- Ask learners to predict if it is possible – and how. Discuss and note the learners' predictions.
- The learners should then try it out. After they have spent some time experimenting, ask the following questions:
- Ask: **Can you build a tower using balls?** (no)
- Ask: **Can you build a tower using balls and boxes?** (no)
- Ask: **Can you build a tower using boxes?** (yes)
- Discuss if their predictions were correct. If not, why not? Discuss.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1. Can you build a tower with 4 different sized boxes and 2 different sized balls? (You can build a tower with the boxes but not with the balls, because the balls will roll off.)
2. Can you build a tower just with balls? Why or why not? (No you can't, not without something to keep the balls in place.)
3. Can you build a tower with just boxes? Why or why not? (Yes, depending on their shape. If they do not fit on top of each other and balance it may be a problem but otherwise it should work.)
4. Draw a tower made of 4 boxes. (Drawing with four boxes making a tower)
5. Draw your own picture using balls and boxes. (Answers will vary.)

4 HOMEWORK ACTIVITY (5 MINUTES)

NOTE: Learners' answers will vary. Check that they have answered the questions correctly and discuss as needed.

1. Name 3 ball shaped objects in your house.
2. Name 3 box shaped objects in your house.

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 learnt about building structures using ball and box objects.

Lesson 24: Cylinders

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: To identify and describe geometric and everyday objects that look like cylinders, spheres and prisms.
Lesson Vocabulary: 3-D objects, balls, boxes, cylinders, geometric objects, prism, sphere, roll, slide, flat surface, curved surface, ball-like, box-like, cylinder-like.
Resources: Ball-shaped objects, box-shaped objects, cylinder-shaped objects that you have collected.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Write down the following numbers in order from the biggest number to the smallest number:

		Answer			Answer
1	8, 5, 9	9, 8, 5	**6**	134, 136, 135	136, 135, 134
2	14, 11, 15	15, 14, 11	**7**	156, 158, 157	158, 157, 156
3	21, 19, 23	23, 21, 19	**8**	134, 143, 123	143, 134, 123
4	12, 14, 10	14, 12, 10	**9**	179, 199, 189	199, 189, 179
5	67, 50, 82	82, 67, 50	**10**	129, 130, 131	131, 130, 129

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

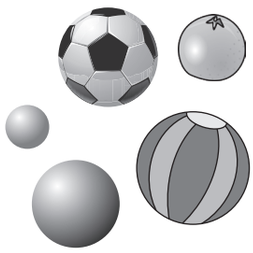
This is the third lesson on 3-D objects. In this lesson learners will be introduced to the cylinder. Let the learners look at cylindrical shapes and think about how these are similar to/different from ball and box shapes. This is an important first step in classifying spheres (ball shapes), prisms (box shapes) and cylinders. It is important that you do the activities with the real objects that you have collected.

Today we are learning about cylinders, spheres and prisms.

Activity 1: Whole class activity

- Give the learners different kinds of 3-D objects randomly at their desks, e.g.

- Give the learners the opportunity to discuss and touch these objects.
- Ask them to sort these objects into three different groups: balls and ball-like objects; boxes and box-like objects; cylinders and cylinder-like objects. You will need to explain each 3-D shape.
- The ball-like objects are round – they are called spheres.
- The box-like shapes have flat surfaces – they are called prisms.
- The cylinder shapes have two flat circular surfaces and one curved surface.
- Point to each object and ask the learners to name it. (This is a box/ball/cylinder.)

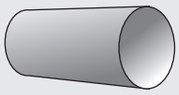
Balls and ball-like objects	Boxes and box-like objects	Cylinders and cylinder-like objects
		

Activity 2: Whole class activity

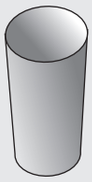
- Ask the learners if they can remember what roll and slide mean?
- Ask them:
  - **Will a ball roll or slide?** (Roll.)

- **Will a box roll or slide?** (Slide.)
- **What do you think will happen with a cylinder?** (When on its side it will roll, when standing upright it will slide.)

- Show the learners how a cylinder can roll and how it can slide:



It will roll on the curved side.



It will slide on the flat side.

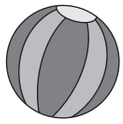
- Discuss what shapes will roll/slide and why.
- Discuss how the type of surface determines whether the shape can roll or slide:
  - Curved surface – rolls.
  - Flat surface – slides.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Name these objects:

(cylinder)

(box)



(ball)

2 Do these shapes roll or slide?

(roll)

(slide)

(roll and slide)

(roll and slide)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Find and cut out or draw pictures cylinders and cylinder-like objects.
2 Sort and stick the objects you found from smallest to biggest (or make drawings).

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 learnt to about cylinders, spheres and prisms.

Lesson 25: Comparing 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: Recognise, name and work with 3-D objects in the classroom and in pictures, e.g. ball shapes (spheres), box shapes (prisms) and cylinders.
Lesson Vocabulary: 3-D objects, balls, boxes, cylinder, geometric object, describe, compare, size, sort, slide, roll, box-shaped, ball-shaped.
Resources: 3-D objects, magazines/newspapers/advertisements, toilet roll inners.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

What is ten more than ... ?

		Answer			Answer
1	51	61	**6**	37	47
2	43	53	**7**	71	81
3	77	87	**8**	40	50
4	63	73	**9**	23	33
5	48	58	**10**	54	64

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the fourth lesson on 3-D objects. In this lesson learners will be given the opportunity to describe, sort and compare 3-D objects. The learners will consolidate their knowledge of 3-D objects. They will discuss properties of the objects such as their size and whether they are able to roll or slide. In the first activity learners play with real 3-D objects, in the second activity they cut out/draw pictures of objects that look like the objects they have learned about. They start to use the formal names for the shapes – prisms and spheres.

Today we are learning to describe, sort and compare 3-D objects.

Activity 1: Whole class activity

Play this game with the learners, using objects in your class shaped like cylinders, balls and boxes. (If you have enough time (and objects) the learners can play the game in groups of four.)

- Tell the learners the mathematical names of the objects – cylinders, spheres and prisms.
- Say: **A sphere is the mathematical name for a ball shape.**
- Practise saying the shape name 'sphere'. Write the word on the board.

- Say: **A prism is the mathematical name for a box shape.**
- Practise saying the shape name 'prism'. Write the word on the board.
- Call two learners to the front of the class.
- Blindfold them.
- Give each one of them same object, either ball – or box-shaped.
- They now feel what the object feels like.
- They explain to the other learners what they feel. (They should talk about the type of surfaces they have – are they flat or curved (or both curved and flat)? Is the object big/small?)
- See which one of the two learners can identify first if it is a cylinder prism or sphere. Encourage them to use the mathematical names for the shapes
- Repeat the game, allowing as many learners as possible to participate and identify 3-D objects.

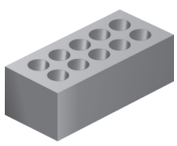
Activity 2: Whole class activity

- Move on to this activity when the class has played the identification game for enough time.
- Ask the learners to identify objects shaped like cylinders in the classroom, e.g. a drinking glass, dustbin, chalk, etc.
- Talk about the sizes of the different objects that they identify – which are bigger/ smaller/ the same size?
- Give the learners magazines, newspapers and advertisements to find and cut out objects shaped like a ball (sphere), shaped like a box (prisms) and shaped like a cylinder.
- Learners should cut out at least 4 of each kind of object (cylinder, sphere, prism) and sort them into piles of the same object. The learners can stick these in their classwork books. (They will do this in question 2 of the classwork activity.)
- If you don't have magazines/newspapers/advertisements let the learners draw the objects, cut them out and stick them in their classwork books.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: In question 3 of the classwork learners should draw their own pictures of a house using 3-D shapes.

1 Name these shapes – sphere, prism or cylinder:



a (prism)

b (sphere)

c (cylinder)

2 Paste or draw pictures of objects in the correct column: (Answers will vary)

Objects that roll.	Objects that slide.	Objects that roll and slide.

3 Draw a house using prisms, spheres and cylinders. (Answers will vary)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Look in your kitchen cupboard and draw a picture of a prism shape that you can find. (Answers will vary.)
2 Are there any cylinder shapes in the kitchen? (Vary – but could be a mug or glass.)
3 Which one of these two vegetables is shaped like a sphere: carrots or peas? (Peas)
4 Which one of these objects can you roll to your friend: book bag, apple, homework book? (Apple)

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 learnt to describe, sort and compare 3-D objects.

Week 6

Lesson 26: Comparing 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, describe, sort and compare 3-D objects (cylinders, spheres and prisms).
Lesson Vocabulary: Forwards, backwards, 3-D shapes, spheres, cylinders, prisms, roll, slide, box-shaped, ball-shaped, describe, sort, compare, size.
Resources: Different sized spheres, prisms and cylinders, old magazines/newspapers/adverts.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Calculate:

		Answer			Answer
1	51 + 10 =	61	**6**	77 + 10 + 1 =	88
2	51 + 10 + 1 =	62	**7**	63 + 10 =	73
3	43 + 10 =	53	**8**	63 + 10 + 1 =	74
4	43 + 10 + 1 =	54	**9**	48 + 10 =	58
5	77 + 10 =	87	**10**	48 + 10 + 1 =	59

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the final lesson on 3-D objects. Make sure to give the learners the chance revise the names of the objects and think about their properties.

Today we are learning to recognise 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

- Ask each group to take their objects back to the class.
- When back in class each group will sort their objects according to which can:
  - roll
  - slide and roll
  - slide.
- Make three groups of objects in the front of the class.
- Ask if there are any objects in the class that can be added to any of these three groups of objects.
- Discuss – using the extra examples learners find by looking around the class.
- Encourage the learners to name the shapes using the mathematical word names – cylinders, spheres and prisms

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Answers will vary. Check that learners cut out at least 3 of each kind of shapes (of different sizes) and paste them in order of size – from the smallest shape to the biggest shape.

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. (Answers will vary.)

Object	Flat sides or curved sides	Roll/Slide/Roll and slide
Prism		
Sphere		
Cylinder		

4 HOMEWORK ACTIVITY (5 MINUTES)

Complete the table. (Answers will vary.)

Object	Draw the object
Prism	
Sphere	
Cylinder	

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 learnt to recognise 3-D objects.

Lesson 27: 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.

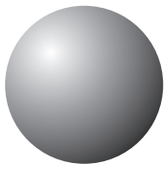
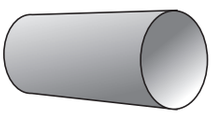
3 ASSESSMENT

WRITTEN ASSESSMENT (10 MARKS)

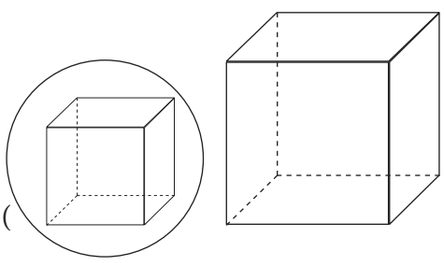
1 Do these shapes roll, slide or roll and slide? Circle the correct answer. (3)

	(Roll)	Slide	Roll and slide
	Roll	Slide	(Roll and slide)
	Roll	(Slide)	Roll and slide

2 Circle the correct name of the object. (2)

a 	Prism Sphere
b 	Cylinder Circle

3 Draw two prisms (box shapes) of different size. Circle the smaller one. (2)



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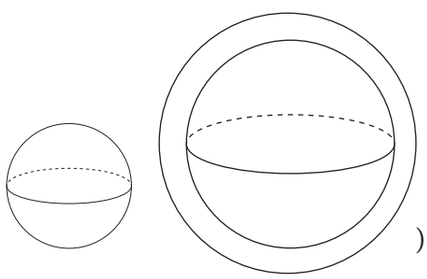
4 Draw two spheres (ball shapes) of different size. Circle the bigger one. (2)



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ORAL AND PRACTICAL

CAPS: Space and shape: 3-D shapes **Activity: Assess the learners' ability to recognise, name and sort 3-D objects.**	**Mark: 7**
Mark	**Criteria – Checklist: (1 mark for each criterion achieved)**
1	Can **recognise and name** ball shapes [spheres] (real objects/models)
1	Can **recognise and name** box shapes [prisms] (real objects/models)
1	Can **recognise and name** cylinders (real objects/models)
1	Can **sort** 3-D objects in terms of: size
1	Can **sort** 3-D objects in terms of shape
1	Can **sort** 3-D objects in terms of position
1	Can **compare** 3-D objects in terms of: size, shape, position

Unit 5 Introduction

This unit focuses on division with and without remainders. Learners will investigate the difference between sharing and grouping problems. It is essential that learners be given opportunities to discuss what they are learning so as to clarify their own understanding throughout the process. Learners will solve problems using bottle tops.

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

- **Conceptual understanding**: In this unit, a conceptual understanding of division will be developed. Learners will build on their knowledge of multiplication, and extend their understanding to include the inverse operation of division.
- **Procedural fluency**: Learners will develop procedural fluency through solving division problems which involve sharing and grouping.
- **Strategies**: Learners will learn to solve division problems through identifying the appropriate strategy to use.
- **Reasoning**: Learners will verbalise their understanding of sharing and grouping by providing reasons for their identification of a particular problem type.

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

- **Making sense of mathematics**: In this unit, learners are making sense of mathematics as they deepen their knowledge of division. This knowledge relates to real-life situations. Being able to divide objects equally 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.
- **Connecting representations**: In this unit learners initially use bottle tops to represent sharing and grouping. They may then move on to an abstract understanding of division.

Lesson 28: Grouping and sharing (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.9 Grouping and sharing leading up to division, 1.10 Sharing leading to fractions.
Lesson Objective: Solve and explain solutions to practical problems that involve equal sharing and grouping up to 20.
Lesson Vocabulary: Equal sharing, grouping, remainders, solve, explain, calculate, practical problems.
Resources: Bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Halve these numbers:	**Answer**		Halve these numbers:	**Answer**
1	20	10	**6**	14	7
2	200	100	**7**	140	70
3	40	20	**8**	12	6
4	80	40	**9**	120	60
5	50	25	**10**	400	200

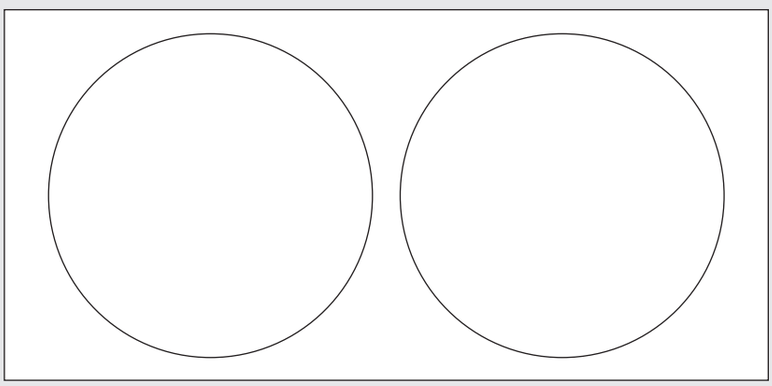
2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the first of two lessons about grouping and equal sharing. Learners should be able to read a word problem and choose the appropriate strategy in order to find the solution to the problem. This skill will be developed through lots of practice doing grouping and sharing.

Today we are learning about equal sharing and grouping.

Activity 1: Learners work in pairs

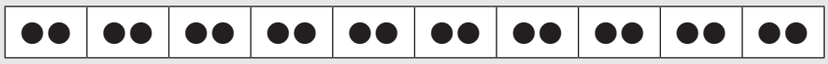
- Ask each pair of learners to draw two big circles in their classwork books.



- Give each pair of learners 20 bottle tops. Do the following practical sharing activities:
- Say: **Take out 16 bottle tops and set aside the other 4 bottle tops.**
- Say: **Share 16 bottle tops between the two circles.**
- Ask: **How many bottle tops are there in each circle?** (8)
- Say: **Put all your bottle tops together again.**
- Say: **Now share 20 bottle tops between the two circles.**
- Ask: **How many bottle tops are there in each circle?** (10)
- Ask: **How many bottle tops are left over?** (none)
- Repeat the sharing activity with other numbers of bottle tops. (E.g. 14, 18, 12.)
- *You should tell them to set aside a certain number of bottle tops each time for this activity, so there are no remainders when the learners share the various amounts.*
- Each time the learners have to share the bottle tops equally between the two circles. They should set aside the remaining bottle tops (from the 20) each time so that they do not find remainders when they share.

Activity 2: Whole class activity

- Learners continue working with the bottle tops from the first activity, but in this activity they will group the botte tops.
- Write the following on the board:
  I have 20 oranges.
  I want to pack them into bags with 2 oranges in each bag.
  How many bags can I make?
- Learners take 20 bottle tops and put them in groups of 2 (to represent the bags of 2). They then count the number of groups that they have made.



- Ask: **How many groups did you make?** (10)
- Let the learners say that the answer is *10 bags* and then write the answer on the board.
- Write the following on the board:
  I have 15 sweets.
  I want to pack them into bags with 3 sweets in each bag.
  How many bags can I make?
- Learners take 15 bottle tops and put them into groups of 3 (to represent the bags of 3). They then count the number of groups that they have made.

- Ask: **How many groups did you make?** (5)
- Let the learners say that the answer is *5 bags* and then write the answer on the board.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learners can use bottle tops to solve the problems.

1 Divide 18 beads into groups of 2.
   a How many groups do you make? _____ (9 groups)
   b Do you have any beads left? _____ (no)

2 16 suckers are shared between 2 friends. Each friend gets ____ (8) suckers. ____ (0) suckers are left.

3 Divide 20 beads into groups of 4.
   a How many groups do you make? _____ (5 groups.).
   b Do you have any beads left? _____ (no)

4 12 balloons are shared between 4 friends. Each friend gets ____ (3) balloons. ____ (0) balloons are left.

5 You have 18 beads and make bags which each have 3 beads in them.
   a How many bags do you make? _____ (6 bags)
   b Do you have any beads left? _____ (no)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Put 14 beads into groups of 2.
   a How many groups do you make? _____ (7 groups)
   b Do you have any beads left? _____ (No)

2 20 marbles are shared between 2 friends. Each friend gets ____ (10) marbles. ____ (0) marbles are left.

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 learnt to share and group equally.

Lesson 29: Grouping and sharing (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 1.12 Techniques – methods or strategies.
Lesson Objective: Solve and explain solutions to practical problems that involve equal sharing and grouping up to 20 with answers that may include remainders.
Lesson Vocabulary: Sharing, grouping, add, shared amongst, equally, remainder.
Resources: Bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Halve:	**Answer**		Halve:	**Answer**
1	50	25	**6**	88	44
2	40	20	**7**	100	50
3	30	15	**8**	90	45
4	44	22	**9**	80	40
5	66	33	**10**	70	35

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the second lesson on equal sharing. In this lesson the learners continue to work with sharing and grouping. The concept of a remainder is introduced. We have a remainder when we have shared or grouped a certain number and some bottle tops are left over that cannot be shared or make another group. Remember to use the word *remainder* when you talk about the left-overs.

Today we are learning to solve sharing and grouping problems that have remainders.

Activity 1: Learners work in groups

- Give each group 20 bottle tops to use for this sharing activity.
- Use 8 bottle tops. Share **8** bottle tops equally between **two** learners.
- Ask: **How many bottle tops did each learner get?** (4) **How many bottle tops are left over?** (0)
- Use 20 bottle tops. Share **20** bottle tops equally among **four** learners.
- Ask: **How many bottle tops did each learner get?** (5) **How many bottle tops are left over?** (0)
- Use 17 bottle tops. Share **17** bottle tops equally among **two** learners.

- Ask: **How many bottle tops did each learner get?** (8) **How many bottle tops are left over?** (1)
- Say: **We say that the '1' that is left over is a remainder**.
- Use 20 bottle tops. Share **20** bottle tops equally among **three** learners.
- Ask: **How many bottle tops did each learner get?** (6) **How many bottle tops are left over?** (2)
- Say: **We say that the '2' that are left over is a remainder**.

Activity 2: Whole class activity

- Take **8** bottle tops.
- Ask: **How many groups of 2 can you make? What is left over?** (I can make 4 groups of 2 and I will have 0 (no) bottle tops left over.)
- Take **12** bottle tops.
- Ask: **How many groups of 3 can you make? What is left over?** (I can make 4 groups of 3 and I will have 0 (no) bottle tops left over.)
- Take **15** bottle tops.
- Ask: **How many groups of 2 can you make? What is left over?** (I can make 7 groups of 2 and I will have 1 bottle top left over.) The 1 is a remainder.
- Take **17** bottle tops.
- Ask: **How many groups of 3 can you make? What is left over?** (I can make 5 groups of 3 and I will have 2 bottle tops left over.) The 2 is a remainder.
- *Before starting the individual classwork activity, allow learners to ask questions about the differences between grouping and sharing.*
- *When we share a number of items equally, we know the number of groups to share between and we work out how many items will be in each group. When we group a number of items, we know the group size and we work out how many groups we can make.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: In the solutions given here to the classwork and homework activities, the drawings are not shown.

1 Draw 10 squares. Share the squares equally into two groups.
- **a** Are there any squares left over? _____ (No)
- **b** Fill in the missing numbers:
  _(10)_ shared between _(2)_ is _(5)_. The remainder is _____ (0).

2 Draw 15 triangles. Share them equally into two groups.
- **a** Are there are any triangles left over? _____ (Yes)
- **b** Fill in the missing numbers:
  _(15)_ shared between _(2)_ is _(7)_. The remainder is _____ (1).

3 Draw 11 crosses. Divide the crosses into groups of 2.
- **a** Are there any crosses left over? _____ (Yes)
- **b** Fill in the missing numbers:

_(11)_ divided into groups of _(2)_ is _(5)_. The remainder is _____ (1).

4 Draw 18 circles. Divide them into groups of 4.

a Are there any circles left over? _____ (Yes)

b Fill in the missing numbers:
_(19)_ divided into groups of _(4)_ is _(4)_. The remainder is _____ (2).

5 Toffees cost 2c each. Thembi spent 20c buying toffees. How many toffees did she buy? ___ (10)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Draw 16 balls. Share the balls equally between the 2 blocks.

a Are there any balls left over? _____ (No)

b Fill in the missing numbers:
_(16)_ balls shared between _(2)_ blocks is _(8)_. The remainder is _____ (0).

2 Draw 21 rectangles and 2 girls. Share the rectangles equally between the girls.

a Are there any rectangles left over? _____ (Yes)

b Fill in the missing numbers:
_(21)_ rectangles shared between _(2)_ girls is _(10)_. The remainder is _____ (1).

3 Make bags of 2 suckers from 17 suckers.

a Are there any suckers left over? _____ (Yes)

b Fill in the missing numbers:
_(17)_ suckers divided into group of _(2)_ is _(8)_. The remainder is _____ (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 learnt about sharing and grouping problems that involve remainders.

Unit 6 Introduction

In this unit, learners will learn about position and views. The topic of views helps learners to develop their ability to visualise (see in their mind's eye) geometric (and other) shapes and objects. It is important that these are related back to the learners' everyday experiences, so that their learning can be based upon strong connections to their world.

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 concept of views.
- **Procedural fluency**: Learners will develop procedural fluency through a variety of tasks on views.
- **Strategies**: Learners will discover that it is essential for them to establish a starting point before working with views.
- **Reasoning**: Learners will have to justify why they have identified and drawn a particular view in a specific way.

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

- **Addressing gaps in learners' knowledge**: This unit provides many good opportunities to address gaps in learners' knowledge. The work in this unit makes a number of connections between views and shape/space. The teacher is therefore able to revise and build on previous knowledge.
- **Connecting topics and concepts**: In this unit, learners are applying their understanding of views and shapes/space. The teacher should help the learners to make connections between these concepts.

Lesson 30: Position and views

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 4 curriculum.
CAPS topics: 3.1 Position, orientation and views.
Lesson Objective: Match different views of the same everyday object.
Lesson Vocabulary: Position, views (top, side, front), count on, match, smallest, largest.
Resources: Cool drink can, other objects to use for views, e.g. pencil case, cup, lunch box, etc.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Write down the following numbers in order from the smallest to the greatest:

		Answer			Answer
1	103, 105, 104	103, 104, 105	**6**	167, 165, 166	165, 166, 167
2	113, 112, 114	112, 113, 114	**7**	176, 178, 177	176, 177, 178
3	131, 133, 132	131, 132, 133	**8**	182, 181, 183	181, 182, 183
4	145, 147, 146	145, 146, 147	**9**	199, 197, 198	197, 198, 199
5	155, 157, 156	155, 156, 157	**10**	139, 138, 140	138, 139, 140

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the only lesson on position, orientation and views. It is very important to give the learners time in this lesson to sit and visualise. You should encourage them to close their eyes and 'look at the images they can see inside their heads' of the objects you are discussing.

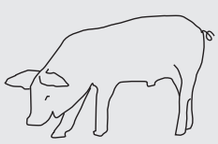
Today we are learning to identify and match views.

Activity 1: Whole class activity

- Ask learners to look at the drawings in the LAB.
- Draw these views on the chalkboard. Discuss the different views presented. Discuss the idea of views and seeing views 'in your mind's eye'.
- Write the view labels on the board for learners to copy into the LAB.

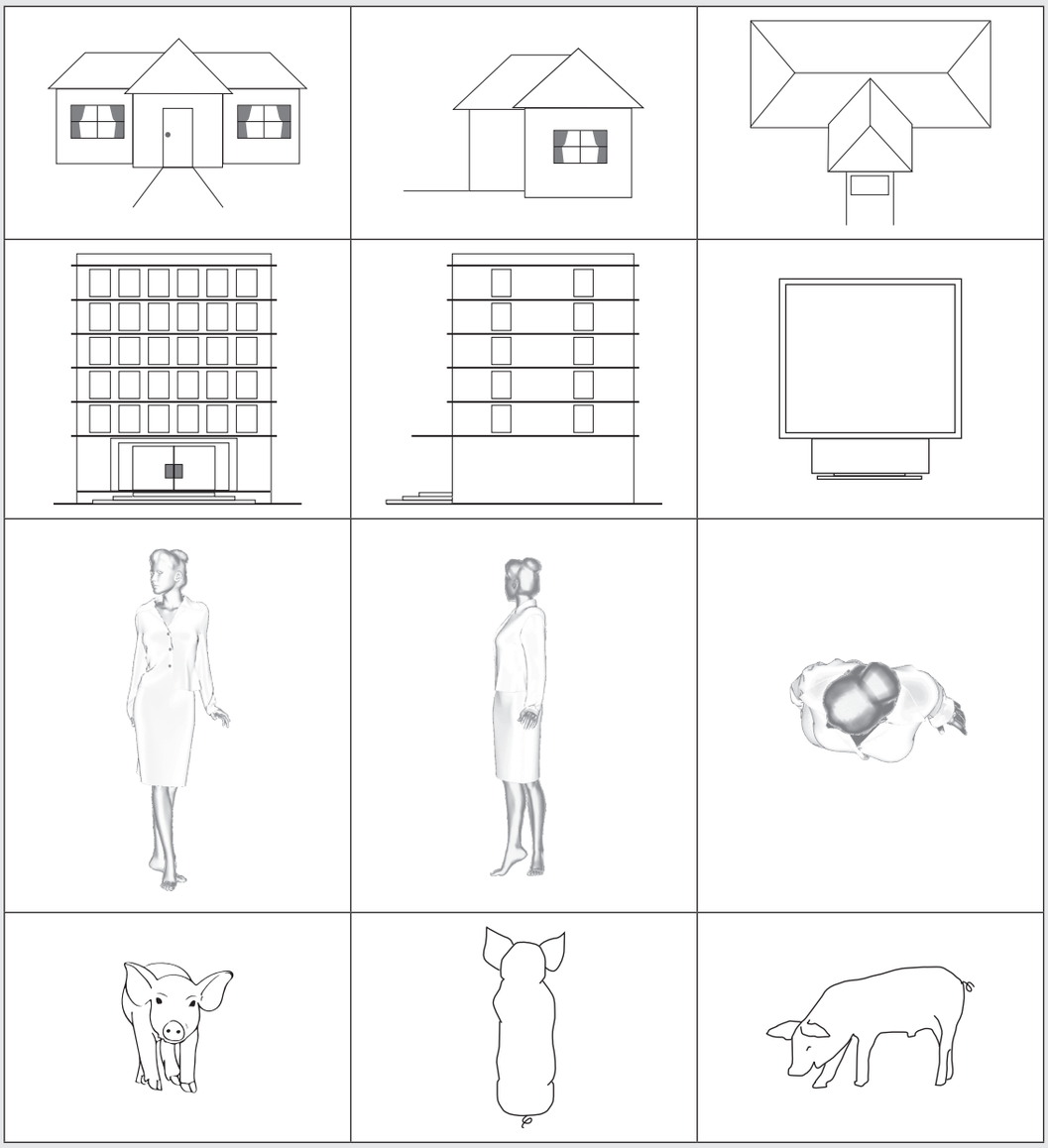
(Front view)

(Top view)



(Side view)

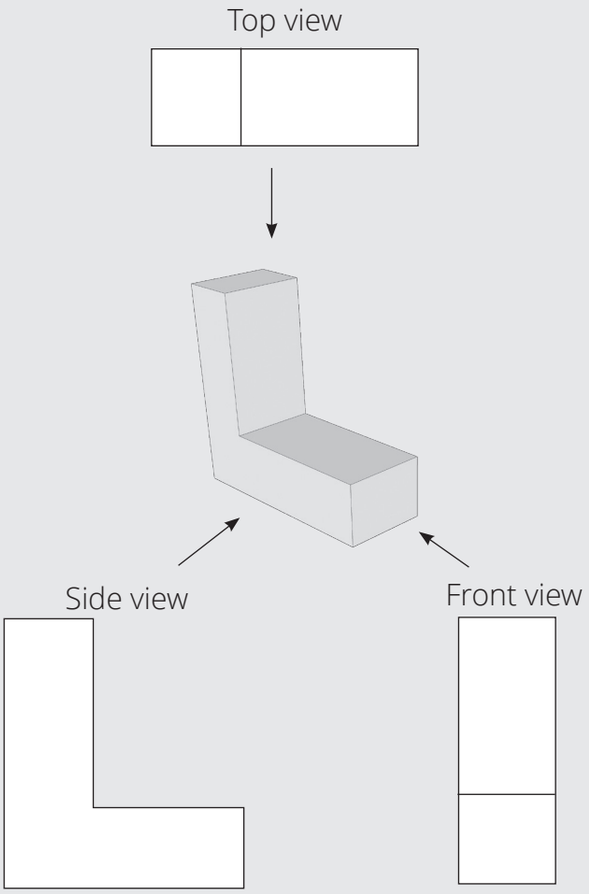
- Select an object that is familiar to learners, e.g. a coke can, and show the learners the front, top and side views.
- Discuss front, top and side views of several everyday objects with the class, showing the class the views as you do so.
- Give each group of learners some objects and allow them to look at the different views of the objects.
- Then they show each other the different views, talking about each one as they do.
- Ask learners to look at the drawings in the LAB.



- Ask the learners to discuss the views that are shown.
- Learners should identify the **front view, side view and top view** for each set of shapes.

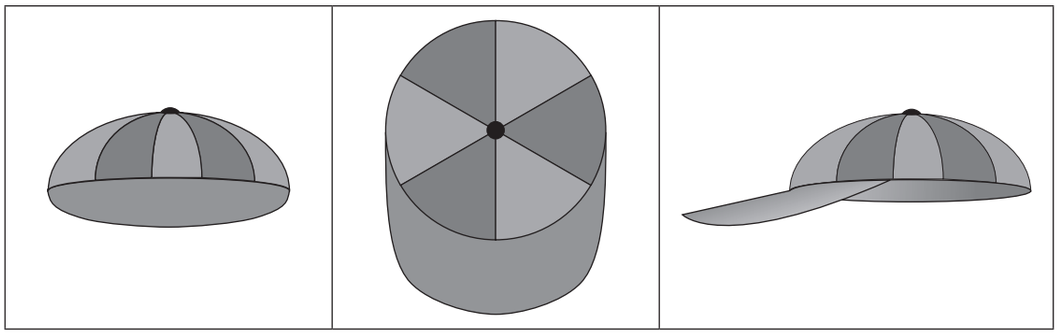
Activity 2: Whole class activity

- Ask learners to look at the drawing of views of a geometric shape in the LAB.
- Ask the learners to discuss the views of the shape that are shown.
- Learners should identify the **front view, side view and top view** of the shape.



3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Write the labels for the views of a cap shown below.



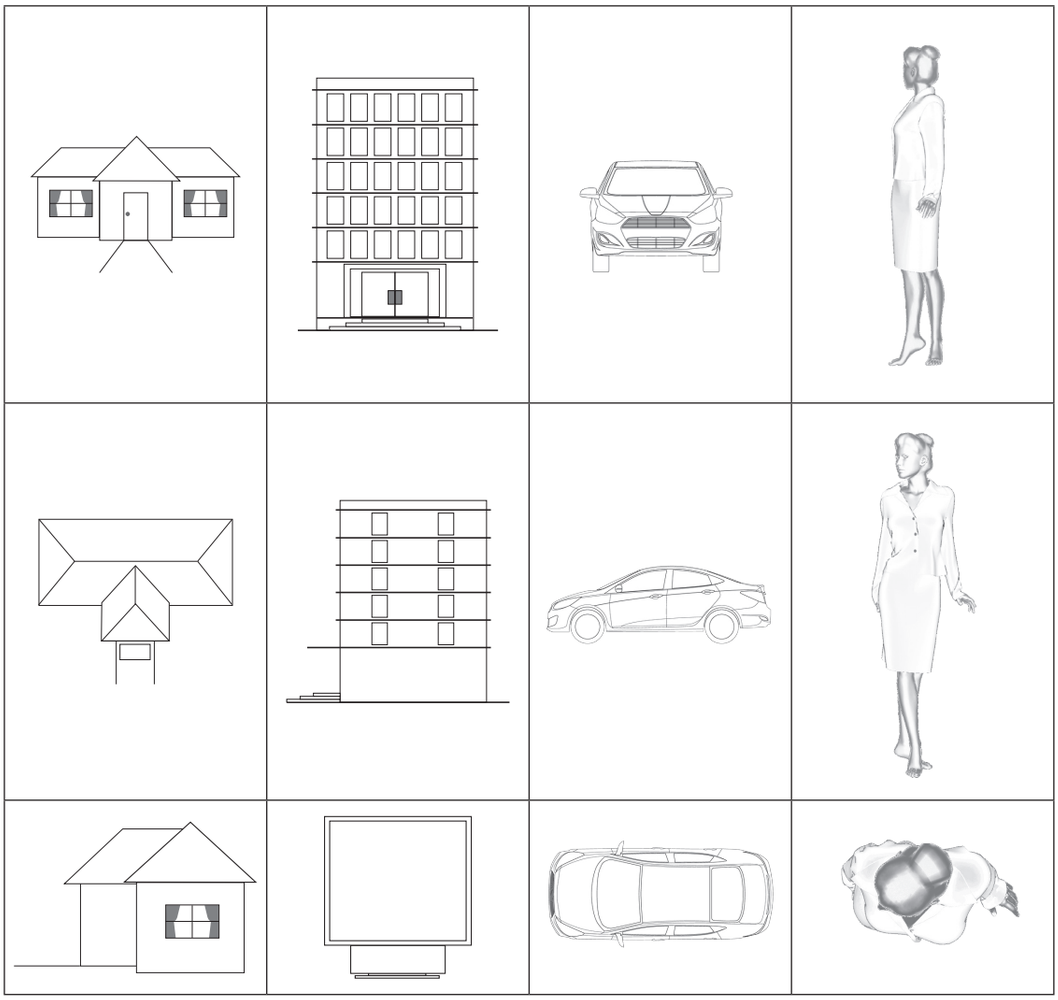
(Front) (Top) (Side)

2 Using the pictures below:

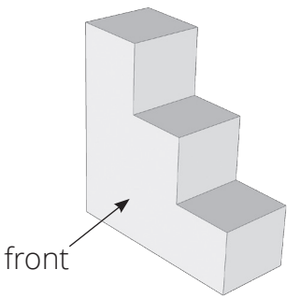
a Colour the front view of the car.

b Colour the top view of the house.

c Colour the side view of the lady.



3 Draw the top, front and side views of this shape:



Front view	Top view	Side view
( )	( )	( )

4 HOMEWORK ACTIVITY (5 MINUTES)

(Answers will vary)

Draw views of a table in your home:

Front view	Top view	Side view

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 learnt to identify and match views.

Week 7

Lesson 31: Assessment

Teacher's notes
This lesson should be used for assessment of the content covered in this unit to date.
CAPS topics: 3.1 Position, orientation and views, 1.9 Grouping and sharing leading up to 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 (13 MARKS)

Grouping and sharing **(10)**

1 Draw 19 suckers. Share the suckers equally into two groups. (5)

a Are there any squares left over? _____ (Yes)

b Fill in the missing numbers:
_(19)_ shared between _(2)_ is _(9)_. The remainder is _(1)_.

2 Draw a picture of a child standing on top of a chair. (2)
(Drawing needs to show child on top of chair and can be sketchy –it is not an art work.)

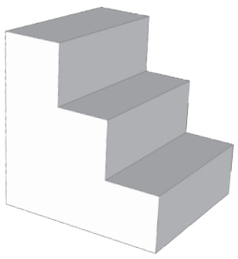
3 3 friends share 6 chocolate bars equally. (3)

a Draw a picture that shows how they share the chocolate bars.

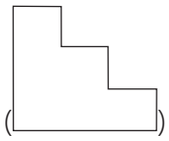
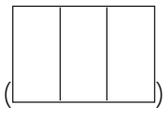
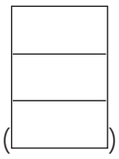
b How many chocolate bars will each friend get? (2 chocolate bars)

Views **(3)**

4 Draw three views of this shape:



(3)

Front View	Top View	Side View
		

ORAL AND PRACTICAL

CAPS: Number operations and relationships **Activity: Assess the learners' ability to divide using grouping and sharing strategies**	**Mark: 7**
Mark	**Criteria – Checklist: (1 mark for each criterion achieved)**
1	Able to share items equally into 2 groups without remainders. E.g. Share 12 sweets between 2 friends.
1	Able to share items equally into any number of groups with remainders. E.g. Share 12 sweets between 5 friends.
1	Able to divide a number by grouping items without remainders. E.g. Pack 15 sweets into small packs of 3 sweets per pack.
1	Able to divide a number by grouping items with remainders. E.g. Pack 25 sweets into small packs of 4 sweets per pack.
1	Able to solve division problems involving grouping.
1	Able to solve division problems involving sharing.
1	Able to explain the difference between grouping and sharing division.

Unit 7 Introduction

This unit focuses on data handling, and provides learners with the opportunity to investigate data in a practical way. Data handling forms part of statistics. Learners will collect, organise, represent, interpret and discuss data during these lessons. Real life examples are used in these lessons so as to encourage learners to think critically about the collected data.

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

- **Conceptual understanding**: Learners will develop their conceptual understanding of data, as they build on their prior knowledge and extend it to analysing data.
- **Procedural fluency**: Learners will develop procedural fluency as they recognise ways to collect, organise, represent, interpret and analyse data.
- **Strategies**: Learners will use real life objects as data and develop pictograms and tallies from this data.
- **Reasoning**: Learners will discuss their pictograms and share their ideas, thereby developing their ability to justify their interpretations and analysis.

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 collect, organise, represent, interpret and analyse data.
- **Purposeful assessment**: In this unit, there is a clear progression of learning which leads learners to a more abstract understanding of data. The assessment tasks in this unit are designed to help learners progress from a concrete understanding to a more abstract understanding.

Lesson 32: Collecting and organising data

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, present and analyse data in a pictograph.
Lesson Vocabulary: Data, topic, key, pictograph, shapes, more, less.
Resources: n/a.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Which two numbers follow...?

		Answer			Answer
1	121	122, 123	**6**	188	189, 190
2	130	131, 132	**7**	197	198, 199
3	138	139, 140	**8**	262	263, 264
4	159	160, 161	**9**	279	280, 281
5	270	271, 272	**10**	390	391, 392

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the first of five lessons about data handling. In this lesson the learners will gather data about shapes. They will move on to organising and presenting the data using a pictograph. A **pictograph** is a way of showing data using images.

Today we are learning to organise data using a pictograph.

Activity 1: Learners work in groups

- Ask learners to look at the shape drawings and blank pictograph grid in the LAB.
- Learners should sort the shapes according to the differences in the shapes.
- Ask the learners to make write down the number of each type of shape they counted. They should have found 3 squares, 4 rectangles, 6 circles, 10 triangles.
- Work with the class to draw the pictograph to represent the counted shapes.
- Ask: **What is the topic for the pictograph?** (Shapes)
- Work out a key for the pictograph, e.g. ◯ = 1 shape

Shapes

10				
9				
8				
7				
6				
5				
4				
3				
2				
1				
	Squares	**Triangles**	**Rectangles**	**Circles**

Key: ◯ = 1 shape

- Ask learners questions that they can answer by looking at the pictograph:
- Ask**: Which shape is the most represented?** (triangles)
- Ask**: Which shape is the least represented?** (squares)
- Ask**: Are there more squares than circles?** (No – more circles)
- Ask: **What is the difference between the number of squares and the number of circles?** (3)
- Ask**: Are there less circles than triangles?** (yes – less circles)
- Ask: **What is the difference between the number of triangles and the number of circles?** (4)
- Discuss other comparisons related to the data represented in the pictograph.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Use this data for the activity.

These are the numbers of children who had birthdays during the first term:

January: 3 February: 6 March: 1 April: 3

1 Colour a block to represent each birthday.

Birthdays during the first term

7				
6				
5				
4				
3				
2				
1				
	January	**February**	**March**	**April**

Key: _____ = one learner (e.g. ◯ = 1 learner – learners select a symbol to represent each learner.)

2 Use the graph to answer the questions:

a How many children had birthdays in the first term? _____ (13)

b There were _____ birthdays in April. (3)

c There were _____ birthdays in February. (6)

d There was _____ birthday in March. (1)

e There were _____ birthdays in January. (3)

f The most number of birthdays were in _____. (February)

g The least number of birthdays were in _____. (March)

h Which months had the same number of birthdays? _____ (January and April)

4 HOMEWORK ACTIVITY (5 MINUTES)

NOTE: In this activity the learners' answers will vary. Check that they have answered the questions correctly and discuss as needed.

1 Collect a handful of cutlery from the kitchen, e.g. small spoons, forks, knives and big spoons.

2 Sort the cutlery and use the pictograph grid to represent your data.

Cutlery

7				
6				
5				
4				
3				
2				
1				
	Small spoons	**Forks**	**Knives**	**Big spoons**

Key: ____ = one item (e.g. ◯ = 1 item – learners select a symbol to represent each item.)

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 learnt to organise data using a pictograph.

Lesson 33: Pictographs

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, present and answer questions about data using a pictograph.
Lesson Vocabulary: Data, pictograph, topic, key, more, less.
Resources: n/a
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Which number is found between the following two numbers?

		Answer			Answer
1	106 and 108	107	**6**	310 and 312	311
2	102 and 104	103	**7**	313 and 315	314
3	215 and 217	216	**8**	109 and 111	110
4	318 and 320	319	**9**	99 and 97	98
5	219 and 217	218	**10**	43 and 45	44

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the second of five lessons about data handling. In this lesson the learners will gather data about shapes they find in the classroom. They will then move on to organising, presenting and interpreting the data using a pictograph.

Today we are learning to draw a pictograph to show data.

Activity 1: Learners work in groups

- Ask each group (as assigned below) to look around the class and records the following (give 2 minutes for them to look around):
- Group one: the number of squares or square objects they can see.
- Group two: The number of triangles they can see.
- Group three: The number of rectangles they can see.
- Group four: The number of circles they can see.
- Group five: The number of ovals they can see.
- Group six: The number of cubes they can see.
- *Write the list of shape names on the board.*

Activity 2: Whole class activity

- Ask the groups for the number of shapes counted in the time set for the activity. Do this by asking the groups of learners. *Record each number on the board next to the shape name in your list.*
- Group one: **How many pictures of squares did you see?**
- Group two: **How many pictures of triangles did you see?**
- Group three: **How many pictures of rectangles did you see?**
- Group four: **How many pictures of circles did you see?**
- Group five: **How many pictures of ovals did you see?**
- Group six: **How many pictures of cubes did you see?**

Activity 3: Whole class activity

- Record the findings in a pictograph on the board. Refer to this pictograph grid in the LAB.

Shapes

10						
9						
8						
7						
6						
5						
4						
3						
2						
1						
	Squares	**Triangles**	**Rectangles**	**Circles**	**Ovals**	**Cubes**

Key: ____ = one shape (e.g. ◯ = 1 shape – learners select a symbol to represent each shape.)

- Discuss which shape occurred the least/most.
- Discuss the differences between numbers of counted shapes.
- Etc.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learner answers will vary. Check that they have answered the questions correctly and discuss as needed. Learners should work in groups when they do this activity but they should all record the data and draw the pictograph in their LAB.

1 Work in groups. Look in your school bags for some of these objects: lunch boxes, classwork books and reading books. (If there are too many, just take a few. Do not take more than 10 of each.)
2 Count the number of each item you have found.
3 Draw a bar graph to show what you found.

Our school bags – what we found

10			
9			
8			
7			
6			
5			
4			
3			
2			
1			
	Lunch boxes	**Classwork books**	**Reading books**

Key: _____ = one item (e.g. ◯ = 1 item – learners select a symbol to represent each item.)

4 Use the graph to answer the questions:
a The most common item is _____.
b The least common item is _____.

4 HOMEWORK ACTIVITY (5 MINUTES)

NOTE: Learner answers will vary. Check that they have answered the questions correctly and discuss as needed.

1 Count the number of 5 different kinds of clothing items you have at home, e.g. the number of shorts, trousers, pairs of socks, shirts or pairs of shoes.

2 Draw your own pictograph showing the data you have at home. Use the pictograph grid below.

Clothes

10					
9					
8					
7					
6					
5					
4					
3					
2					
1					
	Shorts	**Trousers**	**Socks**	**Shirts**	**Shoes**

Key: _____ = one item (e.g. ◯ = 1 item – learners select a symbol to represent each item.)

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 learnt to draw a pictograph to show data.

Lesson 34: Represent and analyse data

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 and analyse data in a pictograph with one-to-one correspondence.
Lesson Vocabulary: Data, pictograph, key, most, least, one-to-one correspondence, represent data.
Resources: n/a.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Which number is before and which number is after the following numbers?

	Which number is before...?	**Answer**		Which number is after...?	**Answer**
1	120	119	**6**	182	183
2	134	133	**7**	199	200
3	145	144	**8**	100	101
4	167	166	**9**	179	180
5	172	171	**10**	188	189

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the third of five lessons about data handling. In this lesson the learners will organise, present and analyse data using a pictograph. They will use one-to-one correspondence whereby one symbol represents one object. Learners will also learn about the role of a key in a pictograph. The key in a pictograph tells the number that each picture or symbol represents.

Today we are learning to draw and analyse a pictograph.

Activity 1: Whole class activity

- Ask learners to take a selection of some of these items from the bags: Pencils, glue, eraser, sharpener, scissors and rulers.
- Ask for counts of the following items. (Ask for counts of less than 10, and try to get a range of numbers, not all the same.)

Our school bags

10						
9						
8						
7						
6						
5						
4						
3						
2						
1						
	Pencils	**Glues**	**Erasers**	**Sharpeners**	**Scissors**	**Rulers**

Key: _____ = one item (e.g. ◯ = 1 item – learners select a symbol to represent each item.)

- Discuss the choice of key for the pictograph.
- Discuss the different pictographs drawn by the learners afterwards to compare what is in their pencil boxes. Ask questions such as:
  - **Which item was most common?**
  - **Which item was least common?**
  - **Was there the same number of any item?**
  - **What is the difference between different numbers of items counted?**
  - **Etc.**

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 In the fruit shop near your school there are 15 apples, 10 paw paws, 6 oranges and 4 bananas. Draw a pictograph showing how much of each kind of fruit there is.

2 Give your pictograph the title. (Fruit.)

3 Remember to include a key. (e.g. ◯ = 1 fruit)

_____

16				
15				
14				
13				
12				
11				
10				
9				
8				
7				
6				
5				
4				
3				
2				
1				
	Apples	**Paw paws**	**Oranges**	**Bananas**

Key: _____ = one fruit (e.g. ◯ = 1 fruit – learners select a symbol to represent each fruit.)

4 Of which fruit is there most? _____ (Apples)

5 Of which fruit is there least? _____ (Bananas)

4 HOMEWORK ACTIVITY (5 MINUTES)

While walking home from school I see 6 red cars, 4 white cars, 8 black cars and 9 blue cars. Draw a pictograph to record this information.

Cars by Colour

10				
9				
8				
7				
6				
5				
4				
3				
2				
1				
	Red car	**White cars**	**Black cars**	**Blue cars**

Key: _____ = one car (e.g. ◯ = 1 car – learners select a symbol to represent each car.)

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 learnt to draw and analyse a pictograph.

Lesson 35: 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: Solve problems using data (tallies and pictographs).
Lesson Vocabulary: Data, pictograph, tally, key, most, least, one-to-one correspondence, represent data.
Resources: n/a.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

What is needed to make 100?

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

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the fourth of five lessons about data handling. In this lesson the learners will be involved in designing both a tally chart and pictograph. They will compare the similarities and differences between tally tables and pictographs. Learners will also analyse the data using both representations.

Today we are learning to draw and analyse a tally chart and a pictograph.

Activity 1: Whole class activity

- Refer to the tally table in the LAB.
- Ask the learners which of the following is their favourite animal: a lion, a springbok, a rhino or an elephant. They can only choose one favourite.
- Record this information on the board in tallies.
  Example: (Your class tallies might differ from the example. Make the actual tallies while taking responses from the learners. Do not count over 13 and try to get a difference of numbers such as those shown below.)

	Tally	Number
Lion	𝍸	5 learners
Springbok	𝍸𝍸 ||	12 learners
Rhino	𝍸 |	6 learners
Elephant	𝍸𝍸 |||	13 learners

Activity 2: Whole class activity

- Refer to the pictograph grid in the LAB.
- Using the information from Activity 1 draw a pictograph on the board with the learners.
- Use the actual tallies from your class tally table.
- Example (using the tallies shown above):

Favourite animals

13				●
12		●		●
11		●		●
10		●		●
9		●		●
8		●		●
7		●		●
6		●	●	●
5	●	●	●	●
4	●	●	●	●
3	●	●	●	●
2	●	●	●	●
1	●	●	●	●
	Lion	**Springbok**	**Rhino**	**Elephant**

Key: ● = one animal

- When this is completed discuss the differences and similarities between the two ways of recording data.
- Difference**:**
  - Tallies show a count of how many – in bundles of 5s and 1s. You can see how many there are of each by counting up the tallies.

    - Pictographs show columns with the counted items (using a key) and you can see which has a higher count by looking at the height of the columns.
- Similarity**:**
    - Both show us the numbers of items counted.
- Ask the learners questions about the data such as:
    - **Which animal is the most popular?** (In this example it is the elephant.)
    - **Which animal is the least popular?** (In this example lion and rhino are equal in the least popular position.)

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

A sponsor has offered to give each learner in the class a coloured t-shirt. Learners can choose either a green, red, blue or black t-shirt.

There are 40 learners in the class. The teacher does a survey and finds that the learners would like the following t-shirts:

- 12 green t-shirts.
- 15 red t-shirts.
- 7 blue t-shirts.
- The rest of the learners would like a black t-shirt.

1 How many learners would like a black t-shirt? (6)

2 Draw a tally table showing the t-shirt choices the learners made.

	Tally	**Number**
Green t-shirts	𝍸 𝍸 ||	12 learners
Red t-shirts	𝍸 𝍸 𝍸	15 learners
Blue t-shirts	𝍸 ||	7 learners
Black t-shirts	𝍸 |	6 learners

4 HOMEWORK ACTIVITY (5 MINUTES)

In a Grade 2 class, the teacher asked the learners which chocolate was their favourite:

- 8 learners chose Tex Bars.
- 6 learners chose Bar One.
- 3 learners chose Aero.
- 5 learners chose Kit Kat.

Draw a tally table which shows the learners' favourite chocolates

	Tally	Number
Tex Bar	𝍸 |||	8 learners
Bar One	𝍸 |	6 learners
Aero	|||	3 learners
Kit Kat	𝍸	5 learners

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 learnt to draw and analyse a tally chart and a pictograph.

Week 8

Lesson 36: 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: Interpret data from tally tables and pictographs.
Lesson Vocabulary: Forwards, backwards, data, pictograph, key, most, least, one-to-one correspondence, represent data, calculate, popular (most/least).
Resources: n/a.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

Write down what is two after ... :

		Answer			Answer
1	99	101	**6**	34	36
2	156	158	**7**	89	91
3	175	177	**8**	165	167
4	189	191	**9**	179	181
5	190	192	**10**	143	145

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the last of five lessons about data handling. In this lesson the learners will focus on interpreting and analysing data. They will move beyond one symbol representing one object in the key. For example: x= 2 trees.

Today we are learning interpret data using a pictograph.

Activity 1: Whole class activity

- Refer to the pictograph grid in the LAB.
  Grade 2C's favourite sport – the number of learners that like each sport is the following:
  - 12 – soccer
  - 11 – netball
  - 8 – rugby
  - 4 – hockey
  - 5 – swimming

- Discuss the choice of the heading for the pictograph. (Favourite sports)
- Discuss the choice of the key for the pictograph) (E.g. let 1 circle represent 1 learner.)

Favourite sports

13					
12	●				
11	●	●			
10	●	●			
9	●	●			
8	●	●	●		
7	●	●	●		
6	●	●	●		
5	●	●	●		●
4	●	●	●	●	●
3	●	●	●	●	●
2	●	●	●	●	●
1	●	●	●	●	●
	Soccer	**Netball**	**Rugby**	**Hockey**	**Swimming**

Key: ● = one learner.

- Ask the learners questions about their pictographs as you move around the class.
- Discuss all of the comparisons made using the pictograph.
- Let one learner ask another learner a question. Check that they phrase and answer the questions correctly.
- Allow as many learners as possible to participate in the discussion.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

CLASSWORK

Trees are an important resource. Sam planted trees over 5 weeks. Below is the tally table showing how many trees he planted.

Week	Tally	Number of trees
1	𝍸 |	6
2	𝍸	5
3	𝍸 𝍸 ||||	14
4	||||	4
5	||	2

Use the tally table to answer these questions.

1 How many trees did Sam plant in week 1? (6 trees.)
2 In which week did Sam plant the most trees? (Week 3.)
3 How many trees did he plant in that week? (14 trees.)
4 In which week did Sam plant the least trees? (Week 5.)
5 How many trees did he plant in that week? (2 trees.)
6 How many trees did Sam plant over the 5 weeks? (31 trees)

4 HOMEWORK ACTIVITY (5 MINUTES)

Class 2C does a survey about each learner's favourite vegetable. Here are the results:

4 – cabbage; 10 – potatoes; 8 – spinach; 12 – carrots; 6 – tomatoes.

Draw a pictograph to show the results. Remember to use a key and to label your pictograph.

Favourite Vegetables

13					
12				●	
11				●	
10		●		●	
9		●		●	
8		●	●	●	
7		●	●	●	
6		●	●	●	●
5		●	●	●	●
4	●	●	●	●	●
3	●	●	●	●	●
2	●	●	●	●	●
1	●	●	●	●	●
	Cabbage	**Potatoes**	**Spinach**	**Carrots**	**Tomatoes**

Key: _____ = one vegetable

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 learnt to interpret data using a pictograph.

Lesson 37: 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 (10 MARKS)

1 Use the pictograph to answer the questions that follow. (4)

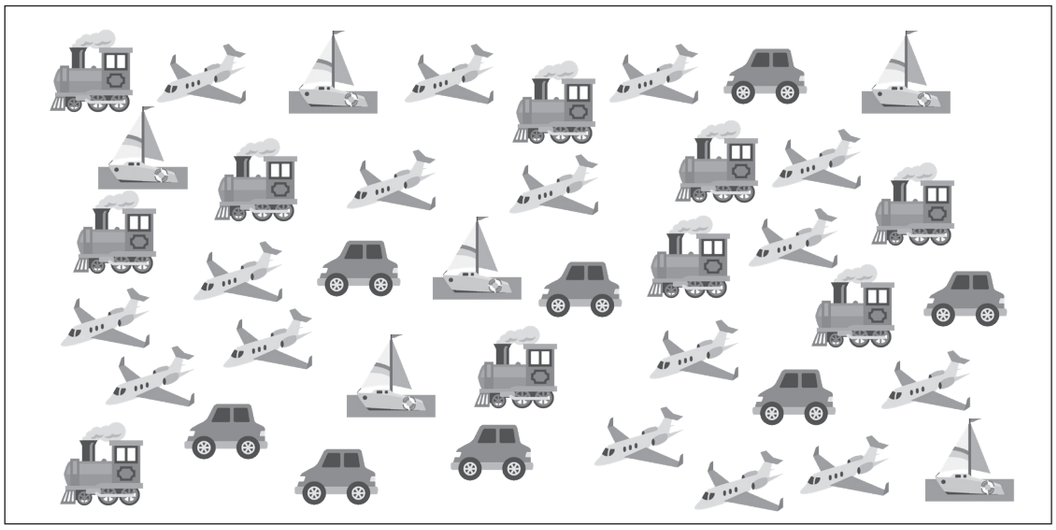
Weather conditions

9				
8		●		
7		●		
6		●		
5	●	●		●
4	●	●		●
3	●	●	●	●
2	●	●	●	●
1	●	●	●	●
				

Key: ● = 1 day

a How many rainy days were there? __(5)___
b How many sunny days were there? ___(8)____
c Were there more sunny days or rainy days? _____ (sunny)
d Were there more windy days or cloudy days? _____ (windy days)

2 Use the information below to complete the pictograph. Use circles to represent the pictures. (4)



Transport pictures

16				●
15				●
14				●
13				●
12				●
11				●
10	●			●
9	●			●
8	●		●	●
7	●		●	●
6	●	●	●	●
5	●	●	●	●
4	●	●	●	●
3	●	●	●	●
2	●	●	●	●
1	●	●	●	●
	Trains	**Ships**	**Cars**	**Planes**

Key: ● = one item

3 Answer the following questions by looking at the information in the pictograph.

a Which picture is there the most of? _____ (planes) (1)

b Are there less cars or ships? _____ (ships) (1)

ORAL AND PRACTICAL

CAPS: Data Handling **Activity: Assess the learners' ability to collect, sort, represent and interpret data.**	**Mark: 7**

Mark	**Criteria – Checklist: (1 mark for each criterion achieved)**
1	Able to collect data
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 and frequencies)
1	Able to represent data in a pictograph
1	Able to answer questions about the data in the pictograph (graph interpretation)

Lesson 38: Preparing for Grade 3 (1)

Teacher's notes
This lesson allows for consolidation of content covered during the year, in preparation for the next grade.
CAPS topics: 1.4 Describe, compare and order numbers 1.5 Place value.
Lesson Objective: Revise number sequences, comparing and ordering numbers.
Lesson Vocabulary: Forwards, backwards, more than, less than, greater than, smaller than, biggest, smallest, order, compare, bigger, smaller, equal, units, tens, hundreds.
Resources: n/a.
Date: Week Day

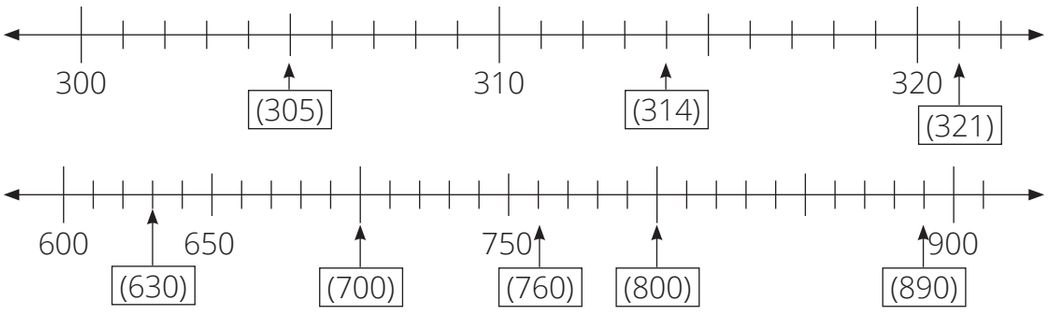
1 NOTES FOR THE TEACHER RELATING TO TOPICS SELECTED FOR CONSOLIDATION

In this lesson you will revise place value and 2-digit to 3-digit numbers, sequencing, ordering and comparing numbers up to 999. During the year the learners have moved from 2-digit to 3-digit numbers. It is important that they understand the value of numbers up to 999.

1 CLASSWORK ACTIVITIES

Sequencing numbers

What is the number on the number line?



Place Value (Expanded Notation)

1 How many hundreds, tens and ones?

a	593	has	5	hundreds	9	tens	3	ones
b	780	has	(7)	hundreds	(8)	tens	(0)	ones
c	606	has	(6)	hundreds	(0)	tens	(6)	ones
d	444	has	(4)	hundreds	(4)	tens	(4)	ones
e	912	has	(9)	hundreds	(1)	ten	(2)	ones

2 Write using number symbols.

8 hundreds, 2 tens and 3 ones _____ (823)

4 hundreds, 0 tens and 1 ones _____ (401)
5 hundreds, 8 tens and 9 ones _____ (589)
8 hundreds, 4 tens and 0 ones _____ (840)
7 hundreds, 0 tens and 5 ones _____ (705)

3 Complete the following:

a 30 + 9 = _____ (39)
b 1 hundred + 4 ones = _____ (104)
c Write the number name:

9 hundreds + 7 tens + 6 ones = _____ (nine hundred and seventy six)

d 6 tens + 5 ones = ___ (65)
e _____ = 600 + 80
f 547 = _____ hundreds + ___ tens + ___ ones (5 hundreds + 4 tens + 7 ones)

Comparing and ordering numbers

1 Write these numbers from smallest to biggest:

135, 357, 35 _____ (35, 135, 357)

2 Write the following numbers from biggest to smallest:

170, 710, 701 _____ (710, 701, 170)

3 Underline the smaller number:

a 359 or 749
b 221 or 121
c 696 or 666
d 524 or 523
e 842 or 866

4 Underline the bigger number:

a 774 or 674
b 187 or 180
c 254 or 261
d 340 or 344
e 929 or 985

5 Fill in the missing numbers: 800, 810, __, __, __, 850, __, __, __, __, 900. (820, 830, 840, 860, 870, 880, 890)

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 comparing, ordering numbers and place value in order to prepare for doing multiplication in Grade 3.

Lesson 39: Preparing for Grade 3 (2)

Teacher's notes
This lesson allows for consolidation of content covered during the year, in preparation for the next grade.
CAPS topics: 1.13 Addition and Subtraction.
Lesson Objective: Revise addition and subtraction with carrying and borrowing.
Lesson Vocabulary: tens, ones, add, column, carry, subtract, borrow.
Resources: Base ten kit.
Date: Week Day

1 NOTES FOR THE TEACHER RELATING TO TOPICS SELECTED FOR CONSOLIDATION

In this lesson the learners will revise addition with carrying and subtraction with borrowing. These strategies build on their knowledge of place value. Being able to solve these problems is the one of the key skills needed to use maths in everyday life.

2 CLASSWORK ACTIVITIES

ADDITION WITH CARRYING

- Write the following number sentence on the board: 35 + 17 =___
- Solve the problem with the learners. *You may refer to Term 2 lesson 2 to assist you.*

	T	O	
	3	5	
+	1	7	
	1	2	O: 5 + 7 = 12
	4	0	T: 30 +10 = 40
	5	2	

Solve the following problems.

1 17 + 34 = _____

	T	O	
	1	7	
+	3	4	
	1	1	O: 7 + 4 = 11
	4	0	T: 10 + 30 = 40
	5	1	

2 48 +76 =_____

	H	T	O	
		4	8	
+		7	1	
			9	O: 8 + 1 = 9
	1	1	0	T: 40 + 70 = 110
	1	1	9	

3 59 + 83 = _____

	T	O	
	5	9	
+	8	3	
	1	2	O: 9 + 3 = 12
1	3	0	T: 50 + 80 = 130
1	4	2	

SUBTRACTION WITH BORROWING

- Write the following number sentence on the board: 90 – 12 =___
- Solve the problem with the learners. *You may refer to Term 2 lesson 11 to assist you.*

	T	O	
	8	1	
	~~9~~	0	
–	1	2	
		8	O: 10 – 2 = 8
	7	0	T: 80 – 10 = 70
	7	8	

Solve the following problems.

1 74 – 56 = (18)

	T	O	
	6	1	
	~~7~~	4	
–	5	6	
		8	O: 14 – 6 = 8
	1	0	T: 60 – 50 = 10
	1	8	

2 65 – 36 = (29)

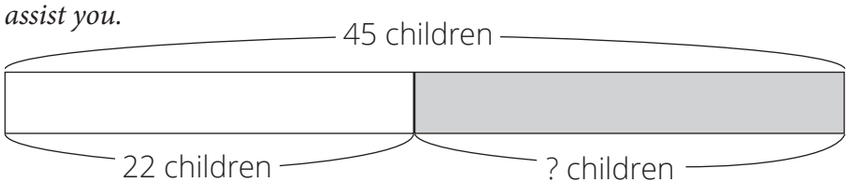
	T	O	
	5	1	
	~~6~~	5	
–	3	6	
		9	O: 15 – 6 = 9
	2	0	T: 50 – 30 = 20
	2	9	

3 81 – 78 = (3)

	T	O	
	7	1	
	~~8~~	1	
–	7	8	
		3	O: 11 – 8 = 3
	0	0	T: 70 – 70 = 0
		9	

WORD PROBLEMS

- Write the following word problem on the board:
  There were 22 children in the classroom.
  Some more children came and joined them.
  Now there are 45 children.
  How many children joined them?
- Draw the bar diagram to represent the story. *You may refer to Term 2 lesson 22 to assist you.*



- Ask: **Is this an addition or subtraction problem?** (Subtraction)
- Let the learners write the number sentence with its answer. (45 – 22 = __)
- Learners may use any strategies (base ten kits, simplified pictorials, number line, column method) to find the answer except counting. If they can solve the problem mentally, that is fantastic.
  45 – 22 = (23)

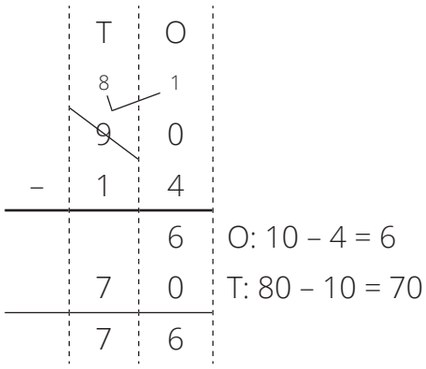
	T	O	
	4	5	
–	2	2	
		3	O: 5 – 2 = 3
	2	0	T: 40 – 20 = 20
	2	3	

Solve the following problems using the column method.

1 Mom buys 17 eggs on Saturday.
She buys 16 eggs on Sunday.
How many eggs did she buy altogether?
(17 + 16 = 33, 33 eggs)

	T	O	
	1	7	
+	1	6	
	1	3	O:7 + 6 = 13
	2	0	T: 10 + 10 = 20
	3	3	

2 Masesi has 90 pencils.
She loses 14 of her pencils.
How many pencils does she have left? (90 – 14 = 76, 76 pencils)



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 addition and subtraction in order to prepare for doing multiplication in Grade 3.

Lesson 40: Preparing for Grade 3 (3)

Teacher's notes
This lesson allows for consolidation of content covered during the year, in preparation for the next grade.
CAPS topics: 1.8 Repeated addition leading to multiplication; 1.14 Repeated addition leading to multiplication.
Lesson Objective: Revise multiplication.
Lesson Vocabulary: Multiples, array, counting, extend, difference, increasing, forwards, backwards, calculate, multiply, times, multiplication table.
Resources: Array diagram (see ***Printable Resources – Term 3***), demo array diagram (teacher), 1 to 5 demo multiplication table (teacher), and multiplication cards (× 2, × 3, × 4 and × 5) (see ***Printable Resources – Term 3***).
Date: Week Day

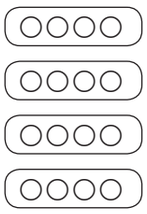
1 NOTES FOR THE TEACHER RELATING TO TOPICS SELECTED FOR CONSOLIDATION

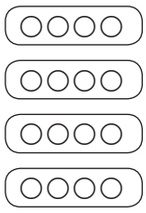
In this lesson we revise multiplication. The learners will play the multiplication games that were played in Term 3 unit 1. The learners will also solve multiplication word problems using an array diagram and/or a multiplication table. These aids help them to visualise (and verbalise) what they are doing .Make sure that the learners have many opportunities to practise using these aids and that they are able to work at their own pace.

2 CLASSWORK ACTIVITIES

MULTIPLICATION WORD PROBLEMS

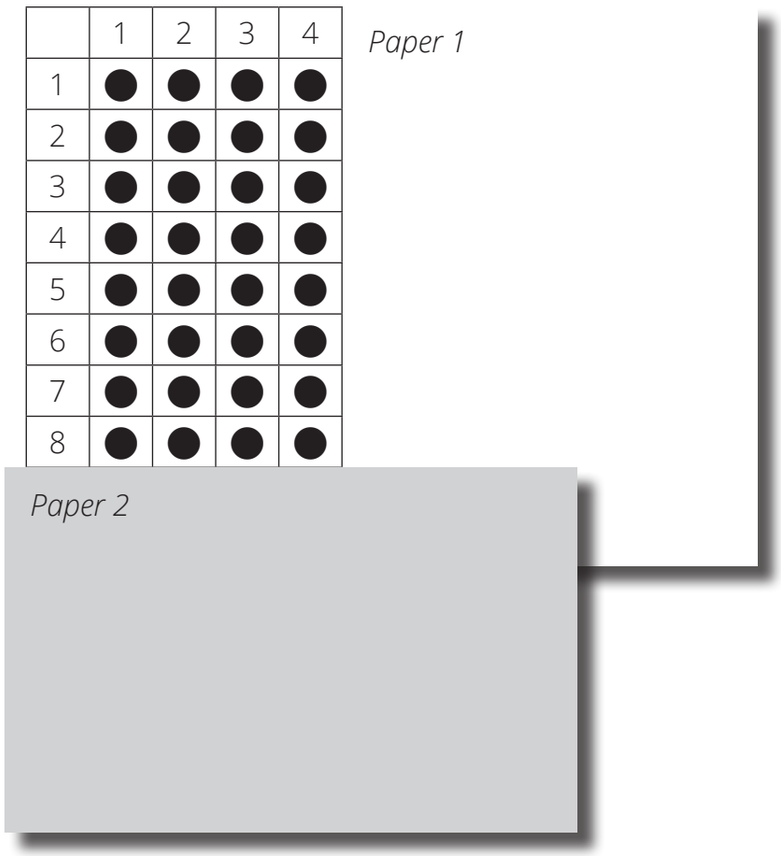
- Write the following problem on the board:
  There are 8 cars.
  Each car has 4 wheels.
  How many wheels are there altogether?
- Read the problem.
- Underline the numbers. (8 and 4)
- Underline the question with wavy line. (How many wheels are there altogether?)
- Let the learners read the problem until they read it fluently.
- Let the learners represent the story with drawings and a multiplication number sentence in their classwork books.





$8 \times 4 =$

- Ask: **Can you show me this multiple on your array diagrams?**
- Let the learners work on their array diagrams at the back of the LAB.
- Walk around to see that all the learners are working correctly.



- Show the movement of Paper 2 on the large array diagram on the board.
- Learners write the answer in their classwork books and you write it on the board for correction. ($8 \times 4 = 32$, 32 wheels)

Solve the following problems using your array diagram:

1 There are 9 groups of children.
There are 5 children in each group.
How many children are there altogether? ($9 \times 5 = 45$, 45 children)

2 There are 3 chocolate bars in a box.
How many chocolate bars are there in 7 boxes? ($7 \times 3 = 21$, 21 chocolates)

MULTIPLICATION TABLES

NOTE: In these activities, learners can use a multiplication table and 2 pieces of paper as they did in term 3 and 4.

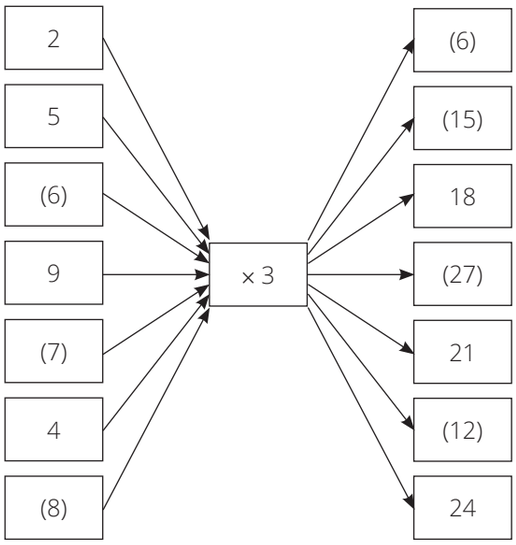
1 Solve the following number sentences:

a 9 × 1 = (9)
b 8 × 3 = (24)
c 6 × 2 = (12)
d 7 × 4 = (28)
e 8 × 5 = (40)
f 9 × 4 = (36)
g 7 × 5 = (35)
h 7 × 2 = (14) i 9 × 3 = (27)
j 6 × 4 = (24)

2 Complete:

	1	(2)	3	4	(5)	6	7	8	9
× 4	(4)	8	(12)	(16)	20	(24)	(28)	(32)	(36)

3 Complete:



MULTIPLICATION CARDS

Use the multiplication cards that were made with the 2, 3, 4 and 5 times tables (Term 3). Let the learners use these cards to play the games outlined in Term 3 Lesson 9.

Game 1

4 One learner picks up one card at a time and reads it out loud.

5 The other learner gives the answer.

6 Learners take turns to ask and answer questions, checking the answers at the back of the card each time.

Game 2

5 Both learners draw a card from the pile.

6 They say the answer to each other.

7 The learner who gets the bigger answer is the winner.

8 When you have completed the cards, you can play the game again but this time the learner who gets the smaller answer is the winner.

Game 3

4 Lay all the cards out with the answers facing up.

5 Pick a card and say the multiplication number sentence for which the number you chose is the answer.

6 Take turns.

Play the multiplication card games. Your teacher will explain the rules.

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 multiplication in order to prepare for doing multiplication in Grade 3.