MATHEMATICS

Grade 2

TERM 2 2019

Lesson Plans

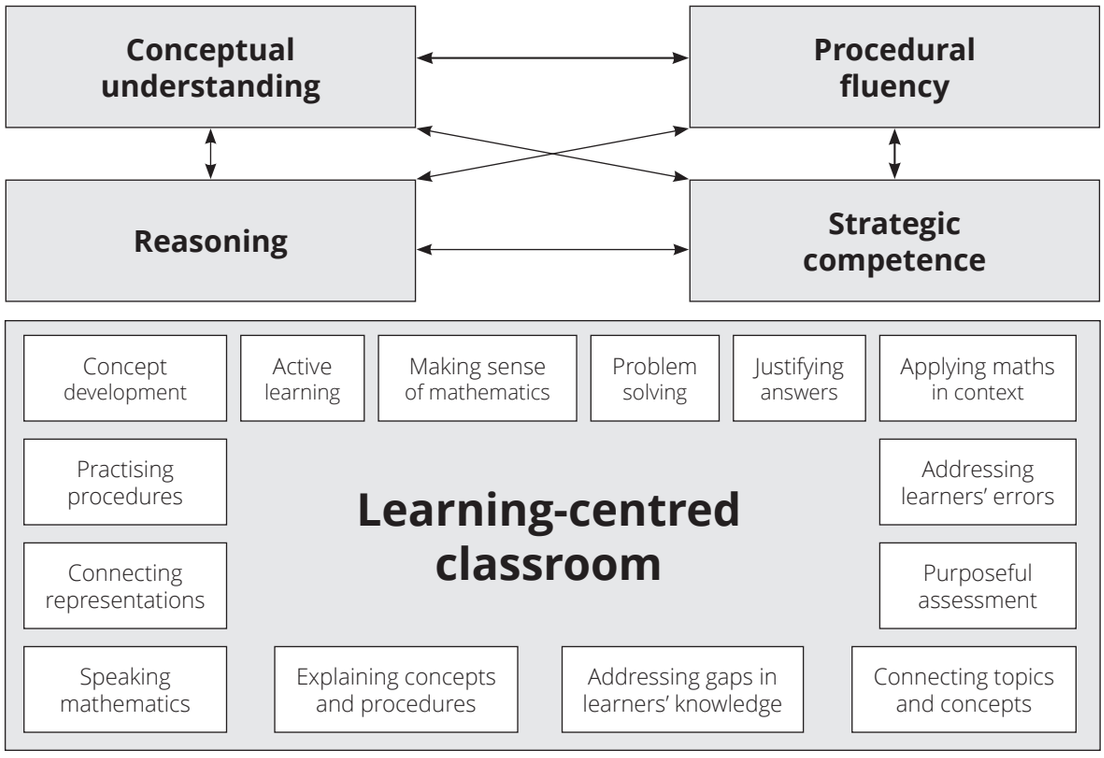
Acknowledgement:

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 units 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

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

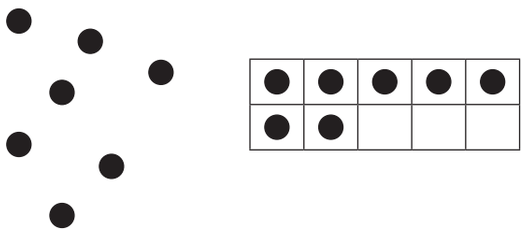
A calculation technique that consists of building up (composition) and breaking down (decomposition). For instance, 4 can be broken down into 1 and 3, 2 and 2 and 3 and 1. These are the number bonds of 4. The number bonds of 10 are the most important since they are used in all calculation strategies.

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.

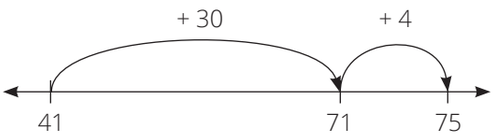
SUBITISING

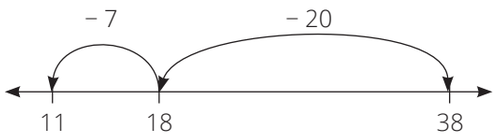
Subitising is 'an instant cognition of the number of objects'. This is one of the most important skills that learners should acquire in the Foundation Phase. A ten frame is a useful tool to help learners to subitise objects. In the example below, it is easier to recognise the number of dots by putting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

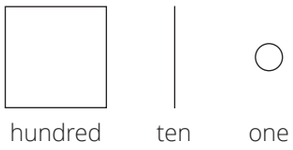
CPA APPROACH

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 ' + ', '–', '×', '÷'.

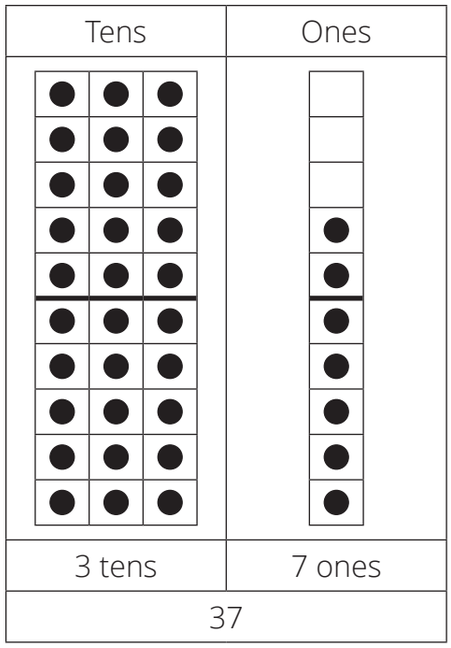
SIMPLIFIED PICTORIALS

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.



PLACE VALUE TABLE

A diagram showing a number using a display of concrete/semi-concrete objects (bottle tops as units 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

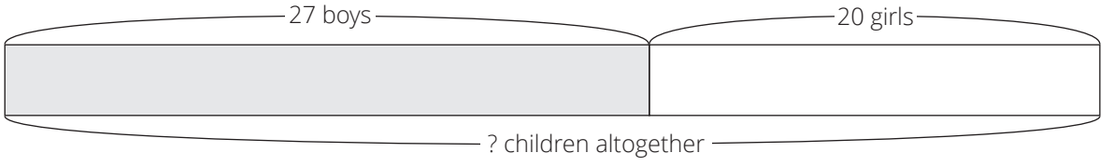
The following is the array diagram of 2 × 4. The order of multiplication is important and it is consistent with CAPS.

MULTIPLICATION TABLE

Multiplication tables show the multiples of numbers – the answers to the multiplication of several 1 × 1 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

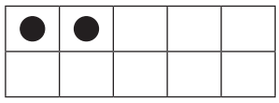
These are concrete apparatus such as counters, printed tens, printed hundreds, box and ball shapes, etc. that can be manipulated by learners.

COUNTERS

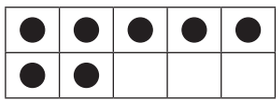
These are any (loose) concrete objects that learners can manipulate when counting. In the TMU bottle tops are recommended since they are freely available but other counters can also be used such as interlocking cubes (e.g. Unifix cubes). Teachers are expected to use concrete counters such as bottle tops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

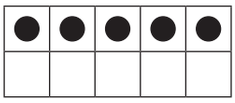


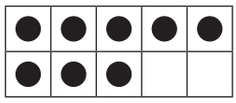
This is the number 7 represented on a double decker ten frame (visual of 5 plus 2):



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)

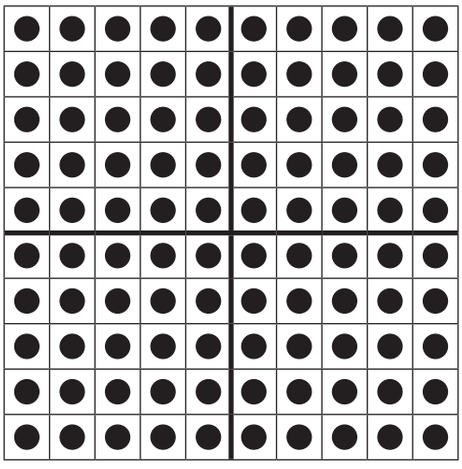
A ten frame which is straight. The thicker line in the middle shows the 5. This line is important because it helps learners to recognise the numbers 6 to 10 by using the building up skill of 5 and … (numbers 1 to 5). A straight ten frame is helpful to deal with numbers bigger than 10.

PRINTED TEN

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

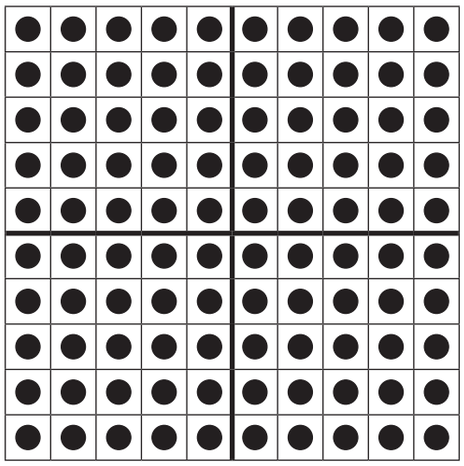
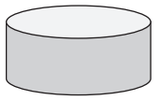
PRINTED HUNDRED (GR 3)

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 count 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 2 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 2 of Grade 2 is covered in a set of 50 numbered lesson plans, paced to cover a 50-day teaching term. This includes 32 fully planned lessons, 8 assessment lessons and 10 consolidation lessons.

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 their mathematics exercise books.
- 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 developing an understanding of addition with carrying and subtraction with borrowing. The learners solve a variety of problems using base ten kits and the column method. It is important for learners to have a sound understanding of carrying and borrowing. These concepts build on their knowledge and understanding of place value. Learners need to be actively engaged in exploring the value of numbers and methods of problem solving.

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

- **Conceptual understanding**: In this unit the concepts of carrying and borrowing of 2-digit numbers will be developed.
- **Procedural fluency**: Learners will develop procedural fluency through repeated opportunities to actively work with borrowing and carrying in different ways.
- **Strategies**: Learners will use base ten kits, the column method or number lines to become: fluent in calculating with 2-digit numbers.
- **Reasoning**: Learners are given opportunities to reason mathematically by giving explanations of how to solve a problem and whether to choose borrowing or carrying.

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

- **Concept development**: Learners need opportunities to construct their own understanding of concepts (such as carrying and borrowing) through thinking and reasoning. For example, when the teacher asks: *Do we need to carry or borrow to solve this problem?* learners need to reason and create a connection between the numbers and place value.
- **Purposeful assessment**: In this unit, learners are purposefully assessed to ensure that they have a sound understanding of addition with carrying and subtraction with borrowing. This number sense will be shown by using place value correctly to solve problems.
- **Speaking Mathematics:** Learners are encouraged to use the vocabulary of addition and subtraction when they speak about what they are doing – they should use all the vocabulary related to adding and subtracting 2-digit numbers.

Lesson 1: Addition and subtraction using the column method

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction.
Lesson Objective: To practise adding and subtracting 2-digit numbers using the column method.
Lesson Vocabulary: tens, ones, add, subtract, column.
Resources: Printed tens (see ***Printable Resources***), bottle tops and place value table (***learners make one in their classwork books***).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Add the following numbers:	**Answer**		Subtract the following numbers:	**Answer**
1	3 + 2 =	5	**6**	6 – 2 =	4
2	4 + 2 =	6	**7**	8 – 6 =	2
3	2 + 5 =	7	**8**	7 – 4 =	3
4	6 + 3 =	9	**9**	8 – 2 =	6
5	4 + 4 =	8	**10**	9 – 1 =	8

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This lesson is a review of addition and subtraction of single digits. In term 1 we introduced learners to addition and subtraction using the base ten kit and the column method. This lesson will revise how to work with the base ten kit in a place value table for addition and subtraction as well as the column method (abstract representation of numbers).

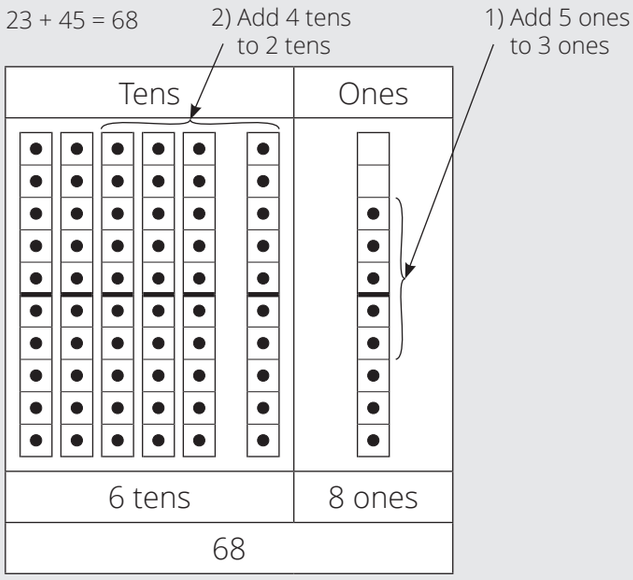
In this lesson ask learners to make a place value table in their classwork books using a double spread of pages. They should make two columns (one on each page) and label them tens and ones. They will use this table when they work with their base ten kits.

Today we are going over what we learned last term. We are revising addition and subtraction using base ten kits and the column method.

Activity 1: Whole class activity

- Write 23 + 45 = __ on the board
- Give the learners a few minutes to work on the problem individually.

- Ask learners to discuss their strategies and answers with the person sitting next to them. Remind the learners that they solved these sorts of problems last term.
- Let some pairs present their work on the board.
- For corrections show how to work with base ten kits as follows:



- Use base ten kits to show the calculation on the place value table.
- You may want to refer to the term 1 lesson plans for a detailed description of the steps.
- Move onto revising the column method with the learners.
- You may want to refer to the term 1 lesson plans for a detailed description of the steps.
- Write 23 + 45 = __ on the board.
- Explain to the learners that we will now be solving this question using the column method.
- As you do the working, you should talk through the steps with the class.

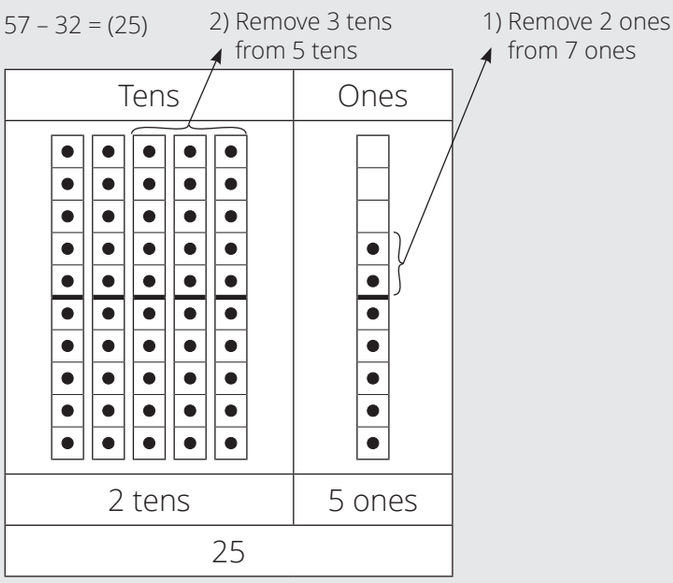
	T	O	
	2	3	
+	4	5	
		8	O: 3 + 5 = 8
	6	0	T: 20 + 40 = 60
	6	8	

Steps:

1. Write 23 and 45 aligning the ones and tens vertically in columns.
2. Start adding in the ones place, writing O: 3+5=8 in the space on the right next to the first line in the solution.
3. Write 8 under the line in the ones place
4. Write T: 20+40=60 under O: 3+5=8 in the space on the right next to the second line in the solution and write 60 under 8, writing the 6 and 0 in the appropriate places.
5. Add 8 and 60 vertically and get the answer 68.

Activity 2: Whole class activity

- Write 57 – 32 = __ on the board
- Give the learners a few minutes to work on the problem individually.
- Ask learners to discuss their strategies and answers with the person sitting next to them. Remind the learners that they solved these sorts of problems last term.
- Let some pairs present their work on the board.
- For corrections, show how to work in a place value table as follows:



- You should discuss each step. Ensure that you use the correct language- ones, tens, subtract.
- You may want to refer to the term 1 lesson plans for a detailed description of the steps.
- Move onto revising the column method with the learners.
- You may want to refer to the term 1 lesson plans for a detailed description of the steps.
- Write 57 – 32 = __ on the board.
- Explain to the learners that we will now be solving this question using the column method.
- As you do the working, you should talk through the steps with the class.

	T	O	
	5	7	
–	3	2	
		5	O: 7 – 2 = 5
	2	0	T: 50 – 30 = 20
	2	5	

Steps:

1. Write 57 and 32 aligning the ones and tens vertically in columns.
2. Start subtracting in the ones place, writing O: 7-2=5 in the space on the right next to the first line in the solution.

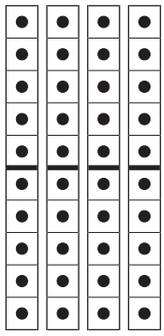
3 Write 5 under the line in the ones place
4 Write T: 50-30=20 under O: 7-2= 5 in the space on the right next to the second line in the solution and write 20 under 5, writing the 2 and 0 in the appropriate places.
5 Add 5 and 20 vertically and get the answer 25.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learners should use their own base ten kits while they work through this activity. Note also that the illustrations below in the lesson plans show the base ten kit solutions. Learners should use their base ten kits to find the solutions, but they must record their numeric answers using a place value table and the column method.

Calculate using a place value table and the column method.

a 15 + 32 = ___ (47)

Tens	Ones
	
4 tens	7 ones
47	

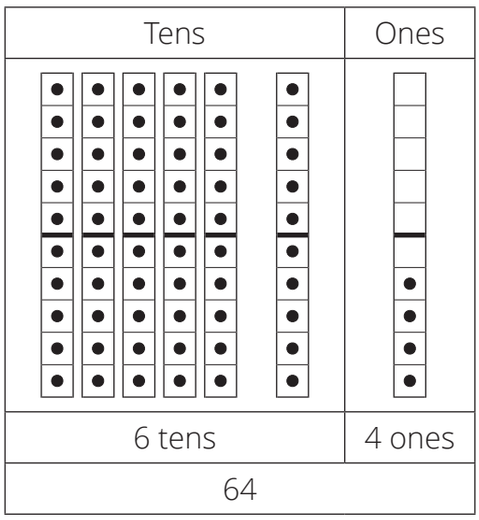
	T	O	
	1	5	
+	3	2	
		7	O: 5 + 2 = 7
	4	0	T: 10 + 30 = 40
	4	7	

b 38 – 24 = ___ (14)

Tens	Ones
	
1 ten	4 ones
14	

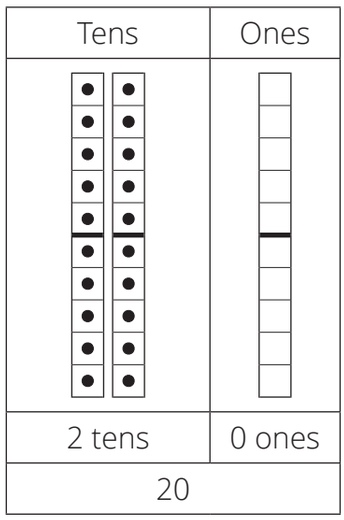
	T	O	
	3	8	
–	2	4	
		4	O: 8 – 4 = 4
	1	0	T: 30 – 20 = 10
	1	4	

c 24 + 40 = ___ (64)



	T	O	
	2	4	
+	4	0	
		4	O: 4 + 0 = 4
	6	0	T: 20 + 40 = 60
	6	4	

b 65 – 45 = ___ (20)

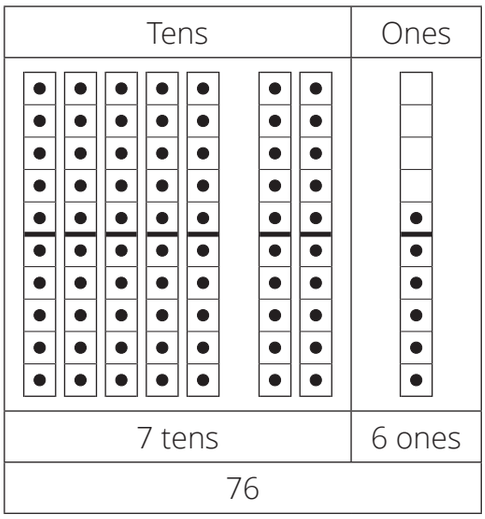


	T	O	
	6	5	
–	4	5	
		0	O: 5 – 5 = 0
	2	0	T: 60 – 40 = 20
	2	0	

4 HOMEWORK ACTIVITY (5 MINUTES)

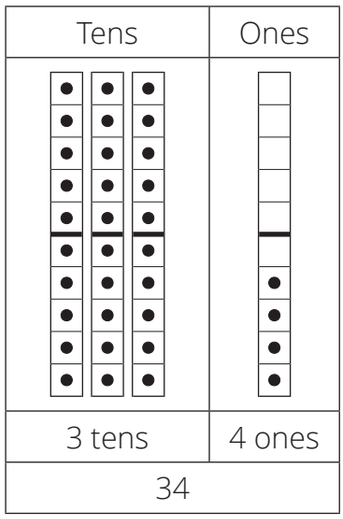
Calculate using a place value table and the column method.

a 45 + 31 = ___ (76)



	T	O	
	4	5	
+	3	1	
		6	O: 5 + 1 = 6
	7	0	T: 40 + 30 = 70
	7	6	

b 67 – 33 = ___ (34)



	T	O	
	6	7	
–	3	3	
		4	O: 7 – 3 = 4
	3	0	T: 60 – 30 = 30
	3	4	

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 solved addition and subtraction problems. We revised solving problems using the place value table and the column method.

Lesson 2: Addition with carrying in the ones place

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction.
Lesson Objective: To introduce the column method of addition with carrying in the ones place using a base ten kit.
Lesson Vocabulary: tens, ones, add, column, carry.
Resources: Printed tens (see ***Printable Resources***), bottle tops and place value table.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Add the following numbers:	**Answer**			**Answer**
1	9 + 2 =	11	**6**	9 + 3 =	12
2	8 + 4 =	12	**7**	8 + 5 =	13
3	6 + 6 =	12	**8**	6 + 5 =	11
4	7 + 3 =	10	**9**	7 + 6 =	13
5	7 + 7 =	14	**10**	9 + 6 =	15

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

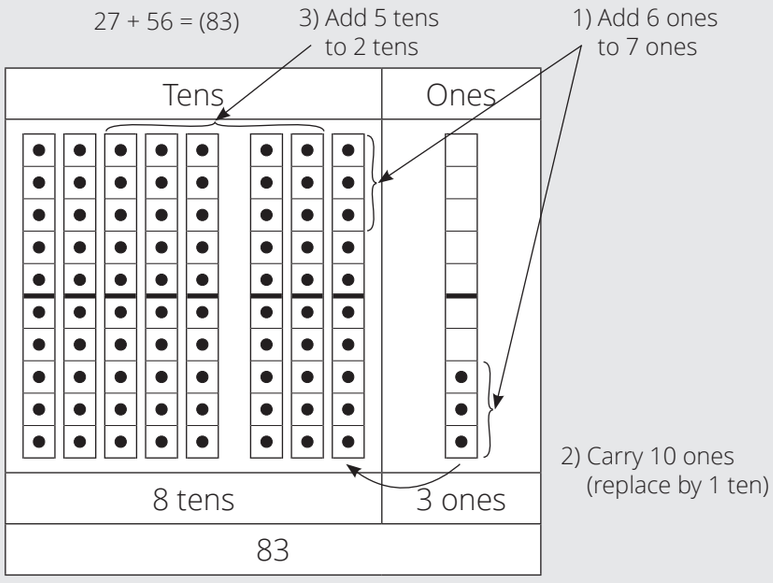
Today is the first lesson where learners are introduced to addition with carrying in the ones place. We will begin by introducing learners to carrying 10 ones to the tens place. It is important that learners should understand how to exchange 10 ones to 1 ten using the base ten kit. They will learn how to do this using the base ten kit which is a concrete activity that helps them to understand why one ten is 'carried' to the tens place.

Today we are learning addition with carrying in the ones place.

Activity 1: Whole class activity

- Begin the lesson by asking: **how many ones fill a ten frame?** (10) Ask them to remember this as you complete the lesson.
- Write 27 + 51 = __ on the board.
- Let learners solve the problem.
- Using the diagram interactively with the class while revising the steps to solve the question
  27 + 51 = __.
- Write 27 + 56 = __ on the board.

- Let learners solve the problem.
- Draw a place value table on the board and display the number 27 in it, using your base ten kit.
- Ask: **How would you solve this problem?**
- Allow learners to solve this problem with you using the steps from term 1.
- Show the learners 20 as 2 tens and 7 ones. Place them in the place value table.
- Ask: **What are we going to add to 27**? (56)
- Yes, we will add 6 ones to the 7 ones, and 5 tens to the 2 tens.
- When we add 6 and 7 we get? (13). **How many tens and ones in 13?** (It is 1 ten and 3 ones)
- Now we carry the 10 ones to the tens place (show the exchange of ten ones for 1 ten using the base ten kit when you do this).
- Add the tens together.
- Ask: **How many tens are there?** (8 tens)
- Ask: **How many ones there are?** (3 ones)
- Ask: **What is the answer?** (83)
  27 + 56 = (83)



Activity 2: Whole class activity

- Write 27 + 56 = ___ on the board.
- Let learners solve this problem using expanded notation.
- Write: 27 + 56 = 20 + 7 + 50 + 6
  = (20 + 50) + (7 + 6)
  = 70 + 13
  = 83
- Ask: **How is this similar to the place value table?** (The same answer. Calculate by breaking down the numbers according to place, into ones and tens.)

- Discuss that this is a different strategy that can be used to solve an addition problem.
- We will now solve the same problem using the column method.

	T	O	
	2	7	
+	5	6	
	1	3	O: 7 + 6 = 13
	7	0	T: 20 + 50 = 70
	8	3	

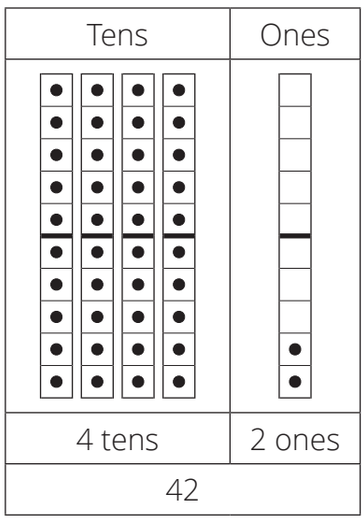
- Discuss how we carry 1 ten from the 13 in the ones place to the tens place and that we do not write 13 in the ones place, we only write the 3 that remains in the ones place.
- It is very important that the learners understand the concept of carrying over when you have a ten as the answer in the ones place.
- Ask: **How is this similar to the place value table?** (The same answer. One ten of the 13 is moved into the tens place.)
- Discuss that these are two strategies for solving an addition problem.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: While the learners are solving these problems walk around the class. Assist those who may be struggling with the column method and carrying the tens. Learners should be using their base ten kits in the place value table which they drew into their classwork book. Help them to make the connection between the manipulation they do with the base ten kits and the numeric recording they write in their books. The solutions are shown below.

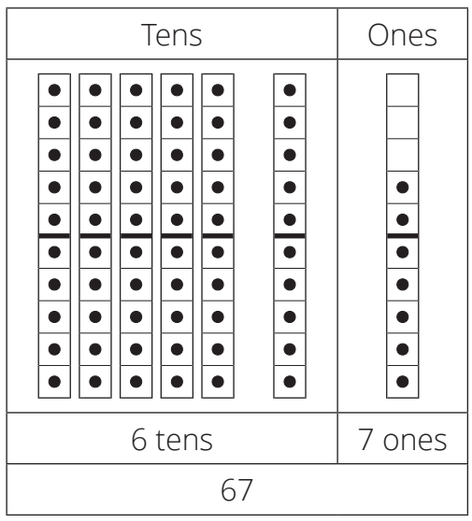
Calculate using a place value table and the column method.

a 19 + 23 = ___ (42)



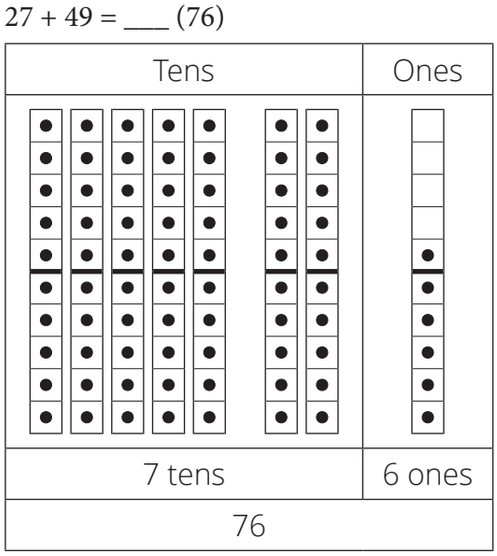
	T	O	
	1	9	
+	2	3	
	1	2	O: 9 + 3 = 12
	3	0	T: 10 + 20 = 30
	4	2	

b 38 + 29 = ___ (67)



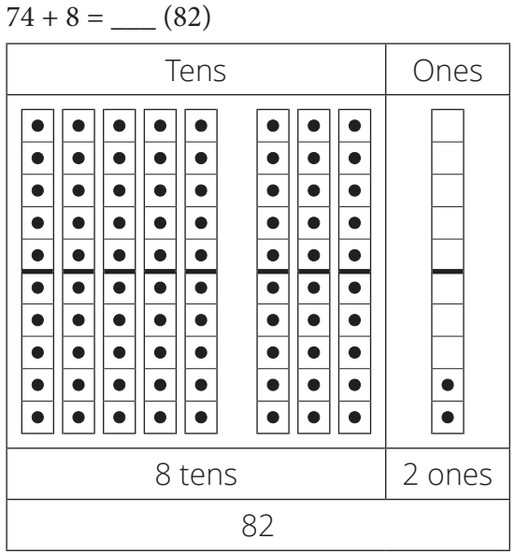
	T	O	
	3	8	
+	2	9	
	1	7	O: 8 + 9 = 17
	5	0	T: 30 + 20 = 50
	6	7	

c 27 + 49 = ___ (76)



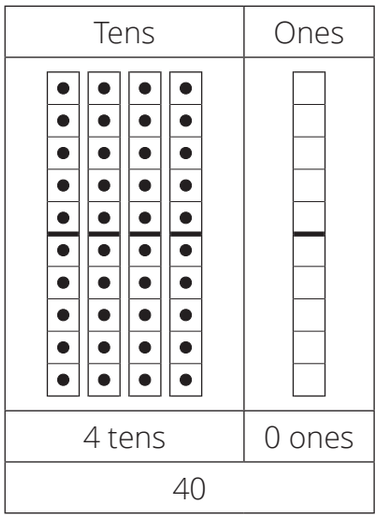
	T	O	
	2	7	
+	4	9	
	1	6	O: 7 + 9 = 16
	6	0	T: 20 + 40 = 60
	7	6	

d 74 + 8 = ___ (82)



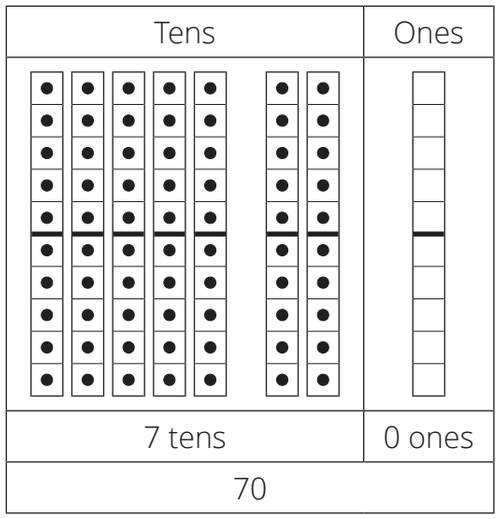
	T	O	
	7	4	
+		8	
	1	2	O: 4 + 8 = 12
	7	0	T: 70 + 0 = 70
	8	2	

e 27 + 13 = ___ (40)



	T	O	
	2	7	
+	1	3	
	1	0	O: 7 + 3 = 10
	3	0	T: 20 + 10 = 30
	4	0	

f 16 + 54 = ___ (70)

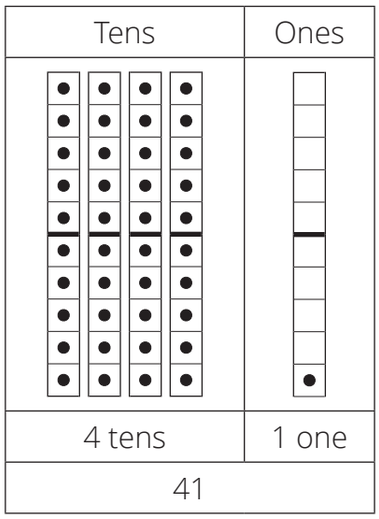


	T	O	
	1	6	
+	5	4	
	1	0	O: 6 + 4 = 10
	6	0	T: 10 + 50 = 60
	7	0	

4 HOMEWORK ACTIVITY (5 MINUTES)

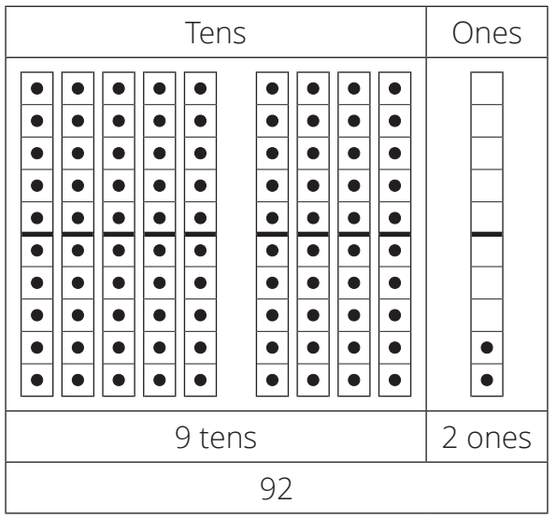
Calculate using a place value table and the column method.

a 17 + 24 = ___ (41)



	T	O	
	1	7	
+	2	4	
	1	1	O: 7 + 4 = 11
	3	0	T: 10 + 20 = 30
	4	1	

b 7 + 85 = ___ (92)



	T	O	
		7	
+	8	5	
	1	2	O: 7 + 5 = 12
	8	0	T: 0 + 80 = 80
	9	2	

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have solved addition problems with carrying to the tens place. We revised solving problems using the place value table and the column method.

Lesson 3: Practising addition with carrying

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction.
Lesson Objective: To practise addition of 2-digit numbers with carrying using the column method. Use commutative property to check the answer.
Lesson Vocabulary: tens, ones, add, column, carry.
Resources: Printed tens (see ***Printable Resources***), bottle tops and place value table.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Add the following numbers:	**Answer**			**Answer**
1	9 + 6 =	15	**6**	9 + 5 =	14
2	8 + 8 =	16	**7**	9 + 7 =	16
3	6 + 7 =	13	**8**	6 + 8 =	14
4	7 + 7 =	14	**9**	9 + 9 =	18
5	7 + 8 =	15	**10**	9 + 6 =	15

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

Today is the second lesson in which learners practise the column method of addition with carrying. The learners may be experiencing difficulties with the concept of carrying. It is very important that you revise the steps with them at their own pace. During the lesson the concept of carrying must be linked to place value with the help of the exchanges made using the base ten kit. The reason we carry is because the group of ones is larger than 10. We exchange 10 ones for 1 ten by using the base ten kit. During activity 2 the learners will use the commutative property of addition. The commutative property states that it does not matter in which order you add 2 numbers, the answer will be the same. For example: 21 + 14 = 35 is the same as 14 + 21 = 35.

Today we are practising addition with carrying in the ones place.

Activity 1: Whole class activity

- Write 35 + 17 = __ (52) on the board.
- Let learners solve this problem using the base ten kit in the place value table and expanded notation. Refer to lesson 2 for the steps if you need to.
- Involve the learners in each strategy.

- Ask individual learners to come to the board to solve each problem.
- Solve 35 + 17 = __ using the column method. Refer to lesson 2 for the steps.

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

Steps:

1. Write 35 and 17 aligning the ones and tens vertically in columns.
2. Start adding in the ones place, writing O: 5+7=12 in the space on the right next to the first line in the solution.
3. Write 12 under the line, with 1 in the tens place and 2 in the ones place.
4. Write T: 30+10=40 under O: 5+7=12 and write 40 under 12 putting the 4 and 0 in the appropriate places.
5. Add 12 and 40 vertically to get the answer 52.

- Keep 35 + 17 = 52 and the written working using the column method on the board for Activity 2.

Activity 2: Whole class activity

- Write 17 + 35 = __ next to 35 + 17 = 52 (from Activity 1) on the board.
- Ask: **Can you see anything similar between the two problems?** (The same numbers but in a different order)
- Let learners solve 17 + 35 = __ using the column method as shown below.

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

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

- Discuss with the learners that the order of the numbers may be different but the answer is the same. You can check if the answer 52 is correct for 35 + 17 = __ by swapping numbers to make it 17 + 35 = __and then seeing if the answer is the same, 52.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

The learners will be solving problems using the column method. While they are working walk around the class to check that each learner has grasped the concept of carrying. Discuss the work with the learners. Ask: **What do you know about d) and e)?** (They have

the same answer.) **Why?** (Because the order of addition does not affect the answer. So we can use 69 + 21 = 90 to check if 21 + 69 = 90 is correct or not.)

Calculate using the column method.

a 27 + 24 = __ (51)

	T	O	
	2	7	
+	2	4	
	1	1	O: 7 + 4 = 11
	4	0	T: 20 + 20 = 40
	5	1	

b 16 + 18 = __ (34)

	T	O	
	1	6	
+	1	8	
	1	4	O: 6 + 8 = 14
	2	0	T: 10 + 10 = 20
	3	4	

c 39 + 58 = __ (97)

	T	O	
	3	9	
+	5	8	
	1	7	O: 9 + 8 = 17
	8	0	T: 30 + 50 = 80
	9	7	

d 21 + 69 = __ (90)

	T	O	
	2	1	
+	6	9	
	1	0	O: 1 + 9 = 10
	8	0	T: 20 + 60 = 80
	9	0	

e 69 + 21 = __ (90)

	T	O	
	6	9	
+	2	1	
	1	0	O: 9 + 1 = 10
	8	0	T: 60 + 20 = 80
	9	0	

4 HOMEWORK ACTIVITY (5 MINUTES)

Calculate using the column method.

a 28 + 12 = __ (40)

	T	O	
	2	8	
+	1	2	
	1	0	O: 8 + 2 = 10
	3	0	T: 20 + 10 = 30
	4	0	

b 13 + 67 = __ (80)

	T	O	
	1	3	
+	6	7	
	1	0	O: 3 + 7 = 10
	7	0	T: 10 + 60 = 70
	8	0	

c 54 + 17 = __ (71)

	T	O	
	5	4	
+	1	7	
	1	1	O: 4 + 7 = 11
	6	0	T: 50 + 10 = 60
	7	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 practised solving addition problems using the column method and carrying. We also learnt that it doesn't matter the order that the numbers are in when we add as we get the same answer.

Lesson 4: Addition with carrying on a number line

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction.
Lesson Objective: To solve addition problems with carrying on a number line.
Lesson Vocabulary: tens, ones, add, column, carry, number line, multiple.
Resources: Printed tens (see ***Printable Resources***), bottle tops and place value table.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

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

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

Today is the third lesson in which learners practise the column method of addition with carrying and they also use the number line method. In this lesson learners use the column method to check their answers on the number line. While teaching the number line method we will use the jump-to-tens method. The name of this method is for your knowledge. The method involves borrowing from the second number to move to the closest multiple of 10. An example is given in activity 2.

Today we are practising addition using the number line and column method.

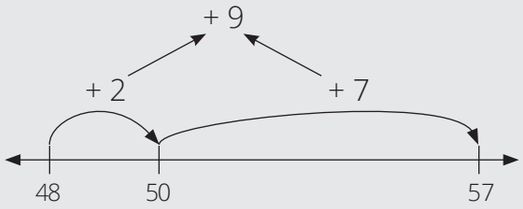
Activity 1: Learners work in pairs

- Write the following on the board:
  43 + __ = 50 (7),
  65 + ___ = 70 (5),
  22 + _____ = 30 (8),
  71 + ___ = 80 (9) and
  56 + ___ = 60 (4).
- In pairs ask the learners to fill in the missing numbers.

- Once they have completed the answers let some learners give their answers and others write their answers on the board.
- Ask: **Do you notice anything about the answers?** (They are all multiplies of 10. We made tens. We bridged to the next ten.)
- Revise with the learners what a multiple of 10 is. (It is a number which is a certain number of tens, e.g. 10, 20, 30, 40, 50, etc..)

Activity 2: Whole class activity

- Write 48 + 9 = __ on the board.
- Instruct learners to solve it using a number line.
- Ask: **What multiple of 10 is closest to 48?** (50) **How many do we add to 48 to get 50?** (2)
- Draw the number line as shown below and show the jump to 50.
- Ask: **If we took 2 from the 9 to get to 50 how many must we still add?** (7)
- Show the next jump – jump along 7 on the number line.
- Ask: **What will the answer be?** (57)



48 + 9 = (57)

Activity 3: Whole class activity

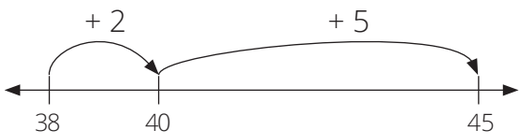
- Check the answer for activity 2 using the column method with the learners
  48 + 9 = __ (57)

	T	O	
	4	8	
+		9	
	1	7	O: 9 + 8 = 17
	4	0	T: 40 + 0 = 40
	5	7	

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Solve using a number line. Check your answer using the column method.

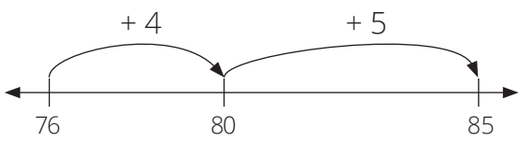
a 38 + 7 = __ (45)



	T	O	
	3	8	
+		7	
	1	5	O: 8 + 7 = 15
	3	0	T: 30 + 0 = 30
	4	5	

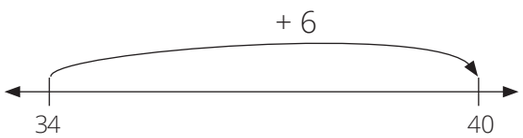
b 9 + 76 = __ (85)

I can swop 9 and 76, because I learnt in Lesson 3 that 9+76 and 76+9 have the same answer.



	T	O	
		9	
+	7	6	
	1	5	O: 9 + 6 = 15
	7	0	T: 0 + 70 = 70
	8	5	

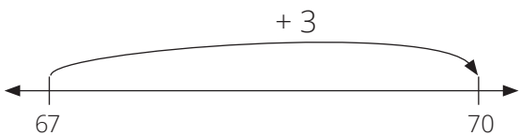
c 34 + 6 = __ (40)



	T	O	
	3	4	
+		6	
	1	0	O: 4 + 6 = 10
	3	0	T: 30 + 0 = 30
	4	0	

d 3 + 67 = __ (70)

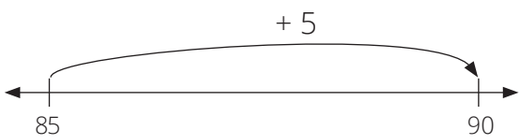
I can swop 3 and 67, because I learnt in Lesson 3 that 3+67 and 67+3 have the same answer.



	T	O	
		3	
+	6	7	
	1	0	O: 3 + 7 = 10
	6	0	T: 0 + 60 = 60
	7	0	

e 5 + 85 = __ (90)

I can swop 5 and 85, because I learnt in Lesson 3 that 5+85 and 85+5 have the same answer.



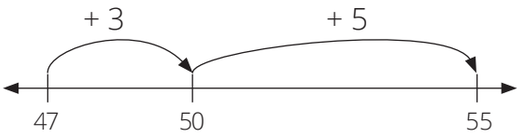
	T	O	
		5	
+	8	5	
	1	0	O: 5 + 5 = 10
	8	0	T: 0 + 80 = 80
	9	0	

4 HOMEWORK ACTIVITY (5 MINUTES)

Solve using a number line. Check your answer using the column method.

47 + 8 = ___ (55)

47 + 8 = (55)



	T	O	
	4	7	
+		8	
	1	5	O: 7 + 8 = 15
	4	0	T: 40 + 0 = 40
	5	5	

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have solved addition problems with carrying. We solved them using both number lines and the column method. We also compared the methods.

Lesson 5: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.13 Addition and Subtraction.		
Lesson Objective: To revise and practise addition of 2-digit numbers with carrying.		
Lesson Vocabulary: tens, ones, add, column, carry, number line, multiples of 10.		
Resources: Printed tens (see ***Printable Resources***), bottle tops and place value table.		
Date:	Week	Day

1 NOTES FOR THE TEACHER RELATING TO THIS WEEK'S WORK

This week the work which has been covered is addition of 2-digit numbers with carrying. The strategies which have been used are expanded notation, number lines and the column method. These written strategies were supported by the use of a base ten kit in a place value table. It is important that you show the connections between these methods and the concrete manipulation of the base ten kit. This will help learners to understand what they are doing and not just follow the method without thinking about it.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

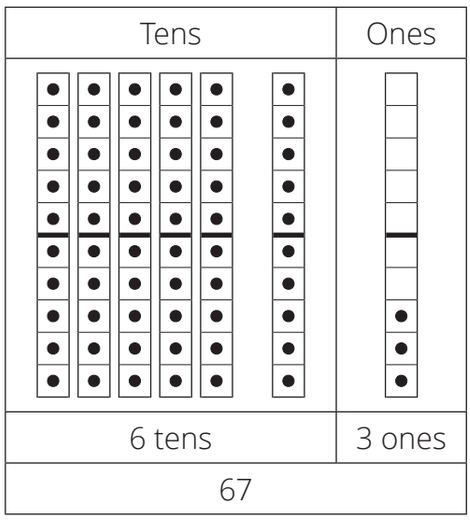
The learners may be experiencing difficulties with the concept of carrying. It is very important that you revise the steps with them at their own pace. The learners may also be struggling to understand the relationship between the different strategies. You should spend some time revising each strategy and discussing their similarities and differences and making the connections between them.

3 CLASSWORK/HOMEWORK – COMPLETE THIS WEEK'S CLASSWORK AS NEEDED

Today we are going over what we learned this week. We are learning more about addition with carrying.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 Calculate using a place value table and the column method.
26 + 37 = __ (63)



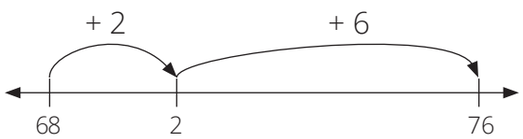
	T	O	
	2	6	
+	3	7	
	1	3	O: 6 + 7 = 13
	5	0	T: 20 + 30 = 50
	6	3	

2 Solve using expanded notation and the column method.
17 + 34 = ___ (51)

17 + 34 = 10 + 7 + 30 + 4
= (10 + 30) + (7 + 4)
= 40 + 11
= 51

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

3 Solve using a number line and the column method.
68 + 8 = __ (76)



	T	O	
	6	8	
+		8	
	1	6	O: 8 + 8 = 16
	6	0	T: 60 + 0 = 60
	7	6	

5 REFLECTION AND SUMMARY OF LESSON

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

Today we have practised adding 2-digit numbers with carrying using different strategies.

Week 2

Lesson 6: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 1.13 Addition and Subtraction.		
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:

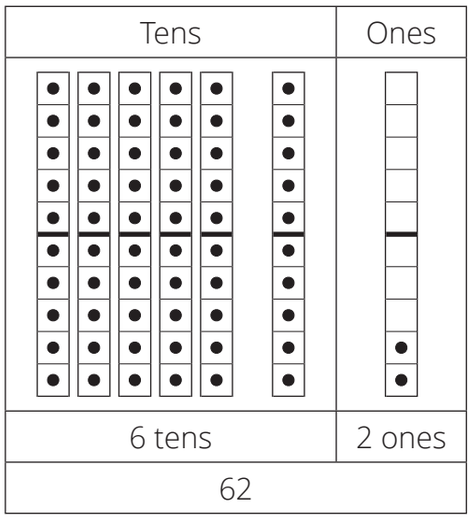
- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.

3 ASSESSMENT

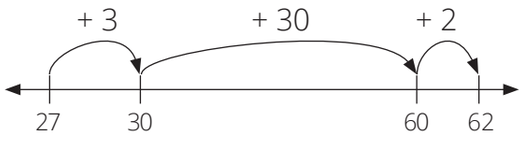
NOTE: In question 1 of this activity learners should use their base ten kits. You need to watch them and see if they use the kits correctly to find the answers. They do not draw the solution that is shown for the base ten kit.

WRITTEN ASSESSMENT (10 MARKS)

1 Solve 27 + 35 = ___ (62) using a base ten kit and place value table. (3)



2 Solve 27 + 35 = ___ (62) using a number line. (3)



3 Calculate 27 + 35 = ___ (62) using the column method. (3)

	T	O	
	2	7	
+	3	5	
	1	2	O: 7 + 5 = 12
	5	0	T: 20 + 30 = 50
	6	2	

4 Circle the method that you found easiest. (1)

(Learners circle one of their solutions above. There is not wrong answer here; they might find any of the methods easiest. Ask them to explain their answers verbally if there is time. Answers will vary. E.g. I found the column method easiest because it is quick/ I understand it/ I don't need to break down 35 into 3, 30 and 2. OR I found the number line method is easiest, because I need less space to work on it, etc. Learners do not have to write the explanation here.)

Lesson 7: Addition with carrying in context

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.7 Addition and subtraction; 1.13 Addition and Subtraction.		
Lesson Objective: To solve addition problems with carrying in context by interpreting a bar diagram.		
Lesson Vocabulary: tens, ones, add, carry, bar diagram, number sentence.		
Resources: n/a.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	8 + 3 =	11	**6**	7 + 5 =	12
2	9 + 5 =	14	**7**	8 + 3 =	11
3	6 + 9 =	15	**8**	6 + 8 =	14
4	7 + 7 =	14	**9**	7 + 8 =	15
5	9 + 8 =	17	**10**	9 + 9 =	18

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

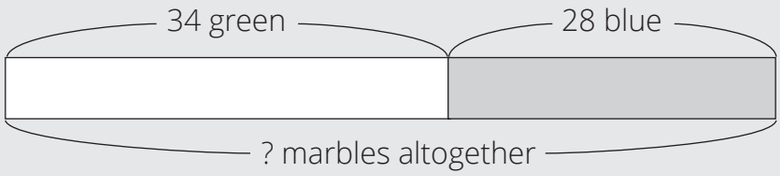
Today we will solve addition with carrying problems in context. This means that we will solve real life addition problems. We will be using bar diagrams that involve combine, compare and change. You may wish to refer to Term 1 lesson 34 to revisit this concept. *You should also refer to the tracker for the summary of the problem solving approach used in this lesson.*

Today we are learning to solve addition problems using bar diagrams.

Activity 1: Whole class activity

- Write the following word problem on the board.
- This is an example of an addition (combine) question.
  Nosisi has 34 green marbles and
  28 blue marbles.
  How many marbles does Nosisi have altogether?
- *The word problem must be written as above (3 separate lines) to assist learners to identify the critical information/numbers needed to solve the problem.*
- Read the problem.
- Let learners read the problem until they read it fluently.

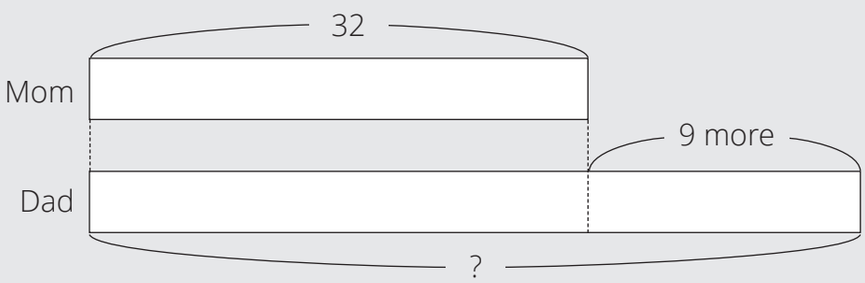
- Underline the numbers, 34 and 28.
- Underline the question (How many marbles does Nosisi have altogether?) with a wavy line.
- Draw the following bar diagram.



- Let learners copy the diagram into their classwork books.
- Let learners write the number sentence.
- Let learners present their number sentence and explain which operation should be used to calculate the solution to the problem.
- Let the learners solve the number sentence (34 + 28 = 62).
- Ask: **What is the answer for the word problem?** (Nosisi has **62 marbles**).
- *Learners have to answer with the unit, 62 marbles.*

Activity 2: Whole class activity

- *This second activity is an example of addition (compare).*
- Let learners solve the problem below by following the steps in Activity 1.
  My mom is 32 years old and
  my dad is 9 years older than her.
  How old is my dad?
- *The bar diagram for this problem is as follows. Draw it on the board for the learners to copy.*



- The number sentence that expresses the solution is 32 + 9 = __ (41).
- The answer is my dad is 41 years old.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

This classwork should be done as a class so that you and the learners can discuss and solve the problems together. Write the question and draw a bar diagram. Let learners find the number sentence that expresses the solution to the problem and solve it. You must write the problems on the board (in 3 lines, to show the information clearly) and draw the diagrams

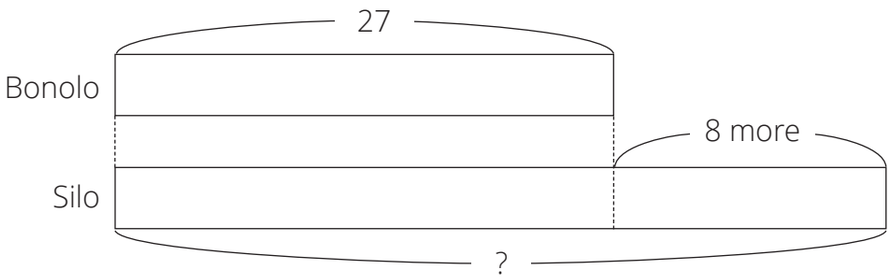
with the learners. They will not draw the diagrams by themselves in this lesson (they will do this in a later lesson). The first example below is addition combine and the second one is addition compare.

Solve the following problems:

1 I had 23 oranges.
My dad gave me 9 oranges.
How many do I have now?

(23 + 9 = 32, I have 32 oranges now.)

2 Bonolo has 27 bananas.
Silo has 8 more bananas than Bonolo.
How many bananas does Silo have?

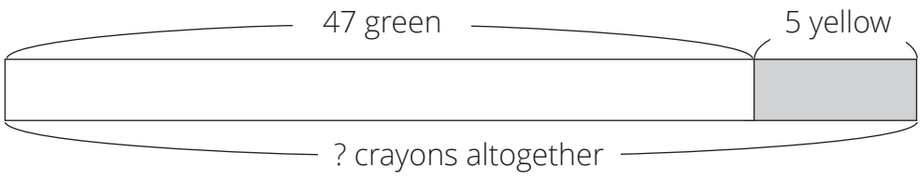


(27 + 8 = 35, Silo has 35 bananas.)

4 HOMEWORK ACTIVITY (5 MINUTES)

Solve the problem:

1 Thabo has 47 green crayons and
5 yellow crayons.
How many crayons does Thabo have altogether?



(47 + 5 = 52, Thabo has 52 crayons.)

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 solved real life addition problems with carrying. We used bar diagrams to solve these problems.

Lesson 8: Making addition number sentences

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.13 Addition and Subtraction.		
Lesson Objective: To write and solve number sentences.		
Lesson Vocabulary: tens, ones, add, carry, number sentence.		
Resources: n/a.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	Solve:	Answer			Answer
1	8 + __ = 10	2	**6**	7 + __ = 8	1
2	__+ 5 = 8	3	**7**	__+ 3 = 7	4
3	6 + ___ = 6	0	**8**	6 +__ = 9	3
4	7 +__ = 9	2	**9**	7 +__ = 10	3
5	0 +__ = 7	7	**10**	__+ 2 = 6	4

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

Today the learners will be writing addition number sentences and solving them using the column method. The lesson will begin with you modelling how to write number sentences. The learners will then make up their own number sentences and solve them.

Today we are learning to write and solve addition number sentences.

Activity 1: Whole class activity

- Write the following number sentence on the board:12 + 38 = __ (50)
- Let learners solve the problem.
- Ask a learner to come to the board to solve this problem using the column method.
- Write the following number sentence:47 + 3 = __ (50)
- Ask the learners to solve the problem.
- Ask a learner to come to the board to solve this problem using the column method
- Ask: **Do you notice anything similar between the two problems?** (They both have an answer of 50).
- **Can you give me another number sentence where the answer is 50?**
- Allow the learners to give you examples. Write these examples on the board and solve them using the column method to check that the answer is 50.

Activity 2: Learners work in pairs

- Use Activity 1 as a guideline.
- Write 19 + 46 = __ (65) on the board.
- Let learners solve the problem using the column method.
- Learners should now work in pairs and take turns to make up number sentences with the answer of 65. (One learner should give the number sentence and the other one should check the answer using the column method.)

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Use the column method to check these answers. Mark each one with a tick or a cross.

1 65 + 15 = 78 (incorrect)

	T	O	
	6	5	
+	1	5	
	1	0	O: 5 + 5 = 10
	7	0	T: 60 + 10 = 70
	8	0	

2 24 + 69 = 93 (correct)

	T	O	
	2	4	
+	6	9	
	1	3	O: 4 + 9 = 13
	8	0	T: 20 + 60 = 80
	9	3	

3 29 + 55 = 84 (correct)

	T	O	
	2	9	
+	5	5	
	1	4	O: 9 + 5 = 14
	7	0	T: 20 + 50 = 70
	8	4	

4 36 + 18 = 52 (incorrect)

	T	O	
	3	6	
+	1	8	
	1	4	O: 6 + 8 = 14
	4	0	T: 30 + 10 = 40
	5	4	

4 HOMEWORK ACTIVITY (5 MINUTES)

Use the column method to check this addition. Mark it with a tick or a cross.

28 + 17 = 45 (correct)

	T	O	
	2	8	
+	1	7	
	1	5	O: 8 + 7 = 15
	3	0	T: 20 + 10 = 30
	4	5	

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have written and solved addition number sentences. We used the column method to check our answers.

Lesson 9: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 1.13 Addition and Subtraction.		
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.

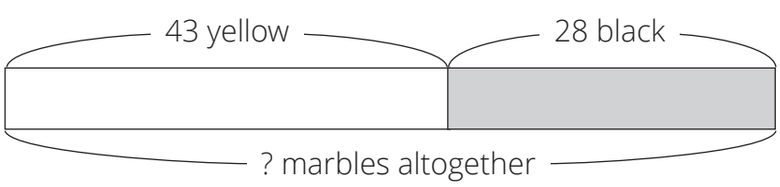
3 ASSESSMENT

WRITTEN ASSESSMENT (15 MARKS)

Solve the following using the bar diagrams. Write a number sentence to show your answer.

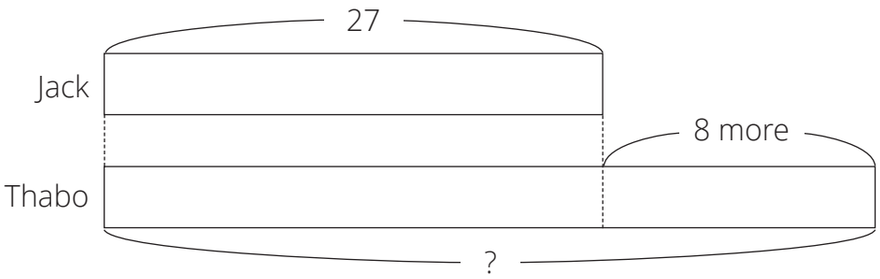
(3 × 3 = 9)

1 Nkosi has 43 yellow marbles
and 28 black marbles.
How many marbles does Nkosi have?
43 + 28 = ___ (71) marbles

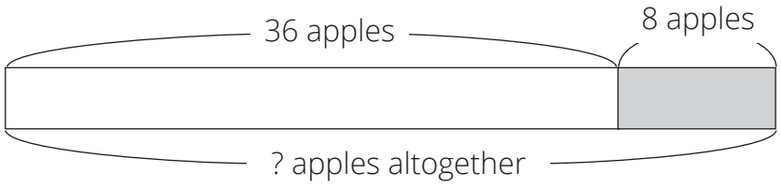


2 Jack has 27 sweets.
Thabo has 8 more than Jack.
How many sweets does Thabo have?

27 + 8 = ___ (35) sweets



3 Nene has 36 apples.
Her mom gave her 8 apples.
How many apples does she have now?
36 + 8 = (44) apples.



4 Use the column method to check these answers. Mark each one with a tick or a cross.
(2 × 3 = 6)

a 22 + 27 = 49 (correct)

	T	O	
	2	2	
+	2	7	
		9	O: 2 + 7 = 9
	4	0	T: 20 + 20 = 40
	4	9	

b 39 + 58 = 100 (incorrect)

	T	O	
	3	9	
+	5	8	
	1	7	O: 9 + 8 = 17
	8	0	T: 30 + 50 = 80
	9	7	

ORAL AND PRACTICAL

CAPS: Addition – using the base ten kit **Activity: Assess learners ability to use the base ten kit efficiently to do addition**	**Mark: 7**

Mark	**Criteria – Checklist: (1 mark for each criterion achieved)**
1	Able to use a ten frame to represent numbers less than 10
1	Able to subitise (recognise instantly) the numbers 1 to 10 in a ten frame
1	Able to use a ten frame to add single digit numbers where the total is below ten
1	Able to use a ten frame to add single digit numbers and bridge ten
1	Able to use bottle tops and printed tens to represent numbers greater than 10
1	Able to use bottle tops and printed tens to add numbers greater than 10 without carrying
1	Able to use bottle tops and printed tens to add numbers greater than 10 with carrying

Lesson 10: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.7 Addition and Subtraction; 1.13 Addition and Subtraction.		
Lesson Objective: To revise and practise solving addition problems in context.		
Lesson Vocabulary: tens, ones, add, column, carry, bar diagram, number sentence.		
Resources: n/a.		
Date:	Week	Day

1 NOTES FOR THE TEACHER RELATING TO THIS WEEK'S WORK

This week the work covered the addition of 2-digit numbers with carrying using real life examples. We drew bar diagrams to solve these. The problems involved combine, compare and change. We moved onto practising using the column method to check number sentences.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The learners may be experiencing difficulties with understanding bar diagrams to solve the addition problems. It is important that you guide the learners through drawing the bar diagrams correctly so that they can understand and use them to solve addition problems. Work through each step discussed in lesson 7 with the learners at their own pace. Give the learners a number of different examples and allow them to solve these at their own pace. They could also explain the steps to each other, which will allow you the opportunity to move around the class and check their understanding.

3 CLASSWORK/HOMEWORK – COMPLETE THIS WEEK'S CLASSWORK AS NEEDED

Today we are going over what we learned this week. We are learning more about solving addition problems using real life examples.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

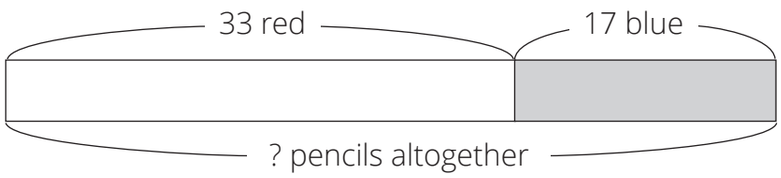
1 Use the column method to check this answer. Mark it with a tick or a cross.

46 + 19 = 65 (correct)

	T	O	
	4	6	
+	1	9	
	1	5	O: 6 + 9 = 15
	5	0	T: 40 + 10 = 50
	6	5	

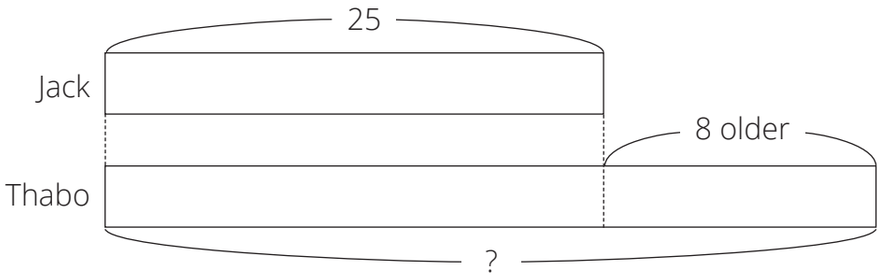
2 Solve using a bar diagram. Write a number sentence to show your answer.

a Thembi has 33 red pencils and
17 blue pencils.
How many pencils does Thembi have?



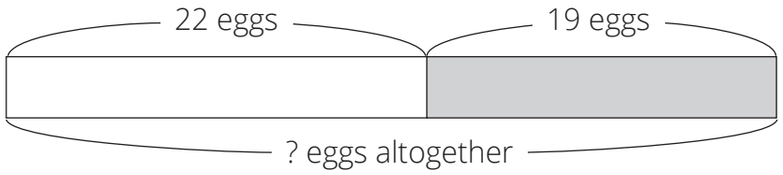
(33 + 17 = 50, she has 50 pencils now.)

b Jack is 25 years old.
Thabo is 8 years older.
How old is Thabo?



(25 + 8 = 33, Thabo is 33 years old.)

c Mbali has 22 eggs.
He mom gave her 19 more eggs.
How many eggs does she have now?



(22 + 19 = 41, Mbali has 41 eggs.)

5 REFLECTION AND SUMMARY OF LESSON

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

Today we have practised solving addition problems using real life examples.

Week 3

Lesson 11: Subtraction with borrowing

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction.
Lesson Objective: To solve subtraction problems with borrowing.
Lesson Vocabulary: tens, ones, subtract, borrow, column, place value, expanded notation.
Resources: Printed tens (see ***Printable Resources***), bottle tops and place value table.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	11 – 2 =	9	**6**	13 – 6 =	7
2	12 – 4 =	8	**7**	13 – 8 =	5
3	12 – 7 =	5	**8**	15 – 9 =	6
4	14 – 5 =	9	**9**	12 – 5 =	7
5	12 – 5 =	7	**10**	14 – 8 =	6

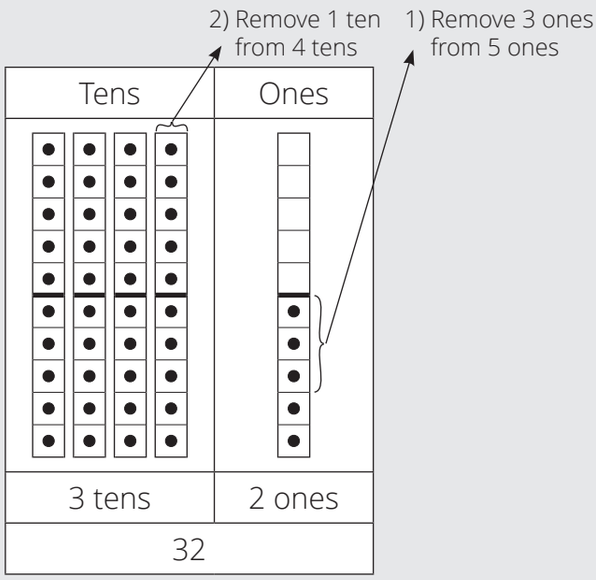
2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

Today is the first lesson where learners are introduced to subtraction with borrowing with 2-digit numbers. We begin by showing learners how to borrow 1 ten, which is 10 ones. It is important that they understand how to exchange 1 ten for 10 ones by using the base ten kit. You must show the concrete exchange of 1 ten to 10 ones using the base ten kit and let the learners do it themselves so that they are able to make the connections between the concrete work and written number work of 'borrowing'.

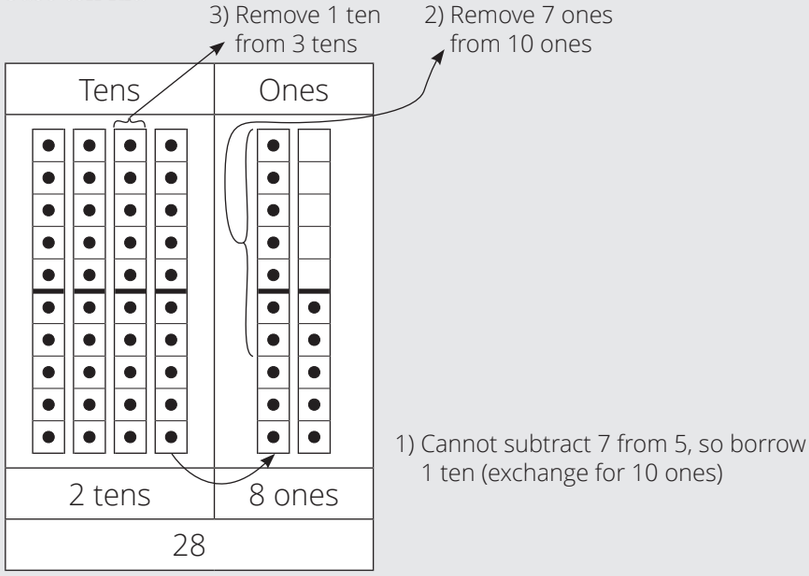
Today we are learning subtraction with borrowing using the place value table and column method.

Activity 1: Whole class activity

- Write 45 – 13 = __ on the board.
- Let learners solve the problem using base ten kits.
- Draw a place value table on the board and display the number 45 in it, using a base ten kit.



- Ask: **How would you solve this problem?**
- Using the diagram interactively with the class, revise the steps to solve the question 45 – 13 = ___ .
- Allow learners to solve this problem with you using the steps from term 1. 45 – 13 = (32)
- Next, write 45 – 17 = ___ on the board.
- Draw a place value table on the board and display the number 45 in it, using your base ten kit.



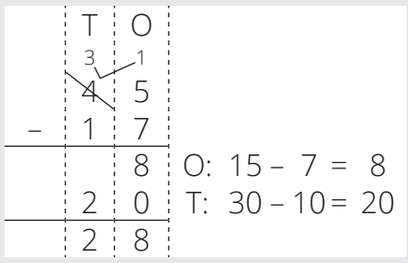
- Show the learners 45 as 4 tens and 5 ones. Place them on the place value table.
- Ask: **What are we going to subtract from 45**? (17)
- Yes, we will subtract 1 ten and 7 ones.
- When we look at the ones place, we need to subtract 7 from 5. **Is this possible?** (No) **How do you think we could solve this?** Let the learners discuss options.

- We will borrow 1 ten and exchange it for 10 ones. So now we have 10 + 5 = 15 ones.
- Now we can subtract. We get 15 – 7 = 8
- Remember we borrowed 1 ten from 4 tens, so we are left with 3 tens. Now we subtract 1 ten from 3 tens; 30 – 10 = 20.
- Ask: **What is the answer**? 45 – 17 = (28)

Activity 2: Whole class activity

- Keep the number sentence 45 – 17 = 28 on the board
- Let learners solve this problem using expanded notation. (Notice how 45 is broken into 30 + 15.)

  45 – 17 = 30 + 15 – 10 – 7
  = (30 – 10) + (15 – 7)
  = 20 + 8
  = 28
- Ask: **how is this similar to the working we did in the place value table?** (The same answer. Doing subtraction in the same places.)
- Discuss that this is a different strategy used to solve the same subtraction problem.
- We will now solve the same problem using the column method.



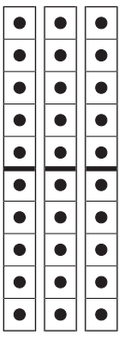
- Solve this problem with the learners, discussing it in the following way:
- We start in the ones place. Ask: **Can we subtract 7 from 5?** (No)
- **What should we do?**
- We borrow 1 ten from the tens place which gives us 15 ones in the ones place so we can say
  15 – 7 = 8. We write 8 in the ones place.
- We borrowed 1 ten from 4 tens so there are 3 tens left in the tens place. We subtract 1 ten from 3 tens; so we get 30 – 10 = 20. Write 2 in the tens place.
- The answer is 28.
- It is very important that the learners understand the concept of exchanging 1 ten for 10 ones.
- Ask: **How is this similar to the working we did in the place value table?** (The same answer. The same movement in each place.)
- Discuss that this is a different strategy for solving the same subtraction problem.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: While the learners are solving these problems walk around the class. Assist those who may be struggling with the column method and carrying the ten. Learners should be using their base ten kits in the place value table which they drew into their classwork books. Help them to make the connection between the manipulation they do with the base ten kits and the numeric recording they write in their books. The solutions are shown below.

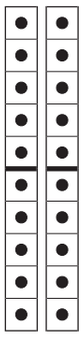
Calculate using a place value table and the column method.

a 63 – 26 = __ (37)

Tens	Ones
	
3 tens	7 ones
37	

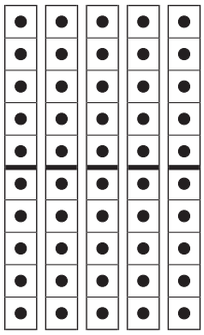
	T	O	
	5	1	
	6	3	
–	2	6	
		7	O: 13 – 6 = 7
	3	0	T: 50 – 20 = 30
	3	7	

b 71 – 47 = __ (24)

Tens	Ones
	
2 tens	4 ones
24	

	T	O	
	6	1	
	7	1	
–	4	7	
		4	O: 11 – 7 = 4
	2	0	T: 60 – 40 = 20
	2	4	

c 97 – 38 = __ (59)

Tens	Ones
	
5 tens	9 ones
59	

	T	O	
	8	1	
	9	7	
–	3	8	
		9	O: 17 – 8 = 9
	5	0	T: 80 – 30 = 50
	5	9	

4 HOMEWORK ACTIVITY (5 MINUTES)

Calculate using a place value table and the column method.

90 – 88 = (2)

Tens	Ones
	
0 tens	2 ones
2	

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

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have solved subtraction problems with borrowing. We solved subtraction problems using the place value table and the column method.

Lesson 12: Practising subtraction with borrowing

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction.
Lesson Objective: To practise subtraction problems with borrowing and check the answer using addition.
Lesson Vocabulary: tens, ones, subtract, borrow, column, place value table, expanded notation.
Resources: Printed tens (see ***Printable Resources***), bottle tops and place value table.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	15 – 8 =	7	**6**	16 – 9 =	7
2	15 – 9 =	6	**7**	17 – 9 =	8
3	17 – 8 =	9	**8**	15 – 6 =	9
4	18 – 9 =	9	**9**	15 – 7 =	8
5	16 – 7 =	9	**10**	16 – 8 =	8

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

Today is the second lesson where learners practise doing subtraction with borrowing using 2-digit numbers. In the previous lesson, the learners were introduced to borrowing. It is very important that the learners practise the borrowing mechanism numerous times in order to be able to solve subtraction problems correctly. We will continue to solve subtraction problems using expanded notation, the column method and a place value table and base ten kit. In the second activity we will move onto using addition to check the answers to subtraction problems.

Today we are practising subtraction with borrowing using the place value table and the column method. We also use addition to check the answers of subtraction problems.

Activity 1: Whole class activity

- Write 53 – 27 = __ (26) on the board.
- Refer to the previous lesson (lesson 11) for guidance.
- Let learners solve this problem using their base ten kit in a place value table, expanded notation and the column method.
- Select different learners to come to the board to show how to solve this problem using the different strategies.

- Discuss the relationship between the strategies with the learners to help them make the connections between them. This will deepen their understanding of how to subtract.

Activity 2: Whole class activity

- In this activity we will be showing the learners the relationship between subtraction and addition as inverse operations.
- Keep the number sentence 53 – 27 = 26 on the board.
- Ask: **Can you think about how we could check if this answer is correct or not?** (Using addition.)
- Ask: **How would the addition look: 53 + 27 = OR 27 + 26 = OR 53 + 26 = ?** (27 + 26/26 + 27)
- Discuss with learners why 27 + 26/26 + 27 is correct. (27 + 26 or 26 + 27 are correct because they give the answer of 53. The other number sentences, 53 + 27 = and 52 + 26 = , reach a different answer. We need to work with the same three numbers that we had in the subtraction number sentence.)
- *It is helpful to remind learners the part-part-whole diagram (which is like a bond table) to find the correct addition.*

53	
27	(26)

- Write 27 + 26 = __ on the board.
- Use the column method to solve this problem with the learners.

	T	O	
	2	7	
+	2	6	
	1	3	O: 7 + 6 = 13
	4	0	T: 20 + 20 = 40
	5	3	

So, the answer 26 is correct.

- Discuss with the learners that we can use addition to check the answer of our subtraction problems.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: While the learners are solving these problems walk around the class. Assist those who may be struggling with the column method and carrying and borrowing the tens. Learners should be using their base ten kits in the place value table which they drew into their classwork books. Help them to make the connection between the manipulation they do with the base ten kits and the numeric recording they write in their books. The solutions are shown below.

Calculate using the column method and check your answer using addition.

a 82 – 45 = __ (37)

	T	O	
	7	1	
	8	2	
–	4	5	
		7	O: 12 – 5 = 7
	3	0	T: 70 – 40 = 30
	3	7	

b 71 – 27 = __ (44)

	T	O	
	6	1	
	7	1	
–	2	7	
		4	O: 11 – 7 = 4
	4	0	T: 60 – 20 = 40
	4	4	

c 60 – 34 = __ (26)

	T	O	
	5	1	
	6	0	
–	3	4	
		6	O: 10 – 4 = 6
	2	0	T: 50 – 30 = 20
	2	6	

Solutions for the checking process: Check the answer using addition.

a (45 + 37 = 82)

	T	O	
	4	5	
+	3	7	
	1	2	O: 5 + 7 = 12
	7	0	T: 40 + 30 = 70
	8	2	

b (44 + 27 = 71)

	T	O	
	4	4	
+	2	7	
	1	1	O: 4 + 7 = 11
	6	0	T: 40 + 20 = 60
	7	1	

c (26 + 34 = 60)

	T	O	
	2	6	
+	3	4	
	1	0	O: 6 + 4 = 10
	5	0	T: 20 + 30 = 50
	6	0	

(The order of numbers in the addition does not matter. a) 37+45; b) 27+44; c) 34+26 are also fine.)

4 HOMEWORK ACTIVITY (5 MINUTES)

Calculate using the column method and check your answer using addition.

a 35 – 9 = __ (26)

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

b 90 – 8 = __ (82)

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

Solutions for the checking process: Check the answer. (The order does not matter – they can also add 9 + 26 and 8 + 82)

a (26 + 9 = 35)

	T	O	
	2	6	
+		9	
	1	5	O: 6 + 9 = 15
	2	0	T: 20 + 0 = 20
	3	5	

b (82 + 8 = 90)

	T	O	
	8	2	
+		8	
	1	0	O: 2 + 8 = 10
	8	0	T: 80 + 0 = 80
	9	0	

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 solved subtraction problems with borrowing. We checked our subtraction answers using addition.

Lesson 13: Subtraction with borrowing on a number line

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.13 Addition and Subtraction.		
Lesson Objective: To solve subtraction problems with borrowing on the number line.		
Lesson Vocabulary: tens, ones, subtract, borrow, column, number line.		
Resources: n/a.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

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

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

Today is the third lesson where learners will practise subtraction with borrowing using 2-digit numbers. This lesson will involve solving subtraction problems with borrowing using a number line. Learners will use the column method to check their answers. The learners have practised solving subtraction problems with borrowing using a variety of strategies. It is important that you discuss the relationship between these strategies to help learners make the connections between them. Each strategy gives the same answer using a different method.

Today we are practising subtraction with borrowing using a number line. We will be using the column method to check the answers.

Activity 1: Learners work in pairs

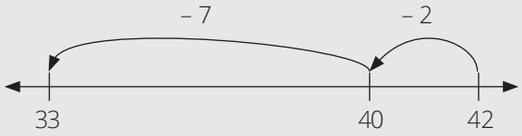
- Write the following on the board.
- Allow the learners to work in pairs to solve these problems mentally.

	Calculate:	Answer			Answer
1	20 – 10 =	10	**6**	50 – 40 =	10
2	50 – 30 =	20	**7**	80 – 60 =	20
3	60 – 10 =	50	**8**	90 – 40 =	50
4	70 – 30 =	40	**9**	70 – 10 =	60
5	80 – 70 =	10	**10**	90 – 60 =	30

- *If learners struggle to do subtraction mentally, give them tips for doing mental calculation for these 10 problems: They could say (2-1) tens, (5-3) tens, (6-1) tens, (7-3) tens, (8-7) tens … reminding them how they worked with base-ten kit.*
- Discuss the answers as a class.

Activity 2: Whole class activity

- Write the following on the board: 42 – 9 = __ (33)
  42 – 9 = (33)



- Draw the number line (shown above)
- Ask the learners: **Which multiple of 10 is 42 closest to?** (40)
- Ask: **If we jump to 40 on the number line. How much have we subtracted?** (2)
- Ask: **How many do we still have to subtract?** (7)
- 40 – 7 = 33. Draw the jump on the number line.
- The answer is 33.
- Repeat this activity using
  - 71 – 65 = (6) and
  - 93 – 48 = (45).
- Let the learners guide you and draw the number lines.

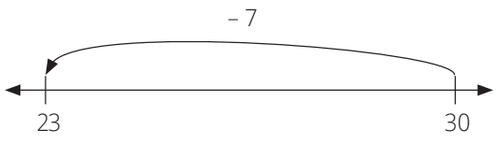
Activity 3: Whole class activity

- We will now check our answers from activity 2 using the column method.
- Solve 42 – 9 = (33), 71 – 64 = (7) and 93 – 48 = (45) using the column method in the same way that you have done in previous lessons.

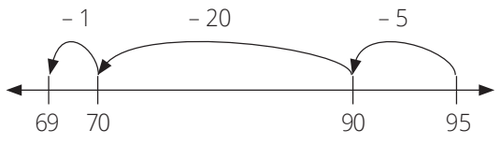
3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Solve using a number line.

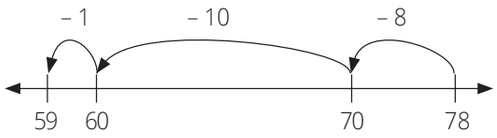
1 30 – 7 = __ (23)



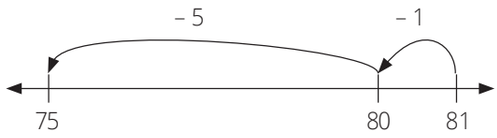
2 95 – 26 = __ (69)



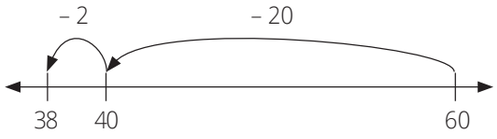
3 78 – 19 = __ (59)



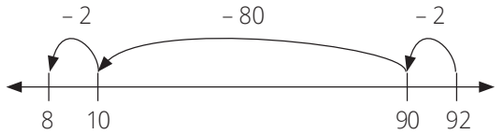
4 81 – 6 = __ (75)



5 60 – 22 = __ (38)



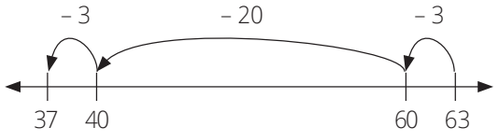
6 92 – 84 = __ (8)



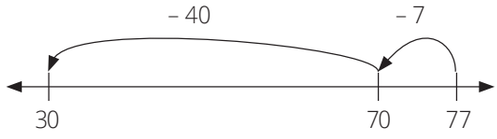
4 HOMEWORK ACTIVITY (5 MINUTES)

Solve using a number line.

1 63 – 26 = __ (37)



2 77 – 47 = __ (30)



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 solved subtraction problems with borrowing using a number line. We checked our answers using the column method.

Lesson 14: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 1.13 Addition and Subtraction.		
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:

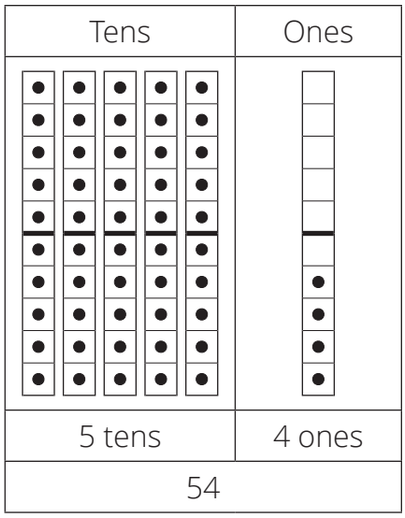
- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.

3 ASSESSMENT

NOTE: In question 1 of this assessment activity learners should use their base ten kits. You need to watch them and see if they use the kits correctly to find the answers. They do not draw the solution that is shown for the base ten kit.

WRITTEN ASSESSMENT (12 MARKS)

1 Calculate 92 – 38 = __ (54) using a base ten kit and place value table. (3)

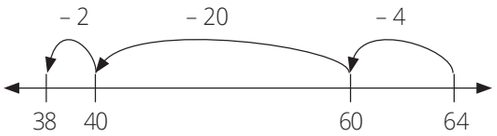


2 Use the column method to check your answer to 92 – 38 = ___. (3)

92 – 38 = (54)

	T	O	
	8	1	
	9	2	
–	3	8	
		4	O: 12 – 8 = 4
	5	0	T: 80 – 30 = 50
	5	4	

3 Solve 64 – 26 = ___ (38) using a number line. (3)



4 Use column addition to check your answer to 64 – 26 = ___. (3)

38 + 26 = (64)

	T	O	
	3	8	
+	2	6	
	1	4	O: 8 + 6 = 14
	5	0	T: 30 + 20 = 50
	6	4	

Lesson 15: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.13 Addition and Subtraction.		
Lesson Objective: To revise and practise subtraction with borrowing.		
Lesson Vocabulary: tens, ones, subtract, borrow, column, number line, place value table.		
Resources: Printed tens (see ***Printable Resources***), bottle tops and place value table.		
Date:	Week	Day

1 NOTES FOR THE TEACHER RELATING TO THIS WEEK'S WORK

This week the work which has been covered is subtraction of 2-digit numbers with borrowing. The strategies which have been used are expanded notation, number lines, the column method and a base ten kit in a place value table. We have also used addition as the inverse operation of subtraction to check answers.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

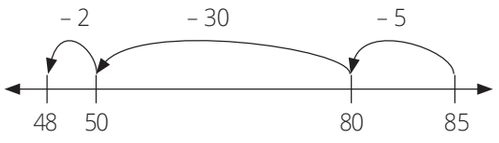
The learners may be experiencing difficulties with the concept of borrowing. It is very important that you revise the steps with them at their own pace. The learners may also be struggling to understand the relationship between the different strategies. You should spend some time revising each strategy and discussing their similarities and differences between them and making the connections between them.

3 CLASSWORK/HOMEWORK – COMPLETE THIS WEEK'S CLASSWORK AS NEEDED

Today we are going over what we learned this week. We are learning more about subtraction with borrowing.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 Solve 85 – 37 = ___ (48) using a number line.



2 Solve 81 – 16 = ___ (65) using the column method.

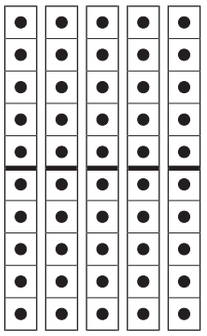
	T	O	
	7	1	
	8	1	
–	1	6	
		5	O: 11 – 6 = 5
	6	0	T: 70 – 10 = 60
	6	5	

3 Use addition to check your answer to 81 – 16 = ___.

65 + 16 = 81

	T	O	
	6	5	
+	1	6	
	1	1	O: 5 + 6 = 11
	7	0	T: 60 + 10 = 70
	8	1	

4 Solve 83 – 25 = ___ (58) using a base ten kit and a place value table.

Tens	Ones
	
5 tens	8 ones
58	

5 REFLECTION AND SUMMARY OF LESSON

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

Today we have practised subtracting 2-digit numbers with borrowing using different strategies.

Week 4

Lesson 16: Subtraction with borrowing in context (1)

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.7 Addition and subtraction; 1.13 Addition and Subtraction.		
Lesson Objective: To solve subtraction problems with borrowing in context.		
Lesson Vocabulary: tens, ones, subtract, borrow, bar diagram, number sentence.		
Resources: n/a.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	Subtract the following numbers:	**Answer**			**Answer**
1	14 – 6 =	8	**6**	14 – 7 =	7
2	13 – 9 =	4	**7**	13 – 8 =	5
3	11 – 7 =	4	**8**	12 – 6 =	6
4	12 – 9 =	3	**9**	11 – 8 =	3
5	13 – 6 =	7	**10**	12 – 3 =	9

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

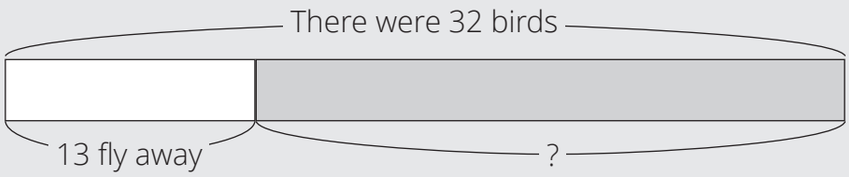
Today we will solve subtraction problems with borrowing in context. This means that we will solve real life subtraction problems. We will be using bar diagrams that involve combine, compare and change. You may wish to refer to term 1 lesson 36 to revisit this concept. *You should also refer to the tracker for the summary of the problem solving approach used in this lesson.*

Today we are learning to solve subtraction problems using bar diagrams.

Activity 1: Whole class activity

- Write the following word problem on the board. This is an example of a subtraction (change) question.
  There were 32 birds on the branch.
  13 of them fly away.
  How many birds are left?

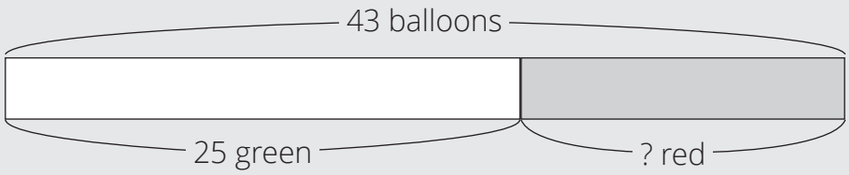
- *The word problem must be written on three lines as shown above to assist learners to identify the critical information/numbers needed to solve the problem.*
- Read the problem.
- Let learners read the problem until they read it fluently.
- Underline the numbers, 32 and 13.
- Underline the question (How many birds are left?) with a wavy line.
- Draw the following bar diagram.



- Let learners copy the diagram into their classwork books.
- Let learners write the number sentence.
- Let learners present their number sentence and determine the operation.
- Let the learners solve the number sentence (32 – 13 = 19).
- Ask: **What is the answer for the word problem?** (19 birds left).
- *Learners have to answer with unit, 19 birds.*

Activity 2: Whole class activity

- This second activity is an example of subtraction (combine).
- Let learners solve the problem below by following the same steps as in Activity 1.
- Write the word problem on the board. (Write it on 4 lines as shown below to help learners to identify the problem information.)
  I have 43 balloons.
  25 of them are green and
  the rest are red.
  How many red balloons do I have?
- Draw the following diagram on the board:



- The number sentence is 43 – 25 = (18).
- The answer is **18 red balloons**.

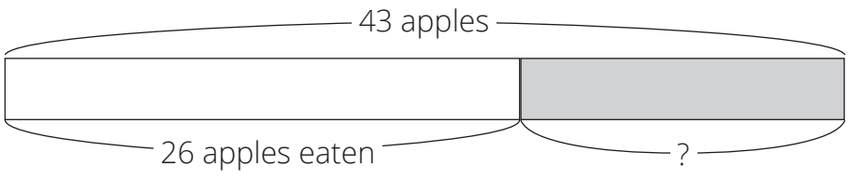
3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

This classwork should be done as a class so that you and the learners can discuss and solve the problems together. Write the question and draw a bar diagram. Let learners find the

number sentence that expresses the solution to the problem and solve it. You must write the problems on the board (in 3 lines, to show the information clearly) and draw the diagrams with the learners. They will not draw the diagrams by themselves in this lesson (they will do this in a later lesson).

Use the diagrams to solve the problem and check your answer using the column method.

1 There are 43 apples.
The learners eat 26 apples.
How many apples are left?



(43 – 26 = 17 apples left)
Solution to the checking of the answer using the column method.

	T	O	
	3	1	
	4	3	
–	2	6	
		7	O: 13 – 6 = 7
	1	0	T: 30 – 20 = 10
	1	7	

2 I have 52 beads.
29 are yellow and
the rest are green.
How many green beads do I have?

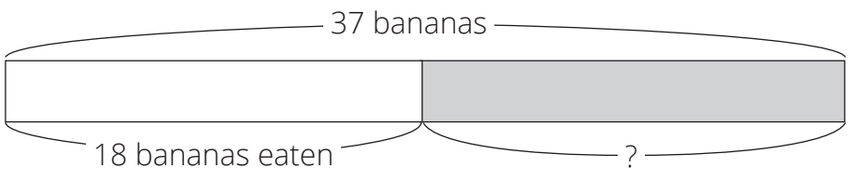
(52 – 29 = 23 green beads)
Solution to the checking of the answer using the column method.

	T	O	
	4	1	
	5	2	
–	2	9	
		3	O: 12 – 9 = 3
	2	0	T: 40 – 20 = 20
	2	3	

4 HOMEWORK ACTIVITY (5 MINUTES)

Use the diagram to solve the problem and check your answer using the column method.

There are 37 bananas.
We eat 18 bananas.
How many bananas are left?
(37 – 18 = **19 bananas** left)



Solution to checking the answer using the column method.

	T	O	
	2	1	
	3	7	
–	1	8	
		9	O: 17 – 8 = 9
	1	0	T: 20 – 10 = 10
	1	9	

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have solved real life subtraction problems with borrowing. We used bar diagrams to solve these problems.

Lesson 17: Subtraction with borrowing in context (2)

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.7 Addition and Subtraction; 1.13 Addition and Subtraction.		
Lesson Objective: To solve subtraction problems with borrowing in context.		
Lesson Vocabulary: tens, ones, subtract, borrow, bar diagram, number sentence.		
Resources: n/a.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	Subtract the following numbers:	**Answer**			**Answer**
1	15 – 6 =	9	**6**	16 – 7 =	9
2	15 – 8 =	7	**7**	15 – 7 =	8
3	17 – 9 =	8	**8**	18 – 9 =	9
4	16 – 8 =	8	**9**	16 – 9 =	7
5	17 – 8 =	9	**10**	15 – 9 =	6

Relate the questions to today's lesson activities.

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

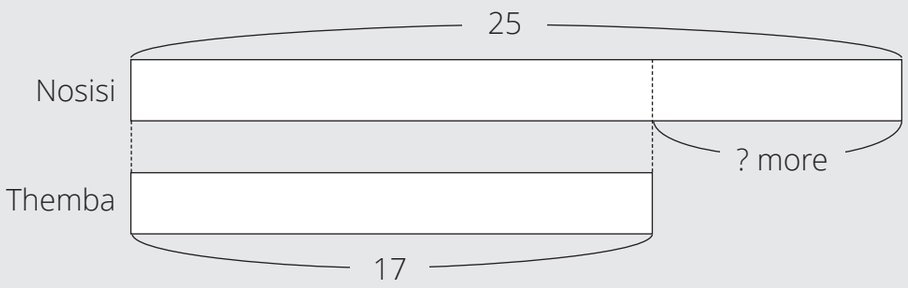
Today we will continue to solve subtraction problems with borrowing, in context. We will be using bar diagrams that involve combine, compare and change. Allow the learners to work through the problems at their own pace. They need lots of practice in order to use bar diagrams with confidence.

Today we are learning to solve subtraction problems using bar diagrams.

Activity 1: Whole class activity

- This activity is an example of subtraction (compare).
- Let learners solve the following problem by following the steps in Activity 1 of lesson 16.
- Write the following word problem on the board.
  Nosisi has 25 bananas.
  Themba has 17 bananas.
  How many more bananas does Nosisi have than Themba?

- Draw the following diagram on the board:



- The number sentence is 25 – 17 = ___ (8).
- The answer is Nosisi has **8 more bananas** than Themba.

Activity 2: Whole class activity

- Leave the bar diagram from activity 1 on the board.
- Redraw the 2 bar diagrams from lesson 16 (bar diagrams that illustrate combine and change).
- Refer to the 3 different bar diagrams on the board.
- Ask: **What is common between these three diagrams?** (All subtraction problems.)
- Ask: **What is the difference between the three diagrams?** (The diagrams of change and combine are drawn in a row. Meanwhile, compare is drawn in two rows. Drawing two bars helps the learners compare two things as they can see the comparison visually. There are two people/things in combine and compare, while there is only one thing/person (in this case birds) in change.)
- NOTE: Learners will not necessarily say "combine", "compare" or "change" yet. They are expected to find the similar and different aspects between the three types of diagrams such as:
  - I cannot see 13 birds after I subtract, they flew away. But I can see both green and red beads after I subtract.
  - I can also see 25 bananas with Nosisi and 17 bananas with Themba after I subtract.
  - **The most important thing is that learners can identify that all three types of problems could be solved by subtraction.**
- You will need to lead this discussion and ask guiding questions. Remember to use the mathematical language in the discussion and use the diagrams to show the answers.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Calculate using the column method.

a 74 – 56 = __ (18)

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

b 65 – 46 = __ (19)

	T	O	
	5	1	
	6	5	
–	4	6	
		9	O: 15 – 6 = 9
	1	0	T: 50 – 40 = 10
	1	9	

c 87 – 78 = __ (9)

	T	O	
	7	1	
	8	7	
–	7	8	
		9	O: 17 – 8 = 9
		0	T: 70 – 70 = 0
		9	

d 48 – 39 = __ (9)

	T	O	
	3	1	
	4	8	
–	3	9	
		9	O: 18 – 9 = 9
		0	T: 30 – 30 = 0
		9	

e 35 – 16 = __ (19)

	T	O	
	2	1	
	3	5	
–	1	6	
		9	O: 15 – 6 = 9
	1	0	T: 20 – 10 = 10
	1	9	

f 61 – 34 = __ (27)

	T	O	
	5	1	
	6	1	
–	3	4	
		7	O: 11 – 4 = 7
	2	0	T: 50 – 30 = 20
	2	7	

4 HOMEWORK ACTIVITY (5 MINUTES)

Calculate using the column method.

a 96 – 27 = __ (69)

	T	O	
	8	1	
	9	6	
–	2	7	
		9	O: 16 – 7 = 9
	6	0	T: 80 – 20 = 60
	6	9	

b 60 – 21 = __ (39)

	T	O	
	5	1	
	6	0	
–	2	1	
		9	O: 10 – 1 = 9
	3	0	T: 50 – 20 = 30
	3	9	

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have solved subtraction problems with borrowing.

Lesson 18: Making subtraction number sentences

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.7 Addition and Subtraction; 1.13 Addition and Subtraction.
Lesson Objective: To write and solve number sentences.
Lesson Vocabulary: tens, ones, subtract, missing number, borrow, number sentence.
Resources: n/a.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Subtract the following numbers:	Answer			Answer
1	16 – 9 =	7	**6**	18 – 9 =	9
2	13 – 9 =	4	**7**	13 – 8 =	5
3	12 – 7 =	5	**8**	14 – 5 =	9
4	11 – 8 =	3	**9**	17 – 9 =	8
5	17 – 9 =	8	**10**	16 – 8 =	8

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

Today the learners will be writing and solving subtraction number sentences. In Activity 1 the learners will make up their own number sentences and solve them together with you. Activity 2 involves the learners finding the missing number in subtraction column problems. Both these activities are planned to reinforce the understanding of subtraction and to allow the learners to practise solving subtraction problems.

Today we are learning to solve subtraction number sentences and fill in missing numbers.

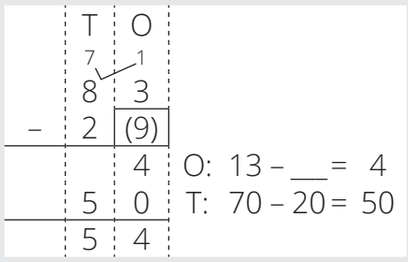
Activity 1: Whole class activity

- Write the following number sentence on the board 30 – 3 = __ (27)
- Let learners solve the problem.
- Ask a learner to come to the board to solve this problem using the column method, showing all the steps and explaining what he/she is doing while they do it.
- Write the following number sentence: 65 – 38 = __ (27)
- Let learners solve the problem.
- Ask a learner to come to the board to solve this problem using the column method again, showing all the steps and explaining what he/she is doing while they do it.

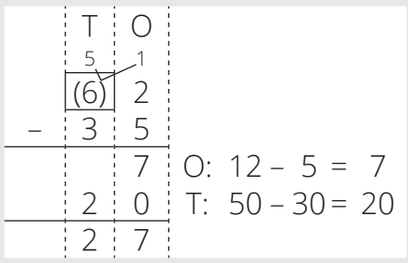
- Ask: **Do you notice anything similar between the two problems**? (They both have an answer of 27).
- **Can you think of another number sentence where the answer is 27?** (There are many such sentences.)
- Allow the learners to give you examples. Write these on the board and solve them using the column method to check if their examples are correct or not.

Activity 2: Whole class activity

- In this activity, the learners will be finding the missing number. This was covered in term 1.
- Write the following on the board



- Discuss with the learners that we need to find the missing numbers – that is the numbers that should be in the blank spaces.
- Refer back to column method as an aid.
- First, ask: **what number should be in the ones place?** (13 – **9** = 4)
- **How many tens did I borrow from the tens place?** (1 ten)
- I borrowed 1 ten and the number left is 7 tens.
- Repeat these steps on following problem.



3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Use the column method to check these answers. Mark each one with a tick or a cross.

1 84 – 15 = 72 (incorrect)

	T	O	
	7	1	
	8	4	
–	1	5	
		9	O: 14 – 5 = 9
	6	0	T: 70 – 10 = 60
	6	9	

2 56 – 19 = 33 (incorrect)

	T	O	
	4	1	
	5	6	
–	1	9	
		7	O: 16 – 9 = 7
	3	0	T: 40 – 10 = 30
	3	7	

3 34 – 18 = 26 (incorrect)

	T	O	
	2	1	
	3	4	
–	1	8	
		6	O: 14 – 8 = 6
	1	0	T: 20 – 10 = 10
	1	6	

4 61 – 7 = 54 (correct)

	T	O	
	5	1	
	6	1	
–		7	
		4	O: 11 – 7 = 4
	5	0	T: 50 – 0 = 50
	5	4	

4 HOMEWORK ACTIVITY (5 MINUTES)

Use the column method to check this answer. Mark it with a tick or a cross.

40 – 3 = 37 (correct)

	T	O	
	3	1	
	4	0	
–		3	
		7	O: 10 – 3 = 7
	3	0	T: 30 – 0 = 30
	3	7	

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 written and solved subtraction number sentences. We used the column method to check if a subtraction calculation was wrong or correct.

Lesson 19: Consolidation of addition and subtraction

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.7 Addition and Subtraction; 1.13 Addition and Subtraction.
Lesson Objective: To practise subtraction with borrowing.
Lesson Vocabulary: tens, ones, add, carry, subtract, borrow, column, missing number.
Resources: n/a.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Solve:	Answer			Answer
1	6 + __ = 10	4	**6**	10 – __ = 8	2
2	__+ 5 =9	4	**7**	__ – 3 = 6	9
3	3 + __ =6	3	**8**	9 – __ = 2	7
4	3 +__ =9	6	**9**	10 – __ = 7	3
5	5 +__ =7	2	**10**	6 – __ = 6	0

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

Today we will be revising subtraction with borrowing using the column method. The learners will find missing numbers and explain what is wrong with a given calculation. These activities reinforce the steps of the column method. We are ensuring that the learners are able to solve subtraction problems with success and confidence.

Today we are practising solving subtraction problems using the column method.

Activity 1: Whole class activity

- *This activity is similar to activity 2 in lesson 18, but there are two missing values.*
- Work through these steps using the following example.

	T	O
	(5)	4
+	3	(8)
	1	2
	8	0
	9	2

O: 4 + ___ = 12
T: ___ + 30 = 80

	T	O
	5	1
	(6)	7
–	3	(8)
		9
	2	0
	2	9

O: 17 – ___ = 9
T: 50 – 30 = 20

Activity 2: Whole class activity

- Write the following on the board.
  a 27 + 19 = 36
  b 56 – 17 = 49
- Ask: **What is wrong with these two calculations?** (Check the calculations with the class. Go through all of the steps. Refer back to previous examples if necessary.)
- Correct these with the class.

	T	O	
	2	7	
+	1	9	
	1	6	O: 7 + 9 = 16
	3	0	T: 20 + 10 = 30
	4	6	

	T	O	
	4	1	
	5	6	
–	1	7	
		9	O: 16 – 7 = 9
	3	0	T: 40 – 10 = 30
	3	9	

- As you write down the steps compare the two calculations.
- Ask: **What was wrong with a) 27 + 19 = 36?** (They forgot to carry 1 ten to the tens place from the ones place.)
- **What was wrong with b) 56 – 17 = 49?** (They forgot to borrow 1 ten from 50 in order to subtract correctly in the ones place.)

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

The learners will be solving addition and subtraction problems in this activity. They will be deciding if the answer given is correct or incorrect. While they are completing this activity, walk around and discuss the answers and decisions with the learners. In this way, you are checking for understanding.

Check these answers. Mark each one with a tick or a cross.

a 36 + 27 = 62 (incorrect)

	T	O	
	3	6	
+	2	7	
	1	3	O: 6 + 7 = 13
	5	0	T: 30 + 20 = 50
	6	3	

b 55 + 29 = 84 (correct)

	T	O	
	5	5	
+	2	9	
	1	4	O: 5 + 9 = 14
	7	0	T: 50 + 20 = 70
	8	4	

c 54 + 37 = 99 (incorrect)

	T	O	
	5	4	
+	3	7	
	1	1	O: 4 + 7 = 11
	8	0	T: 50 + 30 = 80
	9	1	

d 56 – 17 = 39 (correct)

	T	O	
	4	1	
	5	6	
–	1	7	
		9	O: 16 – 7 = 9
	3	0	T: 40 – 10 = 30
	3	9	

e 46 – 28 = 16 (incorrect)

	T	O	
	3	1	
	4	6	
–	2	8	
		8	O: 16 – 8 = 8
	1	0	T: 30 – 20 = 10
	1	8	

f 68 – 19 = 49 (correct)

	T	O	
	5	1	
	6	8	
–	1	9	
		9	O: 18 – 9 = 9
	4	0	T: 50 – 10 = 40
	4	9	

4 HOMEWORK ACTIVITY (5 MINUTES)

Check this answer. Mark it with a tick or a cross.

1 73 – 25 = 48 (correct)

	T	O	
	6	1	
	7	3	
–	2	5	
		8	O: 13 – 5 = 8
	4	0	T: 60 – 20 = 40
	4	8	

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have found missing numbers, explained what is wrong with a calculation and checked whether a calculation is correct or wrong.

Lesson 20: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.7 Addition and Subtraction; 1.13 Addition and Subtraction.		
Lesson Objective: To revise and practise solving subtraction problems.		
Lesson Vocabulary: tens, ones, subtract, bar diagram, missing number, borrow, number sentence.		
Resources: n/a.		
Date:	Week	Day

1 NOTES FOR THE TEACHER RELATING TO THIS WEEK'S WORK

This week the work which has been covered is subtraction with borrowing using real life examples. We used bar diagrams to show our working. We have also spent time revising subtraction using the column method.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The learners may be experiencing difficulties with understanding bar diagrams to solve subtraction problems. It is important that you guide learners through interpreting bar diagrams correctly and that they understand them. Work through each step discussed in lessons 16 and 17 with the learners at their own pace. Give the learners a number of different examples and allow them the opportunity to solve these at their own pace. They could also explain the steps to each other, which will allow you the opportunity to check their understanding.

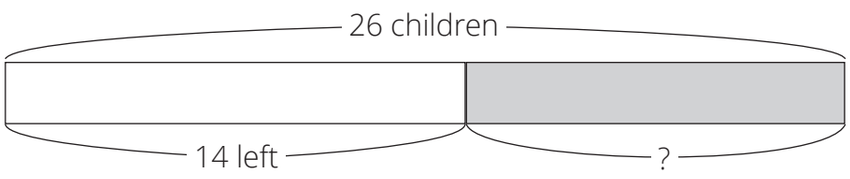
3 CLASSWORK/HOMEWORK – COMPLETE THIS WEEK'S CLASSWORK AS NEEDED

Today we are going over what we learned this week. We are learning more about subtraction using real life examples.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

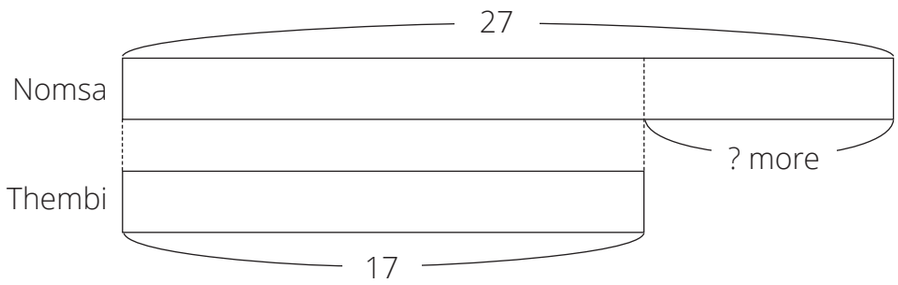
Solve the following. Write a number sentence and use the bar diagram to show your answer.

1 There were 26 children in the park.
14 children left the park.
How many children are left?



(26 – 14 = 12, there are **12 children** left.)

2 Nomsa has 27 oranges.
Thembi has 17 oranges.
How many more oranges does Nomsa have than Thembi?



(27 – 17 = 10, Nomsa has **10 more oranges** than Thembi.)

3 Fill in the missing numbers to show 63 – 27 = ___

	T	O	
	5	1	
	(6)	3	
–	2	(7)	
		6	O: 13 – ___ = 6
	3	0	T: ___ – 20 = 30
	3	6	

4 Check this answer. Mark it with a tick or a cross.
58 – 29 = 39 (incorrect)

	T	O	
	4	1	
	5	8	
–	2	9	
		9	O: 18 – 9 = 9
	2	0	T: 40 – 20 = 20
	2	9	

5 REFLECTION AND SUMMARY OF LESSON

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

Today we have practised solving subtraction 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: 1.7 Addition and Subtraction; 1.13 Addition and Subtraction.		
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

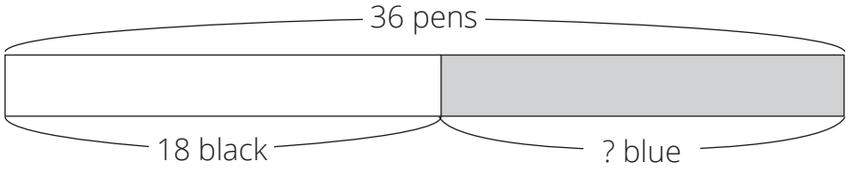
WRITTEN ASSESSMENT (12 MARKS)

1 Fill in the missing numbers. (3)

	T	O	
	5	1	
	(6)	7	
–	3	(8)	
		9	O: 17 – ___ = 9
	2	0	T: ___ – 30 = 20
	2	9	

2 Solve the following. Use the bar diagram and write a number sentence to show the answer. (3)

I have 36 pens.18 of them are black and the rest are blue. How many blue pens do I have?



(36 – 18 = 18, there are 18 blue pens.)

3 Check this answer. Mark it with a tick or a cross. (3)

63 – 48 = 15 (correct)

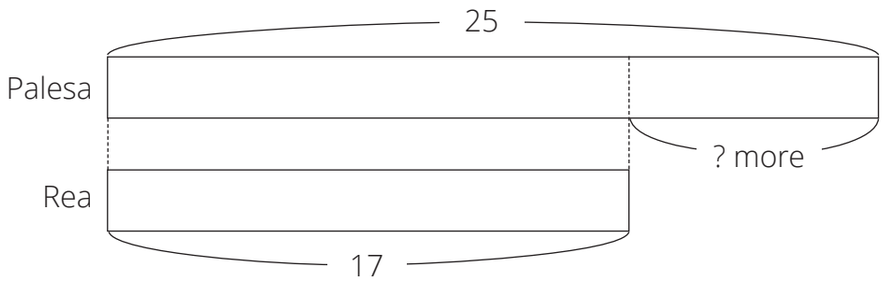
	T	O	
	5	1	
	6	3	
–	4	8	
		5	O: 13 – 8 = 5
	1	0	T: 50 – 40 = 10
	1	5	

4 Solve the following. Use the bar diagram and write a number sentence to show the answer. (3)

Palesa has 25 sweets.

Rea has 16 sweets.

How many more sweets does Palesa have than Rea?



(25 – 17 = 8, Palesa has 8 more sweets than Rea.)

ORAL AND PRACTICAL

CAPS: Problem solving **Activity: Assess learners ability to interpret addition and subtraction problems**	**Mark: 7**
Mark	**Criteria – Checklist: (1 mark for each criterion achieved)**
1	Able to use bottle tops to represent problems
1	Able to solve addition change problems using a given diagram. (e.g. I have 4 books. My friend gives me 3 more books. How many books do I have now?)
1	Able to solve addition combine problems using a given diagram. (e.g. I have 3 red marbles and 6 blue marbles. How many marbles do I have?)
1	Able to solve addition compare problems using a given diagram. (e.g. I am 8 years old. My sister is 2 years older than I am. How old is my sister?)
	Able to solve subtraction change problems using a given diagram. (e.g. There are 5 birds in a tree. 2 of them fly away. How many birds are there now in the tree?)
1	Able to solve subtraction combine problems using a given diagram. (e.g. I have 10 balloons. 4 of them are red and the rest are blue. How many blue balloons do I have?)
1	Able to solve subtraction compare problems using a given diagram. (e.g. I have 3 chocolates. You have 5 chocolates. How many more chocolates do you have than I have?)

Unit 2 Introduction

Unit 2 introduces learners to drawing their own bar diagrams when doing addition and subtraction of single-digit and 2-digit numbers. Drawing diagrams is one of the focus areas of this unit. The other focus area is the experience of non-standard types of addition and subtraction. A step by step approach is followed to enable learners to become confident in the drawing of draw bar diagrams (CPA approach). The problems are given in context so that they can be linked to real life examples. This builds on Unit 1 where addition with carrying and subtraction with borrowing were taught. As you work through these lessons, remember to refer back to previous lessons in order help learners to make connections between concepts – they need to understand that they are working with visual representations of addition and subtraction.

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

- **Conceptual understanding**: Learners will develop their understanding of addition and subtraction using bar diagrams in this unit.
- **Procedural fluency**: Learners will find that using a bar diagram will help them to solve addition and subtraction problems.
- **Strategies**: Learners will discover that addition and subtraction problems can be solved using the visual representation of a bar diagram.
- **Reasoning**: Learners are given opportunities to reason mathematically when they explain the ways in which they solved addition and subtraction problems and when they verbalise their understanding of addition and subtraction.

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

- **Connecting representations**: In this unit, learners use pictorial representations, drawings and number symbols when they do and record their work. The lessons are designed to help them make connections between these representations.
- **Practising procedures**: Learners practise procedures through the repetitive nature of the lessons in this unit. This helps them to create connections between numbers and operations.
- **Explaining concepts and procedures**: Learners verbalise the concepts they are learning, and explain the procedures they will use to solve addition and subtraction problems. This verbalisation helps them consolidate their knowledge and understanding.

Lesson 22: Word problems using bar diagrams

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.
Lesson Objective: To solve word problems moving from pictorial representations to bar diagrams.
Lesson Vocabulary: word problem, addition, circles, bar diagram.
Resources: Bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Add the following numbers:	Answer			Answer
1	20 + 10 =	30	**6**	70 + 20 =	90
2	30 + 20 =	50	**7**	50 + 50 =	100
3	30 + 40 =	70	**8**	60 + 30 =	90
4	40 + 40 =	80	**9**	10 + 80 =	90
5	50 + 30 =	80	**10**	80 + 20 =	100

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, you will work through the solution of word problems with learners. You begin with asking the learners to draw circles as pictorial representations of a problem. You must clearly show learners the relationship between the circles and the bar diagram. So far, the main focus in the solution of word problems was to interpret the given bar diagrams and write number sentences. In this unit, learners start drawing bar diagrams themselves. In order to learn how to draw bar diagrams, learners learn in three steps which are: 1. Practise using bottle tops; 2. Practise drawing circles; and 3. Practise drawing bar diagrams. Note that you draw bar diagrams to represent the story. Hence, learners should draw the bar diagram first, then write number sentence and finally write the answer. *You should also refer to the tracker for the summary of the problem solving approach used in this lesson.*

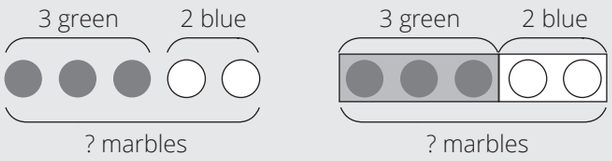
Today we are learning to how to draw bar diagrams.

Activity 1: Whole class activity

- Write the following word problem on the board**.** This is an example of an addition (combine) problem.
  Nosisi has 3 green marbles and

2 blue marbles.
How many marbles does Nosisi have altogether?

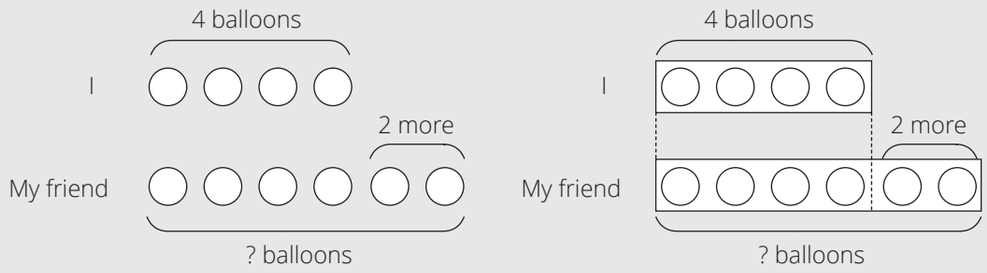
- *The word problem must be written on three lines as shown above to assist learners to identify the critical information/numbers needed to solve the problem.*
- Read the problem.
- Let learners read the problem until they are able to read it fluently.
- Underline the numbers, 3 and 2.
- Underline the question (How many marbles does Nosisi have altogether?) with a wavy line.
- Let learners manipulate bottle tops to represent the story.
- Then, let them draw circles (with words to explain what they have drawn) in their classwork books as follows.



- Draw circles on the board as above, discussing this with learners while you do it.
- Ask: **How can show the 2 green and 3 blue marbles in a bar diagram?** (You draw boxes around each of the two groups of marbles – green and blue.)
- Let the learners draw the boxes around the circles in their classwork books and explain to each other what the relationship between the two groups is.
- Let one learner come to the board and present how she/he drew two boxes for the green and blue marbles.
- Let learners determine the operation from the bar diagram and write the number sentence that can be used to solve the problem.
- Let learners present their number sentence and confirm with the class that the correct number sentence is
  3 + 2 = __
- Let the learners solve the number sentence (3 + 2 = 5).
- Ask: **What is the answer to the word problem?** (There are **5 marbles**).
- *Learners have to answer with the unit, 5 marbles.*

Activity 2: Whole class activity

- Write the following word problem on the board**.** This is an example of addition (compare).
  I have 4 balloons.
  My friend has 2 more balloons than I have.
  How many balloons does she have?
- Use the steps from Activity 1 to work through this problem.
- Use the diagram to illustrate using circles and create the bar diagram.



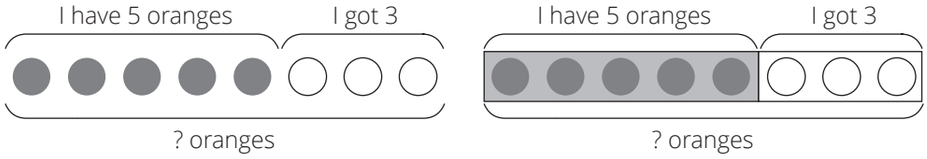
- Ensure that the learners can explain the relationship between the two diagrams. (e.g. I put my balloons and my friend's balloons into 2 different boxes.)
- *We draw in two rows when we compare, we draw in one row for the other type of word problem (i.e. change and combine).*
- The number sentence is 4 + 2 = (6).
- The answer is 6 balloons.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Learners will draw circles to represent the story in each of the problems given. Then, they should draw a bar diagram by drawing boxes around the groups of circles they drew. Finally, they should write a number sentence to show the answer to the problem. The first problem is an example of an addition (change) and the second one is an example of an addition (compare) problem.

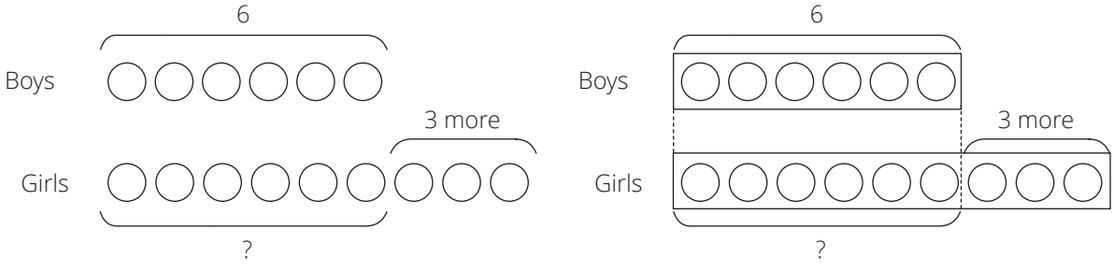
Draw circles and diagrams to help you solve these problems. Write a number sentence with the answer.

a I have 5 oranges.
My sister gives me 3 oranges.
How many oranges do I have altogether?



(5 + 3 = 8, 8 oranges)

b There were 6 boys in a classroom.
There are 3 more girls than boys.
How many girls are there?



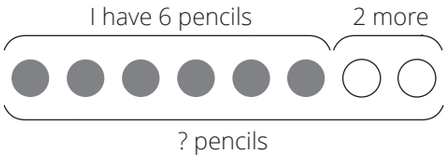
(6 + 3 = 9, 9 girls)

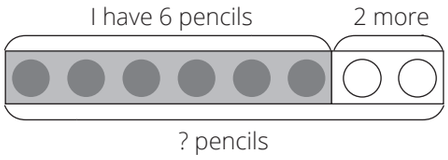
4 HOMEWORK ACTIVITY (5 MINUTES)

In this homework activity, learners should draw circles to represent the story. Then, they should draw a bar diagram (boxes for each group of circles). Learners are supposed to a draw the diagram. They do not have to solve the problem.

Draw circles and a bar diagram to represent this problem.

I have 6 pencils.
My mom buys me 2 more.
How many pencils do I have altogether?





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 our own bar diagrams to solve addition word problems.

Lesson 23: Practising bar diagrams

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.
Lesson Objective: To solve subtraction word problems using bar diagrams.
Lesson Vocabulary: word problem, subtraction, circles, bar diagram.
Resources: Bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	50 – 10 =	40	**6**	70 – 40 =	30
2	70 – 20 =	50	**7**	90 – 50 =	40
3	60 – 40 =	20	**8**	60 – 30 =	30
4	40 – 30 =	10	**9**	70 – 60 =	10
5	80 – 30 =	50	**10**	80 – 20 =	60

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

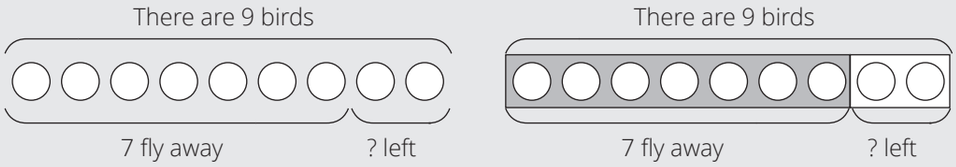
In this lesson, we will continue to solve word problems with the learners. We will be following the same activities and steps as the previous lesson. However, we will be solving word problems which involve subtraction in this lesson. It is important to work at the pace of the learners to try and ensure their understanding. *You should also refer to the tracker for the summary of the problem solving approach used in this lesson.*

Today we are learning to solve subtraction word problems by drawing bar diagrams.

Activity 1: Whole class activity

- Write the following word problem on the board**.** This is an example of subtraction (change).
  There are 9 birds on the branch.
  7 of them fly away.
  How many birds are left?
- *The word problem must be written on three lines as shown above to assist learners to identify the critical information/numbers needed to solve the problem.*
- Read the problem.
- Let learners read the problem until they read it fluently.

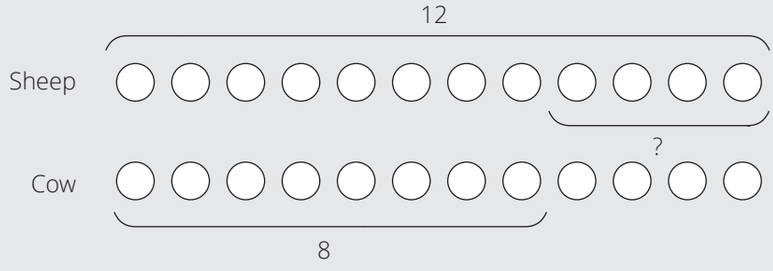
- Underline the numbers, 9 and 7.
- Underline the question (How many birds are left?) with a wavy line.
- Let learners manipulate bottle tops to represent the story.
- Then, let them draw circles in their classwork books (with words to explain what they have done) as follows.

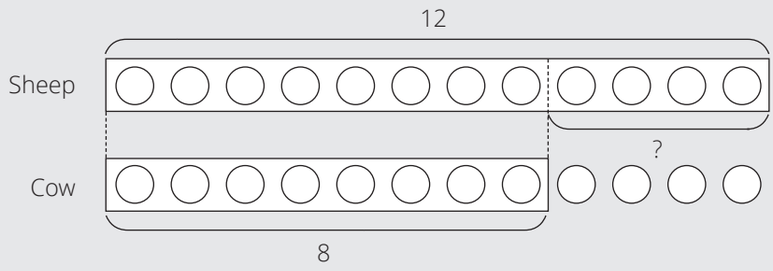


- Draw circles on the board as above.
- Ask: **How can we show the birds that fly away and birds that remain?** (You draw boxes around each of the two groups of birds – fly away and remain.)
- Let the learners draw the bar diagram/boxes around the circles in their classwork books and explain to each other the relationship between the two.
- *We draw in two rows when we compare, we draw in one row for the other types (i.e. change and combine).*
- Let one learner come to the board and present how she/he drew two boxes for the story.
- Let learners determine the operation from the bar diagram and write the number sentence.
- Let learners present their number sentence and confirm with the class the correct number sentence.
- Let the learners solve the number sentence (9 – 7 = 2).
- Ask: **What is the answer for the word problem?** (There are **2 birds**).
- *Learners have to answer with the unit, 2 birds.*

Activity 2: Whole class activity

- Write the following word problem on the board**.** This is an example of subtraction (compare).
  There are 12 sheep and
  8 cows in the backyard.
  What is the difference between the number of sheep and cows?
- Use the steps from Activity 1 to work through this problem.
- Draw circles to represent the problem and then draw the bar diagram.





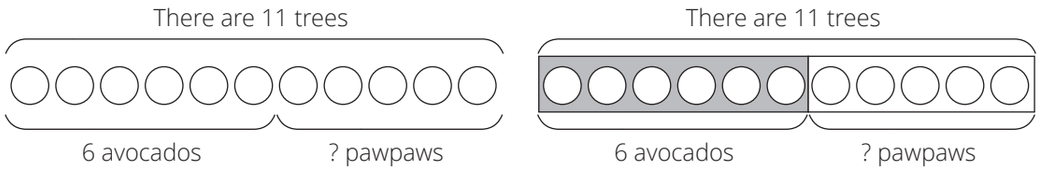
- *Ensure that the learners can explain the relationship between the two diagrams.*
- The number sentence is 12 – 8 = (4).
- The answer is: there are 4 more sheep than cows.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

In this activity learners must draw circles to represent the story. Then, they should draw a bar diagram (boxes for groups of circles). Finally, they should write a number sentence to show the answer. The first question is an example of subtraction (combine). The second question is an example of subtraction (compare).

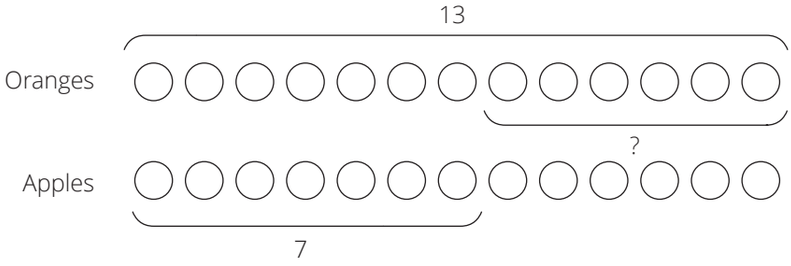
Draw circles and diagrams to help you solve these problems. Write a number sentence with the answer.

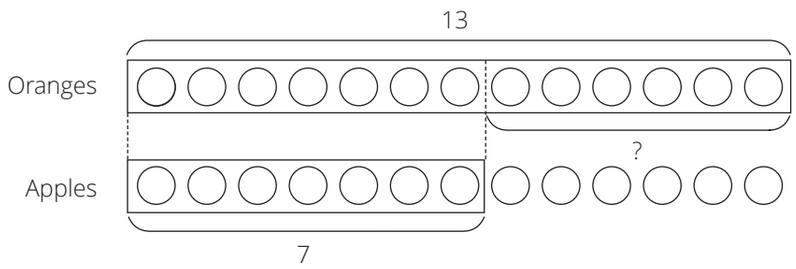
1 There are 11 trees in the garden.
6 of them are avocado trees and
the others are pawpaw trees.
How many pawpaw trees are there?



(11 – 6 = 5, 5 pawpaw trees.)

2 There are 13 oranges and
7 apples.
How many more oranges are there than apples?





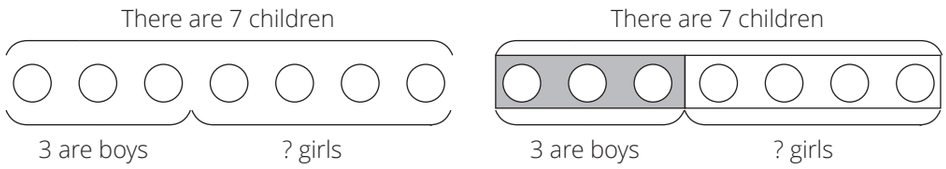
(13 – 7 = 6, 6 more oranges than apples.)

4 HOMEWORK ACTIVITY (5 MINUTES)

In this homework activity, learners should draw circles to represent the story. Then, they should draw a bar diagram (boxes for each group of circles). Learners are supposed to a draw a diagram. They do not have to solve the problem.

Draw circles and a bar diagram to represent the problem.

There are 7 children in a playground.
3 of them are boys.
How many girls are there?



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 our own bar diagrams to solve subtraction word problems.

Lesson 24: Solving word problems using bar diagrams (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.
Lesson Objective: To solve word problems using bar diagrams.
Lesson Vocabulary: word problem, addition, subtraction, bar diagram.
Resources: Bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Add the following numbers:	Answer			Answer
1	55 + 5 =	60	**6**	99 + 1 =	100
2	26 + 4 =	30	**7**	37 + 3 =	40
3	78 +2 =	80	**8**	64 + 6 =	70
4	95 + 5 =	100	**9**	93 + 7 =	100
5	61 + 9 =	70	**10**	72 + 8 =	80

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

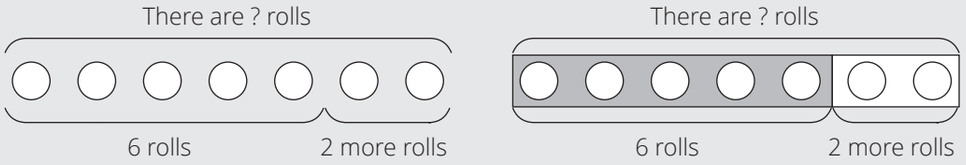
Today the learners will continue to solve word problems using bar diagrams. You will spend time showing learners how to draw bar diagrams to find the answer. In the lesson 22 and 23, learners drew bar diagrams with circles. In lesson 24 and 26, learners start drawing bar diagrams without circles which is one of the objectives in term 2. Bar diagrams are drawn as a visual representation of the problem-solving process.

Today we are learning to solve word problems using bar diagrams.

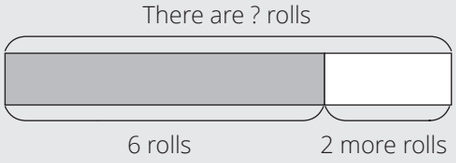
Activity 1: Whole class activity

- Write the following word problem on the board**.** This is an example of addition (change).
  There are 6 rolls in the basket.
  If my father buys 2 more rolls,
  How many rolls are there in total?

- *The word problem must be written on three lines as shown above to assist learners to identify the critical information/numbers needed to solve the problem.*
- Read the problem.
- Let learners read the problem until they read it fluently.
- Underline the numbers, 6 and 2.
- Underline the question (How many rolls are there in total?) with a wavy line.
- Let learners manipulate bottle tops to represent the story.
- Then, let them draw circles in their classwork book (with words explaining it) as follows.



- Draw circles on the board as above.
- Ask: **How can we show the two groups of rolls – 6 rolls and 2 more rolls?** (You draw boxes around each of the two groups of rolls)
- Ask: **How will it look if we close the lids of the boxes.** (Imagine closing the boxes – you won't see the circles anymore.)
- Let learners draw exactly the same diagram without circles in it.

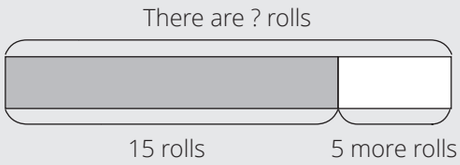


- *This step is important for learners to understand the meaning of bar diagrams.*
- The number sentence is 6 + 2 = (8).
- The answer is 8 rolls.

Activity 2: Learners work in pairs

- In this activity learners will work in pairs to solve a word problem using a bar diagram.
- Leave Activity 1 drawn on the board.
- Change the numbers in the word problems on the board:
  There are 15 rolls in the basket.
  If my father buys 5 more rolls,
  How many rolls are there in total?
- Ask: **How do we change the diagram if the number changes?** (We don't change the diagram. We only change the numbers.)
- Let learners work in pairs and draw a bar diagram in their classwork books.
- *Learners do not have to use bottle tops or draw circles in this activity. However, the learners who are struggling can use them.*

- While the learners complete this activity, walk around the class and ask learners to explain the steps to you.
- Model the correct answer and how you reached it, i.e. draw the following diagram on the board to share with the whole class.



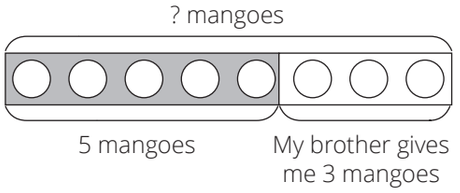
- The number sentence is 15 + 5 = (20).
- The answer is 20 rolls.

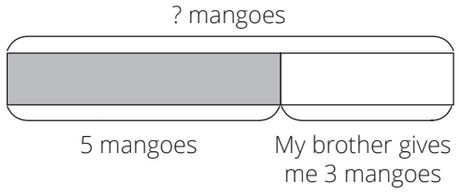
3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

The first question in this activity is an example of subtraction (change) and the second is an example of addition (combine). Learners do not need to know about this classification but it is important that they are able to do both types.

Draw a bar diagram. Then, write a number sentence and the answer.

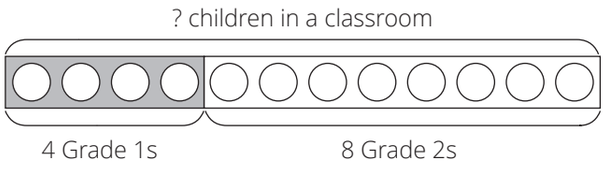
a I have 5 mangoes.
My brother gives me 3 more mangoes.
How many mangoes do I have altogether?

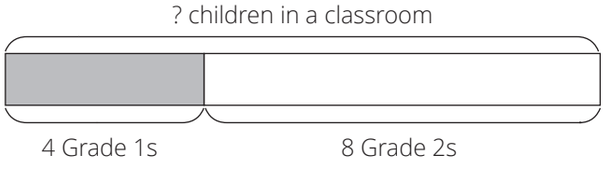




(5 + 3 = 8, 8 mangoes)

b There are children in the classroom.
4 of them are Grade 1s and
8 are Grade 2s.
How many children are there altogether?





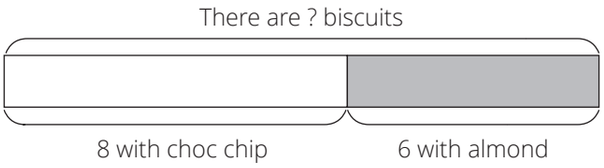
(4 + 8 = 12, 12 children)

4 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners that when they do this homework they are supposed to draw the diagram. They do not have to solve the problem.

Draw a bar diagram to represent the problem.

There are biscuits in a container.
8 of them are choc chip and
6 of them are almond.
How many biscuits are there in the container?



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 our own bar diagrams to solve word problems.

Lesson 25: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.13 Addition and Subtraction,1.7 Addition and Subtraction,1.6 Problem-solving techniques, 1.12 Techniques.		
Lesson Objective: To practise solving word problems using bar diagrams.		
Lesson Vocabulary: word problem, addition, subtraction, bar diagram.		
Resources: Bottle tops.		
Date:	Week	Day

1 NOTES FOR THE TEACHER RELATING TO THIS WEEK'S WORK

This week the learners began to draw bar diagrams themselves. We began the week by drawing circles to represent numbers. Then learners began to draw bar diagrams to solve word problems. We spent time practising addition and subtraction word problems using bar diagrams for which learners began to draw their own bar diagrams.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The learners may be experiencing difficulties understanding bar diagrams. They may see bar diagrams as representing the number 1 and not any other number. It is very important that you allow the learners the opportunity to draw bar diagrams and talk through the problem-solving steps with you and other learners while they do so. The more the learners practise this strategy of problem solving the more understanding they will gain.

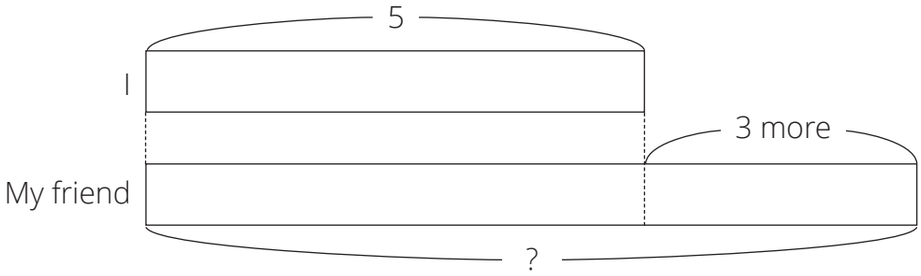
3 CLASSWORK/HOMEWORK – COMPLETE THIS WEEK'S CLASSWORK AS NEEDED

Today we are going over what we learned this week. We are learning more about solving word problems using bar diagrams.

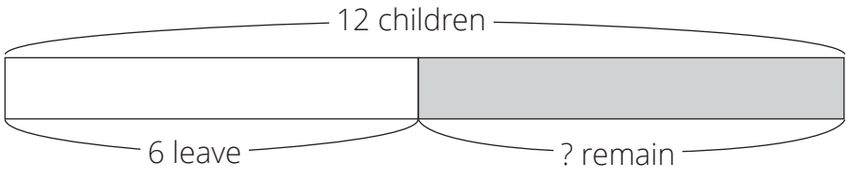
4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

Draw a bar diagram. Then write the number sentence and solve it.

1 I have 5 apples. My friend has 3 more apples than I have. How many apples does she have?
(5 + 3 = 8, 8 apples)



2 There are 12 children on the playground. 6 of them leave. How many children remain?
(12 – 6 = 6, 6 children)



5 REFLECTION AND SUMMARY OF LESSON

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

Today we have practised solving word problems using bar diagrams.

Week 6

Lesson 26: Solving word problems using bar diagrams (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.
Lesson Objective: To practise solving word problems using bar diagrams.
Lesson Vocabulary: word problem, subtraction, bar diagram.
Resources: Bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	58 – 8 =	50	**6**	81 – 80 =	1
2	85 – 5 =	80	**7**	56 – 50 =	6
3	79 – 9 =	70	**8**	75 – 70 =	5
4	100 – 50 =	50	**9**	99 – 90 =	9
5	67 – 7 =	60	**10**	48 – 40 =	8

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

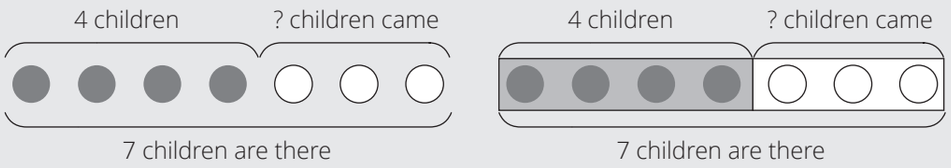
Today the learners will continue to solve word problems using bar diagrams. The learners will draw their own bar diagrams with the teacher taking on the role of facilitator. In this way we are encouraging learners to solve problems by themselves and to take responsibility for their learning while we are teaching Mathematics for understanding.

Today we are learning to solve word problems using bar diagrams.

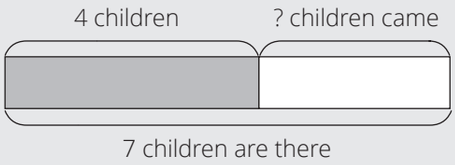
Activity 1: Learners work in pairs

- Write the following word problem on the board**.** This is an example of a subtraction (change).
  There were 4 children playing in a playground.
  Some children came and joined them.
  Now there are 7 children.
  How many children came in?

- *The word problem must be written on 4 lines as shown above to assist learners to identify the critical information/numbers needed to solve the problem.*
- Read the problem.
- Let learners read the problem until they read it fluently.
- Underline the numbers, 4 and 7.
- Underline the question (How many children came in?) with a wavy line.
- Let learners manipulate bottle tops to represent the story.
- Then, let them draw circles (with words to explain what they drew) as follows.



- Draw circles on the board as above.
- Ask: **How can we show the 4 children and the extra children who came in?** (You draw boxes around all 7 children and the 4 children who were there at the beginning.)
- Ask: **How will it look like if we close the lids of the boxes?** (Imagine closing the boxes – you won't see the circles anymore.)
- Let learners draw exactly the same diagram without the circles in it as follows.

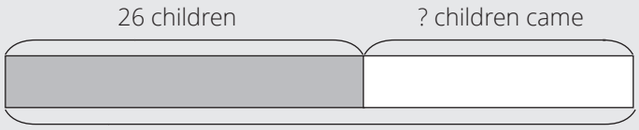


- Discuss with learners **which operation they need to find the number of children who came**. (subtraction).
- Let the learners develop and solve the number sentence (7 – 4 = 3).
- Ask: **What is the answer for the word problem?** (3 children came in.).
- *Learners have to answer with the unit, 3 children. See also summary of approach in the tracker.*

Activity 2: Whole class activity

- In this activity learners will work in pairs to solve a word problem using a bar diagram.
- Leave Activity 1 drawn on the board.
- Change the numbers in the word problems on the board:
  There were 26 children playing in a playground.
  Some children came and joined them.
  Now there are 35 children.
  How many children came in?
- Ask: **How do we change the diagram if the number changes?** (We don't change the diagram. We only change the numbers.)
- Let learners work in pairs and drawing a bar diagram in their classwork book.

- *Learners do not have to use bottle tops or draw circles in this activity. However, the learners who are struggling can use them.*
- While the learners complete this activity, walk around the class and ask learners to explain the steps to you.
- Model the correct way to draw the diagram, i.e. draw the following diagram on the board to share with the class.



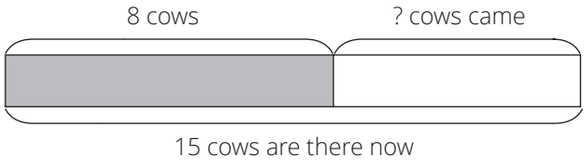
- Let learners represent the story by drawing circles.
- Ask: **Which is faster, drawing a bar diagram or drawing circles?** (The bar diagram is faster to draw.)
- The number sentence is 35 – 26 = (9).
- The answer is 9 children came.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

The first question in this activity is an example of subtraction (change) and the second is an example of subtraction (combine). Learners do not need to know about this classification but it is important that they are able to do both types.

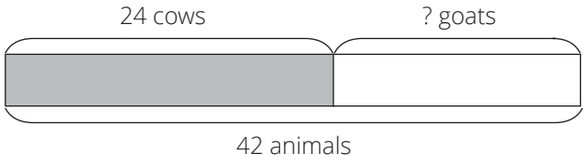
Draw a bar diagram. Then, write a number sentence and answer.

a There were 8 cows in the field.
Some more cows came to the field and joined them.
Now there are 15 cows. How many cows joined them?



(15 – 8 = 7, 7 cows)

b There are 42 animals in the farm yard.
24 are cows and
the others are goats.
How many goats are there?



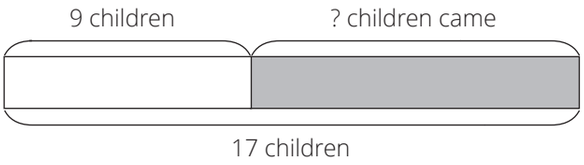
(42 – 24 = 18, 18 goats)

4 HOMEWORK ACTIVITY (5 MINUTES)

Explain to learners that when they do this homework they are supposed to draw the diagram. They do not have to solve the problem.

Draw a bar diagram to represent the problem.

There were 9 children in the bus.
Some more children came and got on.
Now there are 17 children.
How many children came?



5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we drew our own bar diagrams to solve word problems.

Lesson 27: Find the original number using subtraction

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.
Lesson Objective: To find the original number in a word problem using subtraction.
Lesson Vocabulary: word problem, subtraction, bar diagram.
Resources: n/a.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

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

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

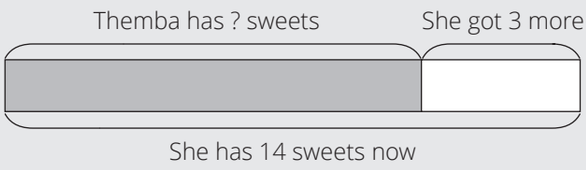
Today the learners will continue to solve word problems using bar diagrams. In lessons 24 and 26, learners practised drawing bar diagrams step by step. In lessons 27 and 28, learners drew number lines without drawing circles. The word problems that are done in this lesson require the learners to find the original number using subtraction.

Today we are learning to find the original number in word problems using subtraction.

Activity 1: Whole class activity

- Write the following word problem on the board**.** This is an example of subtraction (change).
  Themba has some sweets.
  If Themba get 3 sweets more,
  she will have 14 sweets.
  How many sweets did she have before she got 3 more?
- Read the problem.
- Let learners read the problem until they read it fluently.
- Underline the numbers, 3 and 14.

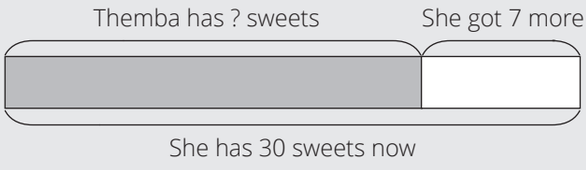
- Underline the question (How many sweets did she have before she got 3 more?) with a wavy line.
- Let learners draw a bar diagram.
- *Learners who are still struggling can draw circles first.*
- Let learners present their bar diagram.
- Draw a bar diagram as follows.



- Let learners discuss in pairs if they drew the correct bar diagram.
- Let learners correct their bar diagrams if necessary and develop a number sentence which gives the answer.
  (14 – 3 = 11, 11 sweets)
- Model how you can reach the correct answer with the class asking: **Why did you think this is an addition/subtraction problem?** (Some pairs could develop a number sentence of addition while others use subtraction. It is important to let learners explain why they chose addition or subtraction as a way to solve the problem.)

Activity 2: Learners work in pairs

- In this activity learners will work in pairs to solve a word problem using a bar diagram.
- Leave Activity 1 drawn on the board.
- Change the numbers in the word problems on the board:
  Themba has some sweets.
  If Themba get 7 sweets more,
  she will have 30 sweets.
  How many sweets did she have at the beginning?
- Ask: **How do we change the diagram if the number changes?** (We don't need to change the diagram. We only change numbers in the diagram.)
- They will be working in pairs and drawing a bar diagram in their classwork book.
- While the learners complete this activity, walk around the class and ask learners to explain the steps to you.
- Model the correct answer and how you reached it, i.e. draw the following diagram on the board.



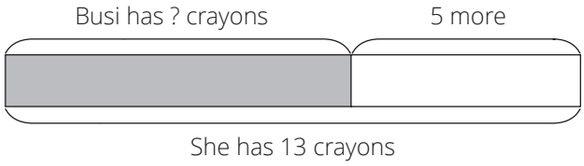
- Let learners write a number sentence and solve it.
- The number sentence is 30 – 7 = (23).
- The answer is Themba had 23 sweets when she began.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

The first question in this activity is an example of subtraction (change) and the second is an example of subtraction (change). Learners do not need to know about this classification but it is important that they are able to do both types.

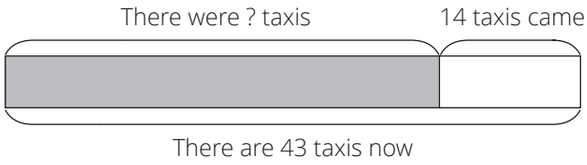
Draw a bar diagram. Then, write a number sentence and the answer.

a Busi had some crayons.
After her cousin gives her 5 more crayons
she has 13 crayons.
How many crayons did she have in the beginning?



(13 – 5 = 8, 8 crayons)

b There were some taxis in a taxi rank.
14 taxis came and
there are 43 taxis now.
How many taxis were there in the beginning?

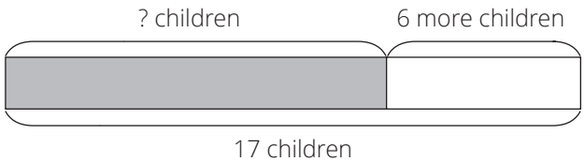


(43 – 14 = 29, 29 taxis)

4 HOMEWORK ACTIVITY (5 MINUTES)

Draw a bar diagram. Then, write a number sentence and the answer.

A group of children is playing together.
If 6 more children join them
there will be 17 children.
How many children were there at the beginning?



(17 – 6 = 11, 11 children)

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 how to find the original number in word problems using subtraction.

Lesson 28: Find the original number using addition

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.		
Lesson Objective: To find the original number in a word problem using addition.		
Lesson Vocabulary: word problem, addition, bar diagram.		
Resources: n/a.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	Add the following numbers:	**Answer**		Subtract the following numbers:	**Answer**
1	70 + ___ = 77	7	**6**	91 – ___ = 1	90
2	60 + ___ = 69	9	**7**	38 – ___ = 8	30
3	90 + ___ = 92	2	**8**	___ – 70 = 6	76
4	___ +6 = 56	50	**9**	___ – 80 = 9	89
5	___+ 4 = 84	80	**10**	___ – 40 = 5	45

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

Today's lesson is a follow on from the previous lesson. The learners will find the original number in a word problem using addition. These activities continue to give learners the opportunity to practise problem solving using bar diagrams. They also provide the teacher with the opportunity to check the learners' understanding and work with learners who may be struggling.

Today we are learning to find the original number in word problems using addition.

Activity 1: Whole class activity

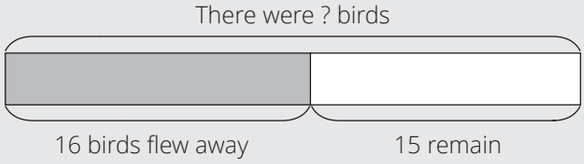
- Write the following word problem on the board**.** This is an example of addition (change).
  There were birds in a backyard.
  After 6 flew away,
  5 birds remained.
  How many birds were there in the beginning?
- Read the problem.
- Let learners read the problem until they read it fluently.

- Underline the numbers, 6 and 5.
- Underline the question (How many birds were there in the beginning?) with a wavy line.
- Let learners draw a bar diagram and a number sentence with the answer.
- *Learners who are still struggling can draw circles first.*
- Let learners present their bar diagrams and number sentences.
- Draw a bar diagram as follows.

- Let learners discuss in pairs if they draw a correct bar diagram.
- Let learners correct their bar diagram when necessary and develop a number sentence with the answer. (6 + 5 = 11, 11 birds)
- Model the correct answer with the class asking: **Why did you think this is an addition/ subtraction problem?** (Some pairs could develop a number sentence of subtraction. It is important to let learners explain the reason for their selection of operation for both addition and subtraction.)

Activity 2: Learners work in pairs

- In this activity learners will work in pairs to solve a word problem using a bar diagram.
- Leave Activity 1 drawn on the board.
- Change the numbers in the word problems on the board:
  There were birds in a backyard.
  After 16 flew away,
  15 birds remain.
  How many birds were there in the beginning?
- Ask: **How do we change the diagram if the number changes?** (We don't need to change the diagram. We only change numbers in the diagram.)
- Let learners work in pairs and draw a bar diagram in their classwork book.
- While the learners complete this activity, walk around the class and ask learners to explain the steps to you.
- Model the correct answer, i.e. draw the following diagram on the board with a step by step explanation of the procedure you followed and the choices you made.



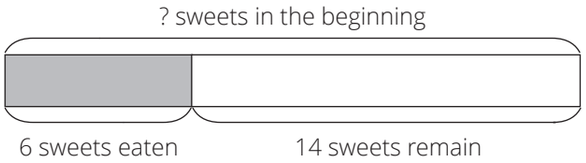
- Let learners write number sentence and solve it.
- The number sentence is 15 + 16 = (31).
- The answer is there were 31 birds.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

The first question in this activity is an example of addition (change) and the second is an example of addition (change). Learners do not need to know about this classification but it is important that they are able to do both types.

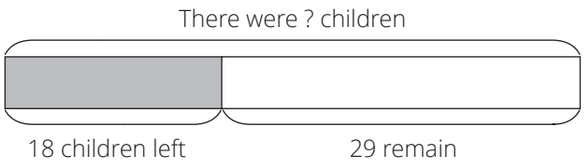
Draw a bar diagram. Then, write a number sentence and answer.

a You had some sweets.
After you ate 6 sweets,
you have 14 sweets left.
How many sweets did you have to begin with?



(6 + 14 = 20, I had 20 sweets.)

b There were some children in a park.
After 18 children left,
29 children remained.
How many children were there in the park at the beginning?

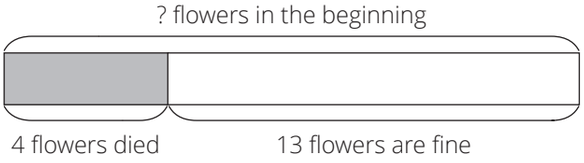


(18 + 29 = 47, there were 47 children.)

4 HOMEWORK ACTIVITY (5 MINUTES)

Draw a bar diagram. Then, write number a sentence and the answer.

Norma picked some flowers.
4 of the flowers died.
13 flowers are still fine.
How many flowers did Norma have in the beginning?



(4 + 13 = 17, Norma picked up 17 flowers in the beginning.)

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 how to find the original number in word problems using addition.

Lesson 29: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date. CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques. 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:

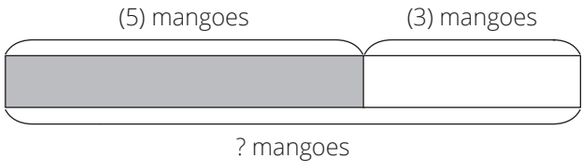
- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.

3 ASSESSMENT

WRITTEN ASSESSMENT (15 MARKS)

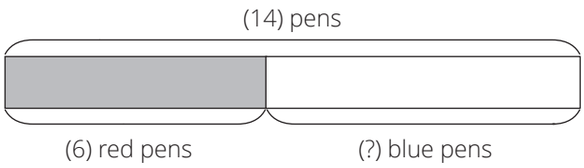
Complete the bar diagram. Then, write a number sentence and the answer. (2 × 3=6)

1 Pumela ate 5 mangoes.
Her aunt ate 3 mangoes.
How many mangoes did they eat altogether?



(5 + 3 = 8, they ate 8 mangoes.)

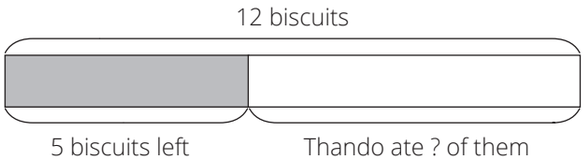
2 I have 14 pens.
6 of them are red and the others are blue.
How many blue pens do I have?



(14 – 6 = 8, 8 blue pens)

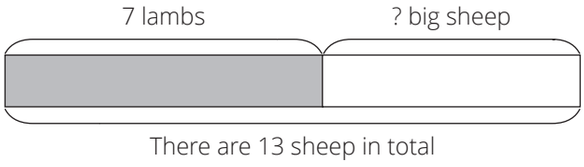
Draw a bar diagram. Then, write a number sentence and the answer. (3 × 3 = 9)

3 There were 12 biscuits.
Thando ate some biscuits.
There are 5 biscuits left.
How many biscuits did Thando eat?



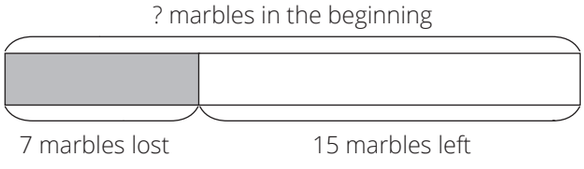
(12 – 5 = 7, Thando ate 7 biscuits.)

4 There are 13 sheep in the field.
7 of them are lambs. The others are big sheep.
How many big sheep are there?



(13 – 7 = 6, 6 big sheep.)

5 You have some marbles.
After you lose 7 marbles
you have 15 marbles left.
How many marbles did you have to begin with?



(7 + 15 = 22. You had 22 marbles in the beginning.)

Lesson 30: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.		
Lesson Objective: To practise solving word problems using bar diagrams.		
Lesson Vocabulary: word problem, addition, subtraction, bar diagram.		
Resources: n/a.		
Date:	Week	Day

1 NOTES FOR THE TEACHER RELATING TO THIS WEEK'S WORK

This week the learners have solved word problems using bar diagrams. We have also spent time finding the starting number of a word problem. We solved both addition and subtraction word problems.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The learners may be experiencing difficulties with understanding the starting number of a word problem. The key to understanding this concept is practice and moving at the learners' pace. Ensure that learners are able to read, interpret and understand word problems. If necessary, work in a low number range to assist learners to understand the concept. For example, only use numbers 1 – 10 when practising word problems. While the learner is drawing bar diagrams let him/her explain what they are doing. In this way, you can correct misunderstandings.

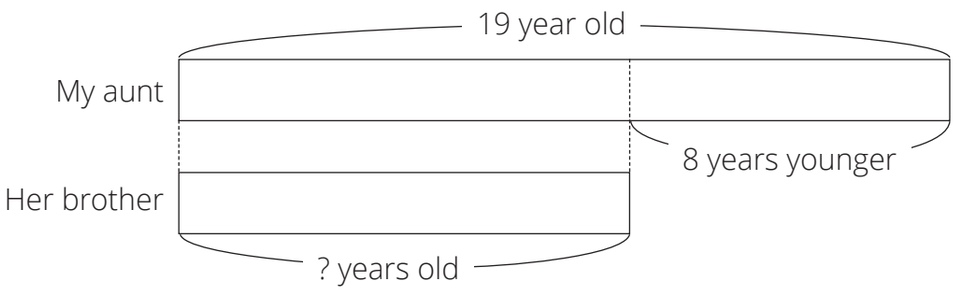
3 CLASSWORK/HOMEWORK – COMPLETE THIS WEEK'S CLASSWORK AS NEEDED

Today we are going over what we learned this week. We are learning more about solving word problems using bar diagrams.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

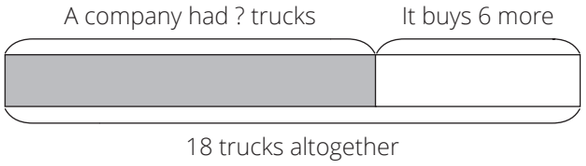
Draw a bar diagram. Then, write the number sentence and answer.

1 My aunt is 19 years old.
Her brother is 8 years younger than her.
How old is her brother?



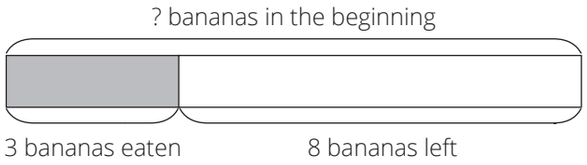
(19 – 8 = 11, 11 years old)

2 A company has some trucks.
If it buys 6 more trucks
it will have 18 trucks.
How many trucks did it have in the beginning?



(18 – 6 = 12, it had 12 trucks.)

3 You have some bananas.
After you ate 3 bananas
you have 8 bananas left.
How many bananas did you have to begin with?



(3 + 8 = 11, I had 11 bananas in the beginning)

5 REFLECTION AND SUMMARY OF LESSON

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

Today we have practised solving word problems using bar diagrams.

Week 7

Unit 3 Introduction

In this unit, learners will learn about volume and mass. These concepts are part of measurement. Measurement is part of our daily lives. We measure quantities of food ingredients (mass), time, objects (various aspects, e.g. capacity and mass) and space (e.g. volume). Children learn maths and measurement skills before they learn the words that represent what they are doing. Before introducing the standard units for the measurement of capacity and mass, (litres and kilograms) in Grade 2, we need the learners to understand the basic concept of measurement using non-standard units. A non-standard unit is an object that is not normally used for measurement. We begin with non-standard units as they are meaningful to the learner and are readily available. Once the learners have grasped the concept of capacity/volume and mass, we introduce the standard units of measurement. We allow learners time to explore and identify the importance of using standard units. We use standard units as we need to have a measurement system that means the same to everyone who uses it. Imagine the problems that would occur if we didn't have standard units of measurement.

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

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

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

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

Lesson 31: Capacity using non-standard units

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 4.4 Capacity/volume.
Lesson Objective: To compare the capacity of various containers using non-standard units (estimation and measurement).
Lesson Vocabulary: Non-standard measure, capacity, informal unit, estimate, measure, compare, record, order, spoons, cups, container, standard unit, non-standard unit.
Resources: Plastic spoons, polystyrene/plastic cups, plastic bottles, water, sand.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is 10 more than:	**Answer**		What is 10 less than:	**Answer**
1	54	64	**6**	35	25
2	38	48	**7**	46	36
3	61	71	**8**	59	49
4	49	59	**9**	66	56
5	58	68	**10**	74	64

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In the lessons this week you will help learners establish the concept of **capacity** – which is the amount a container can hold when it is full. Refer to the bilingual dictionary for explanations and examples of the relevant mathematical terminology.

It is important that you allow learners to work with containers in this lesson or that you demonstrate the practical activities in front of the class (with learners participating if possible). Remember: Learners in the foundation phase learn best when they are actively involved in their learning using their bodies.

Today we are learning to compare the capacity of various containers.

Activity 1: Whole class activity

Take the class outside for this activity.
Note: You can use sand instead of water.

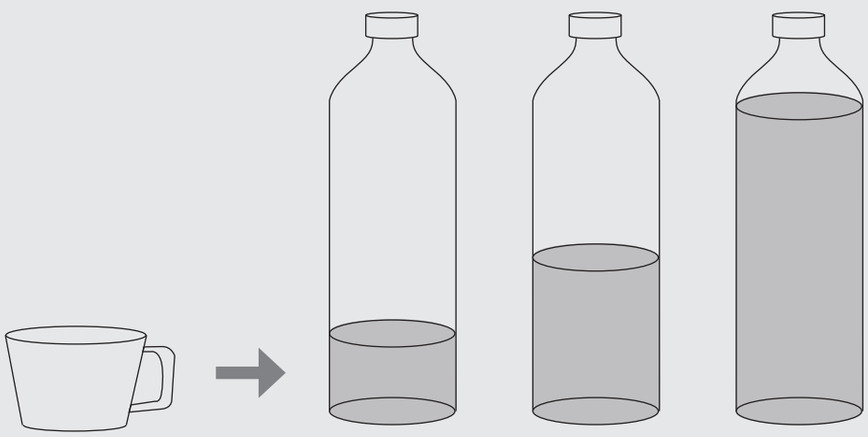
- Each group of learners needs a teaspoon and a cup to do this activity.
- Give each group an extra container filled with water.

- Explain to the learners that they are going to use the spoons to fill the cups (half full and full) with water.
- Let them first estimate how many spoonfuls they will use to do this.
- You may need to revise the term estimate with the learners. Refer to the multilingual dictionary to assist if necessary.
- Ask the learners to now fill their cups halfway.
- They need to count how many spoonfuls they use to do this.
- The learners now compare their own estimation and answer, and then compare answers within their group or between groups.

Activity 2: Whole class activity

Take the learners back into the class for the second activity of the lesson.

- Draw a picture of a bottle and a cup on the board.
- Show the learners up to where 1 cup of water will fill the bottle.
- They now have to work out how many cups of water were used to fill the other bottles.



- Ask: **Which unit would be easier to use to measure the water in the bottles – a spoon or a cup?** (A cup. Discuss.)

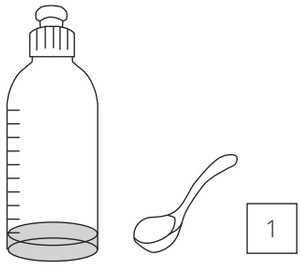
3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

In this activity you could allow learners to work with sand or water, depending on what is easier for you.

1 How many cups of sand do you think will fill up a 2 ℓ bottle? _____ (Estimate.)

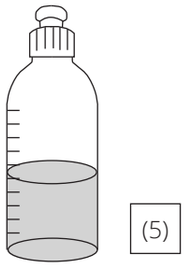
2 Fill a 2 ℓ bottle with sand and compare your estimation with the answer.
__(8 standard cups.)__

3 Draw this bottle in your book.

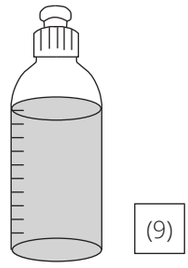


Now draw the following and write how many spoonfuls of water were used:

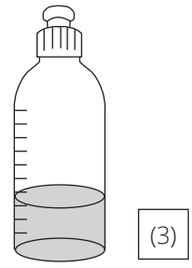
a



b

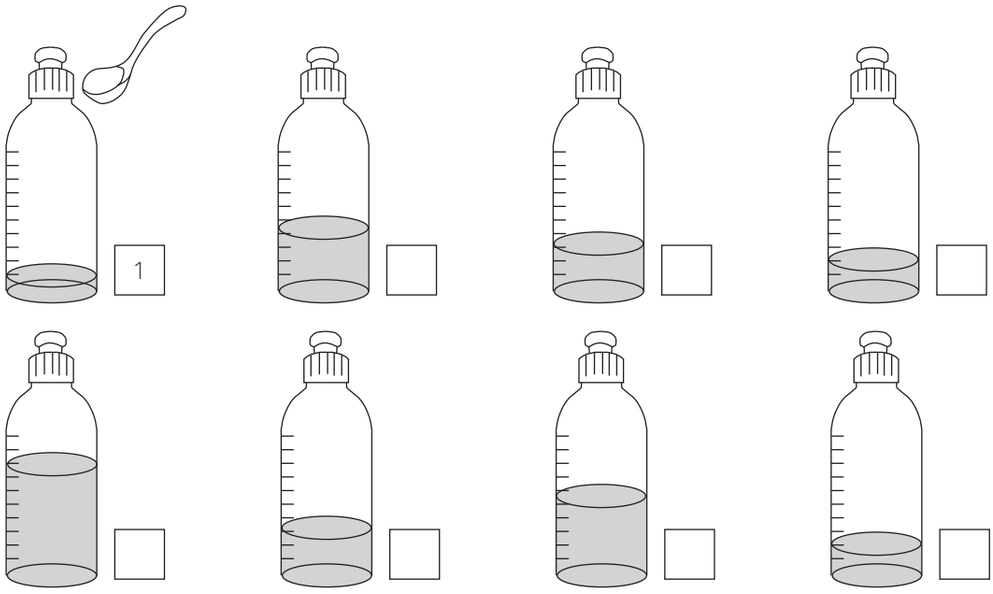


c



4 HOMEWORK ACTIVITY (5 MINUTES)

How many spoons of water/sand are there in each bottle? The first one has one spoon.



(Approximately: 4 spoons, 3 spoons, 2 spoons, 7 spoons, 3 spoons, 5 spoons, 2 spoons)

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 estimate and compare the capacity of various containers.

Lesson 32: The standard unit of capacity

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 4.4 Capacity/volume.
Lesson Objective: To measure the capacity of various containers using the standard unit of capacity (litre).
Lesson Vocabulary: Litres, non-standard measure, capacity, informal unit, estimate, measure, compare, record, order, calibration.
Resources: Clean**,** empty household containers: 1 litre, 2 litre, 1,5 litre, 5 litre (make sure the containers are cleaned out and don't have any traces of the content), water, sand.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is 10 more than:	**Answer**		What is 10 less than:	**Answer**
1	84	94	**6**	53	43
2	65	75	**7**	10	0
3	33	43	**8**	56	46
4	44	54	**9**	71	61
5	1	11	**10**	16	6

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

It is important that you bring the empty containers to class for this lesson. Learners need to see real objects to help them develop their understanding of the concept of capacity. Learners do the comparison activities as this gives them a sense of what a container can hold.

Today we are learning to measure the capacity of various containers in litres.

Activity 1: Whole class activity

Place empty containers in the front of the class: 1 litre, 2 litres, 1,5 litres, 5 litres. (Try to find all of these containers and bring them to class.)

- Discuss the different sizes of the containers with the learners.
- Some containers are the same height, but one holds more than the other because it is wider/"fatter" than the other.
- Discuss the labels on the containers and their meaning.

1 litre	2 litres	Between 1 and 2 litres	5 litres
			

Activity 2: Whole class activity

Now give the learners a mixed collection of empty containers (such as those illustrated) one by one, and ask them to compare these to the empty containers above.

- Hand the containers to different learners in the class or let individual learners come to the front to participate in this comparison activity.
- Learners should test if they are correct by pouring water or sand from the one container to the other.

The yoghurt container equals one litre.	This yogurt container is less than one litre.	This container can take 2 litres.	This container can take between 1 and 2 litres (1,5 litres).	This container holds 5 litres.
				

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 How do we write *litre* in short? (*l*)

2 Use the same containers as for the class activity. Put them in order from the container that holds the most to the container that holds the least. (5 *l*, 2 *l*, between 1 and 2 *l*, 1 *l*)

3 Draw the following objects:

- **a** Containers that hold less than 1 litre.
- **b** Containers that hold 1 litre.
- **c** Containers that hold more than 1 litre.

4 Mom buys 2 litres of milk. There are 3 people in our family. Each of them drinks 1 litre of milk for breakfast every day. Did Mom buy enough milk? (No, because we need 3 litres.)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Draw 3 containers and label them as follows: holds less than 1 litre, holds 1 litre, and holds more than one litre.
2 Draw pictures of three items from your kitchen cupboard or fridge and say if it holds more or less or exactly 1 litre. (Answers will vary)
3 You have invited 7 friends to your house. Would you buy 1 litre of juice for them to drink and why? (No, it will not be enough for all of 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 to measure the capacity of various containers using litres.

Lesson 33: Capacity: addition and subtraction problems

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 4.4 Capacity1.6 Problem-solving techniques 1.7 Addition and Subtraction.		
Lesson Objective: To solve simple addition and subtraction capacity problems.		
Lesson Vocabulary: Litres, capacity, estimate, measure, compare, record, order, addition, subtraction.		
Resources: Empty 1 *l*, 2 *l*, 2,5 *l*, 3 *l*, and 5 *l* containers.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	What is 5 more than:	**Answer**		What is 5 less than:	**Answer**
1	45	50	**6**	65	60
2	60 + 6	71	**7**	30 + 9	34
3	50 + 9	64	**8**	60 + 1	56
4	30 + 6	41	**9**	30 + 8	33
5	70 + 0	75	**10**	50 + 3	48

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

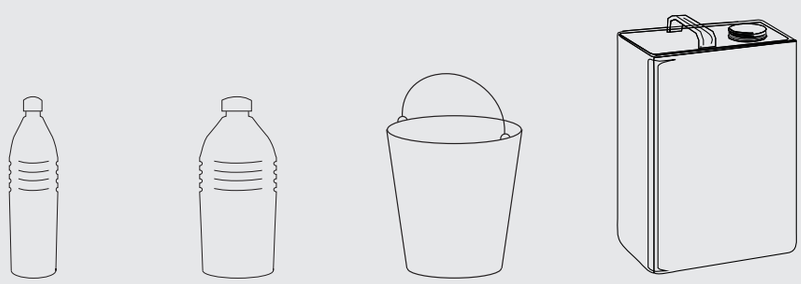
In this lesson, the learners solve addition and subtraction problems using the standard unit of a litre (l). Learners should know the standard units of capacity (litre) and be able to read and understand, approximately, what they represent. Remember to refer to the multilingual dictionary if necessary to find explanations and examples of the mathematical terminology of capacity.

Remember to collect the empty containers or pictures that you need to use in this activity.

Today we are learning to solve addition and subtraction problems using litres.

Activity 1: Whole class activity

- Before the lesson draw these pictures and write the sentences on the board:



1 This container can hold 5 litres of water.
2 This container can hold 2 litres of water.
3 This container can hold 3 litres of water.
4 This container can hold 1 litre of water.

- Ask the learners to match the number of the sentence with the pictures.
- Give the groups time to compare their answers.
- Discuss the answers as a class.
- Ask: **How did they make their choices?** Discuss. (They should estimate. The larger containers are able to hold more. They have a bigger capacity.)
- Show the learners containers 1 and 3.
- Ask: **How many litres would I have if I put the liquid from container 1 and 3 together?** (5 *l* + 1 *l* = 6 litres/ 6 *l*).
- Select different containers and ask learners different addition problems such as:
- Show the learners containers 1 and 4.
- Ask: **What is the difference between the capacity of container 4 and the capacity of container 1?** (5 *l* – 3 *l* = 2 *l*).
- Select different containers and ask the learners different subtraction problems like these.

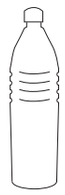
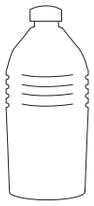
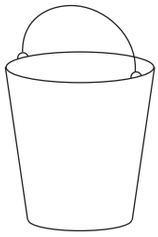
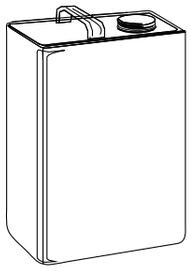
Activity 2: Learners work in groups

- Give each group of learners some pictures or some empty containers, similar to these.

- Ask the learners to discuss in their groups how much each container can hold, according to the label on the container.
- Ask the learners to place these containers in order, from the container that holds the most to the container that holds the least.
- Learners discuss their sorted containers to check that their sorting was correct.
- In their groups let the learners ask each other addition and subtraction problems using the different containers.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Estimate about how much water each container can hold.

a	b	c	d
			
(1 litre)	(2 litres)	(4 litres)	(5 litres)

2 Draw five containers with different capacities. Write the capacity of each container under the picture. (Answers will vary.)

3 Mom buys 2 litres of milk and Dad buys another 5 litres. How many litres altogether? (7 litres.)

4 Jabu buys two litres of coke and Vusi buys 1 litre of coke. How many litres of coke do they have together? (3 litres.)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Write the following amounts from the least to the most and draw pictures of the containers: 2 litres, 5 litres, 4 litres, 1 litre, and 3 litres. (1 litre, 2 litres, 3 litres, 4 litres, 5 litres.)

2 Mavuso buys 1 litre of custard and Dad buys another 2 litres. How many litres altogether? (3 litres.)

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have learnt to estimate, order, and measure, add and subtract the capacity of various containers using litres.

Lesson 34: Working with capacity

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 4.4 Capacity/volume.
Lesson Objective: To estimate and measure the capacity of various containers using the standard unit of capacity (litre).
Lesson Vocabulary: Litres, capacity, estimate, measure, compare, record, order, calibration.
Resources: Empty bottles with a capacity of 1 *l*, 2 *l*, and 3 *l*, 1 litre measuring jug, cup, water.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is 5 more than:	**Answer**		What is 5 less than:	**Answer**
1	45	50	**6**	65	60
2	60 + 6	71	**7**	30 + 9	34
3	50 + 9	64	**8**	60 + 1	56
4	30 + 6	41	**9**	30 + 8	33
5	70 + 0	75	**10**	50 + 3	48

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the last lesson on capacity. Remember to use real containers that you have collected for this activity as it will help learners to grasp the concept of capacity in a more meaningful way.

The first activity is a whole class demonstration. If it is not possible to allow learners to do the second activity in groups, you should do it as a whole class demonstration as well.

Today we are learning to measure and estimate the capacity of various containers.

Activity 1: Whole class activity

- Place a set of empty bottles in the front of the class.
- Discuss with the class how we can use a litre measuring jug to measure amounts of liquid.
- Discuss and estimate with the learners how much water would fill each bottle (using jugs).
- Record the estimates on the board.
- Fill each of the bottles with water, using the litre jug.
- Count the number of litres that are needed to fill each bottle.

- Record how many litres were needed to fill each bottle.
- The number of litres will vary depending on the size of the bottle.
- Record the measurements on the board.
- Compare the recorded estimates and the measurements.

Activity 2: Learners work in groups

- Using the 1 litre measuring jug and a cup, discuss and estimate how many cups of water would be needed to fill the jug.
- Record the estimate on the board.
- Ask a learner to fill the jug using cups. (It should take 4 cups of water to fill a 1 litre measuring jug.)
- Record the measurement on the board.
- Ask: **How many cups would be needed to fill a 2 litre bottle?** (Learners should estimate.)
- Ask a learner to fill the 2 litre bottle using cups. (It should take 8 cups of water to fill a 2 litre bottle.)
- Record the estimate and measurement on the board.
- Discuss the difference between the estimates and the actual measurement if there were differences.
- Talk about the need for careful estimates.
- Ask the learners **how many cups would be needed to fill a 3 litre bottle?** (Learners should estimate.)
- Record the estimate on the board.
- Ask a learner to fill the 3 litre bottles using cups. (It should take 12 cups of water to fill a 3 litre bottle.).
- Record the measurement on the board.
- Discuss the difference between the estimates and the actual measurement if there were differences.
- Discuss any generalisations they can make based on this exercise, such as:
  - **There are 4 cups in 1 litre.**
  - **There are 8 cups in 2 litres.**
  - **There are 12 cups in 3 litres.**
- Take the discussion further to see if learners can apply this knowledge. Ask:
  - **How many cups in 4 litres? (16 cups.)**
  - **How many cups in 5 litres? (20 cups.)**
  - **How many cups in 10 litres? (40 cups.)**
  - **Etc.**

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Write the litre measurements from smallest to biggest: 1 *l*, 5 *l*, 3 *l*, 10 *l* and 2 *l*. (1 *l*, 2 *l*, 3 *l*, 5 *l* and 10 *l*.)

2 Underline the container that would hold the most water:
- **a** Swimming pool
- **b** Bath
- **c** Bucket

3 Underline the container that would hold the least water:
- **a** Bucket
- **b** Cup
- **c** Teaspoon

4 Estimate how many litres are needed to fill:
(Answers may vary but must be reasonable.)
- **a** A sink? _____ (About 15 *l*.)
- **b** A bath? _____ (About 80 *l*.)
- **c** A bucket? _____ (About 5 *l*.)

5 Jabu has collected 3 *l* of water from the tap. His mother asked him to collect 10 *l*. How many more litres must he collect? (7 *l*)

4 HOMEWORK ACTIVITY (5 MINUTES)

Draw and label 5 objects that can hold more water than your water bottle.

(Answers will vary.)

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 measure and estimate the capacity of various containers.

Lesson 35: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 4.4 Capacity, 1.6 Problem-solving techniques 1.7 Addition and Subtraction.		
Lesson Objective: To estimate, measure, compare, order and record the capacity of objects.		
Lesson Vocabulary: Litres, capacity, estimate, measure, compare, record, addition, subtraction.		
Resources: n/a.		
Date:	Week	Day

1 NOTES FOR THE TEACHER RELATING TO THIS WEEK'S WORK

The lessons this week have covered capacity. Capacity is the amount a container can hold when it is full. The standard unit of capacity is a litre (l). Learners should know the standard units of capacity (litre) and be able to read and understand (approximately) what they represent. It is important that learners use empty containers in order to grasp the concept of capacity by experiencing it hands on.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Learners may experience difficulties with the estimation of capacity. It is important that you allow learners to work with containers in this lesson or that you demonstrate the practical activities in front of the class (with learners participating if possible). Remember: Learners in the foundation phase learn best when they are actively involved in their learning using their bodies.

3 CLASSWORK/HOMEWORK – COMPLETE THIS WEEK'S CLASSWORK AS NEEDED

Today we are going over what we learned this week. We are learning more about estimating and measuring the capacity of various containers.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 Circle the container that will hold less water.

2 Draw the following objects: (Answers will vary)
   a A container that holds 1 litre.
   b A container that holds more than 1 litre.

4 Gogo buys 1 litre of milk and Dad buys another 4 litres. How many litres altogether? (5 litres.)

5 Can you estimate how many litres are needed to fill:
(Answers may vary but must be reasonable.)
   a A bucket? _____ (About 7 *l*.)
   b A sink? _____ (About 10 *l*.)

6 Musi buys two litres of Fanta and Vusi buys another 2 litres of Fanta. How many litres of Fanta do they have together? (4 litres.)

5 REFLECTION AND SUMMARY OF LESSON

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

Today we have learnt to measure and estimate the capacity of various containers.

Week 8

Lesson 36: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 4.4 Capacity, 1.6 Problem-solving techniques 1.7 Addition and Subtraction.		
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:

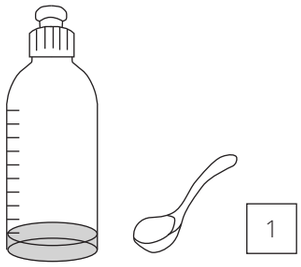
- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.

3 ASSESSMENT

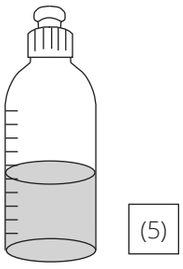
WRITTEN ASSESSMENT (20 MARKS)

1 Circle the container that can hold more water. (1)

2 This bottle has 1 teaspoon of water in it. (1)



How many teaspoons of water are there in the following bottle?



(5)

3 Write these measurements from smallest to biggest: 4 *l*, 2 *l*, 3 *l*, 1 *l* and 5 *l*. (1)
(1 *l*, 2 *l*, 3 *l*, 4 *l* and 5 *l*)

4 Draw 3 containers below to show the difference in capacity. (Answers will vary) (3)

holds less than 1 litre	holds 1 litre	holds more than one litre

5 Solve the problems: (2 × 2=4)

a Mom buys 2 litres of orange juice on Monday. She buys another 4 l on Tuesday. How many litres did she buy altogether? (6 *l*)

b Busi has 5 *l* of water. Jabu has 7 *l*. How many more litres does Jabu have? (2 *l*)

CAPS: Measurement: Capacity **Activity: Assess the learners' ability to use vocabulary (full and empty), order and compare amounts in containers according to capacity and estimate and measure capacity using non-standard measures**	**Mark: 7**
Mark	**Criteria – Checklist: (1 mark for each criterion achieved)**
1	Use vocabulary – full and empty
1	Use vocabulary – the same as
1	Use vocabulary – more than and less than
1	Order containers according to the amount of liquid that they can hold if filled
1	Compare the amount of liquid that two containers can hold if filled
1	Estimate the capacity of containers by using non-standard measures
1	Measure the capacity of containers by using non-standard measures

Lesson 37: Standard units of mass

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 4.3 Mass.
Lesson Objective: To measure the mass of a variety of objects using kilograms.
Lesson Vocabulary: Mass, kilograms, light, heavy, lighter, heavier, estimate, measure, compare, balancing scale, record, order, comparison, scale.
Resources: Balance scale, objects to compare mass (e.g. board duster, box of crayons, etc.), bathroom scale, packaged items to compare and add given masses, (500 g bag of rice, 1 kg bag of rice, tea, mielie meal, etc.).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Which is more:	**Answer**		Which is more:	**Answer**
1	51 or 15?	51	**6**	78 or 87?	87
2	12 or 21?	21	**7**	98 or 89?	98
3	100 or 10?	100	**8**	55 or 45?	55
4	75 or 57?	75	**9**	25 or 52?	52
5	30 or 50?	50	**10**	56 or 65?	65

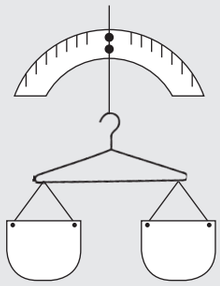
2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the first of three lessons on mass. In this lesson we will introduce learners to the standard unit of mass – the kilogram and that 1000 g is 1 kg. We will discuss the value of the standard unit – showing how this will allow everyone to get the same measurement for an object, instead of the different measurements which we get when measuring using non-standard units. Refer to the bilingual dictionary for explanations and examples of the relevant mathematical terminology.

If you do not have a commercial balance scale, should make one of your own for this lesson and the other lessons on mass. You should make one using a coat hanger, string and two plastic yoghurt tubs if necessary.

Today we are learning to measure the mass of a variety of objects.

Activity 1: Whole class activity



- Using a balance scale, compare the mass of an assortment of objects to see which one is heavier/lighter.
- Put one object on either side of the balance scale.
- Compare their masses based on what you see:
  - **Which is heavier?** (The heavier object will hang lower than the lighter object.)
  - **Which is lighter?** (The lighter object will hang higher than the heavier object.)
- Use objects such as a board duster, a box of crayons and a school lunch box together.

Activity 2: Whole class activity

- In this activity you start to work with standard units of measurement (kg).
- Ask the class to explain the difference between *ligh*t and *heavy* objects. They should use pairs of objects to give their explanations.
- E.g. I am heavy but my book is light. The teacher's desk is heavy but her chair is light.
- Put the 500 g and 1 kg of rice in front of the learners so that they are clearly visible to all. Discuss the mass of each. One is 500 g and the other is 1 kg.
- Ask: **If I have 2x 500 g bags of rice how many grams do I have?** (1000 g)
- Say: **1000 g is the same as 1 kg.** Use the bags of rice to show this.
- Place the 10 kg mealie meal, 5 kg sugar and 1 kg rice in front of the learners (or any other products of the same mass).
- Ask: **Which of the packages is heavy? Which is light?** (Discuss.)
- Use any pair of items in a sentence with the word heavier/lighter.
- Discuss kilograms as a unit of measurement. (It is a standard unit.)

Activity 3: Learners work in groups

Do this activity allowing individuals from each group to find their own mass while the rest of the class starts the classwork activity. Call the learners to the front of the class, one group at a time, so that they all get the chance to find their mass using the scale.

- Use bathroom scale. Get each learner to come up to the front and measure their mass.
- Ask: **What is your mass in kilograms?** (Learners answer in turns.)
- You don't have to record their masses on the board. This is not a comparison exercise but rather one to establish understanding of mass and how to read your mass on a scale.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Draw the following products with a different mass:
   a 2 kg rice, 5 kg potatoes, 10 kg mealie meal, 1 kg sugar.
   b Write down the mass of each product.

2 Use the pictures from Question 1 to complete the following:
   a Mom bought mealie meal and rice. What is the total mass of her products? (12 kg)

b I bought some rice, sugar and potatoes. What is the total mass of my products? (8 kg)
c Dad bought sugar and mealie meal. What is the total mass of his products? (11 kg)
d My sister bought mealie meal, sugar and rice. What is the total mass of her products? (13 kg)

4 HOMEWORK ACTIVITY (5 MINUTES)

Note: The answers here will vary according to the products the learners find. Take some time to discuss the learners' work and check their addition.

1 Find and draw 3 products with a different mass in your kitchen at home, e.g. flour, sugar, mealie meal. Write the mass next to the picture.
2 Complete these sentences, using the products from your kitchen.
a Mom bought _____ and _____. The total mass is _____ kg.
b Dad bought _____ and _____. The total mass is _____kg.
c I bought _____ , _____ and _____. The total mass is _____kg.

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 measure the mass of objects using kilograms.

Lesson 38: Estimation of mass

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 4.3 Mass.
Lesson Objective: To measure and estimate the mass of a variety of objects.
Lesson Vocabulary: Mass, kilograms, light, heavy, lighter, heavier, estimate, measure, compare, balancing scale, record, order, scale.
Resources: Pictures of/products with a mass of 250 g, 500 g, 1 kg and 2 kg, bathroom scale, objects with a mass of 1 kg, 5 kg, 10 kg and 20 kg.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Give the number/s between:	**Answer**		Give the number/s between:	**Answer**
1	56 and 58	57	**6**	12 and 14	13
2	91 and 95	92, 93, 94	**7**	50 and 53	51, 52
3	25 and 27	26	**8**	98 and 100	99
4	40 and 43	41, 42	**9**	89 and 91	90
5	35 and 38	36, 37	**10**	24 and 27	25, 26

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the second lesson on mass. In this lesson standard units are used. Learners should know the standard units of mass (kilogram and gram) and be able to estimate, read and understand approximately what they represent.

The second activity of the lesson can be done as a whole class activity if necessary.

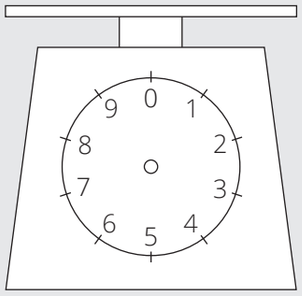
Today we are learning to estimate and read the mass of objects using kilograms.

Activity 1: Whole class activity

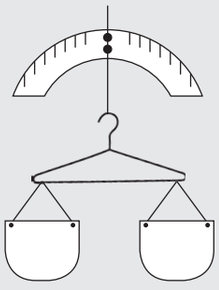
- Show learners products/pictures with a mass of 250 g, 500 g, 1 kg and 2 kg.
- Ask them the following questions:
  - **Which product has a mass of 1 kg?**
  - **Which product has a mass of less than 1 kg?**
  - **Which product has a mass of more than 1 kg?**
  - **Is the remaining product lighter or heavier than 1 kg?**
- (Learners should respond using the examples shown to the class in the pictures you have collected. Answers will depend on the pictures you have brought to class.)

Activity 2: Learners work in groups

When you do this activity make sure that you show the learners how to read mass correctly using scale markings. Draw a simple scale on the board to assist you when you explain how to read from a scale. For example: (Draw the scale arm to show different readings using the markers.)



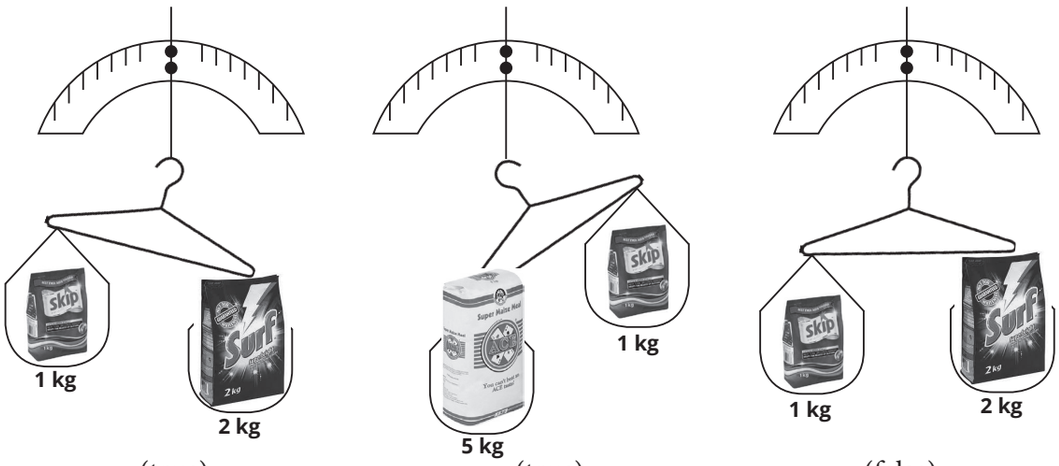
- Use a bathroom scale to find the mass of the following:
- An object with a mass of 1 kg.
- An object with a mass of 5 kg.
- An object with a mass of 10 kg.
- An object with a mass of 20 kg.
- Ask questions like (answers will vary):
  - **Which object has the greatest mass?**
  - **Which object has the lowest mass?**
  - **Which object is heavier/lighter? (Of two objects shown together.)**
  - **Which object has a mass of more than 5 kg/less than 10 kg?**
- When you have finished this activity the learners will do the classwork activity.
- Draw a balance scale on the board to remind learners how to interpret a drawing of a balance scale.



- Remind the class: In the scale shown, the object on the right hand side is heavier because the scale is tipping down to the right.
- The masses shown in the two balances are 1 kg on the left and 2 kg on the right. This scale would tip towards the heaver object, which is the 2 kg bag of soap. The balance scale shown here is true.

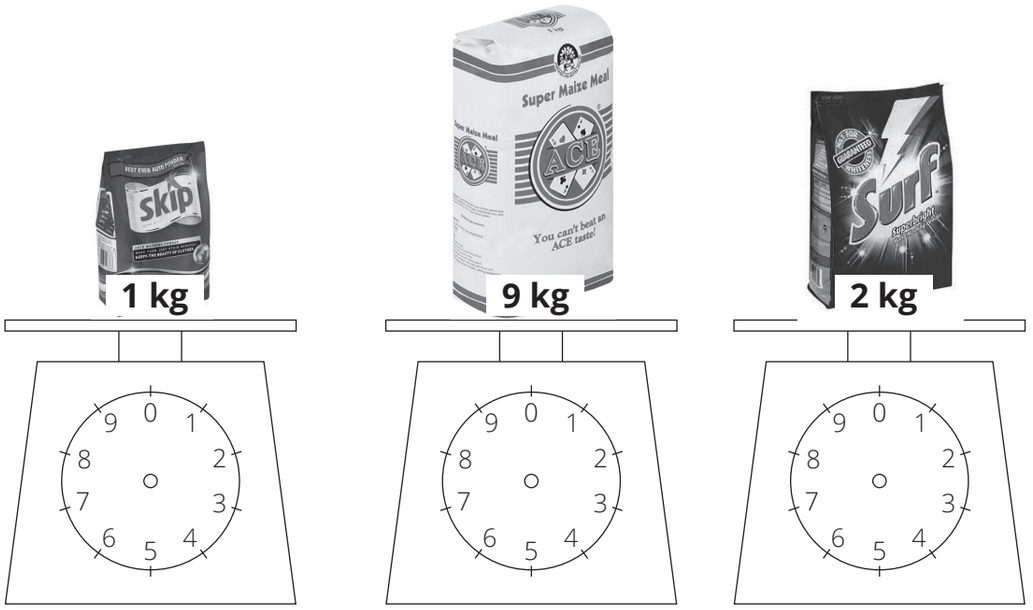
3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Look at the pictures of balance scales. Circle true or false.



(true) (true) (false)

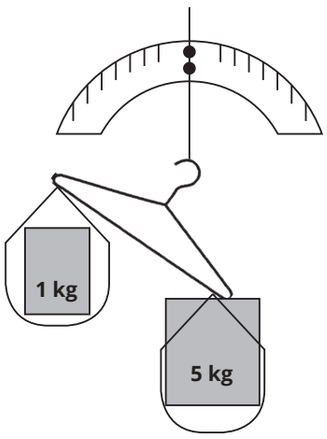
2 Draw the arms on the kitchen scales to show the mass of these products:
(Learners must draw the arms in the correct place.)



4 HOMEWORK ACTIVITY (5 MINUTES)

1 Draw a scale balance with a heavier object on the right hand side.

2 Draw a scale balance with a lighter object on the left hand side.



3 What can you say about the two drawings that you drew?
(Something like this: They both have the heavier and lighter objects on the same side.)

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 estimate and read the mass of objects using kilograms.

Lesson 39: Mass: Addition and subtraction problems

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 4.3 Mass, 1.6 Problem-solving techniques 1.7 Addition and Subtraction.
Lesson Objective: To solve simple addition and subtraction problems involving mass.
Lesson Vocabulary: Mass, kilograms, measure, compare, add, subtract.
Resources: Pictures of/products with a mass of 500 g, 1 kg ,2 kg,5 kg and 10 kg.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Put the largest number first.	**Answer**		Put the smallest number first.	**Answer**
1	54, 55, 56	56, 55, 54	**6**	65, 63, 64	63, 64, 65
2	71, 70, 69	71, 70, 69	**7**	32, 30, 31	30, 31, 32
3	53, 55, 54	55, 54, 53	**8**	12, 16, 14	12, 14, 16
4	61, 62, 63	63, 62, 61	**9**	38, 40, 36	36, 38, 40
5	23, 21, 22	23, 22, 21	**10**	50, 51, 49	49, 50, 51

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the last lesson on mass. In this lesson, the learners solve mass addition and subtraction problems. Learners will use the standard units of mass.

Today we are solving addition and subtraction problems that involve mass.

Activity 1: Whole class activity

- Before the lesson draw pictures of products and write the mass under each product/ place products with the following masses on a desk at the front of the class:
  - **a** 1 kg
  - **b** 5 kg
  - **c** 2 kg
  - **d** 10 kg
- Ask the learners to read the mass of each product.
- Discuss with the learners which object is the heaviest/lightest.
- Show the learners the objects with a mass of 2 kg and 5 kg.
- Ask: **How many kilograms would I have if I added the mass of these 2 objects together?**

(2 kg + 5 kg = 7 kg).
- Select different containers and ask learners different addition problems.
- Show the learners the objects with a mass of 10 kg and 2 kg.
- Ask: **How many kilograms will I have if I subtract a mass of 2 kg from a mass of 10 kg?**
  (10 kg – 2 kg = 8 kg).
- Select different containers and ask the learners different subtraction problems.

Activity 2: Whole class activity

- Using the 500 g, 1 kg, 2 kg, 5 kg and 10 kg objects.
- Show the learners the 2 kg and 1 kg object.
- Ask: **How many 1 kg objects do you need to make 2 kg?** (2)
- Repeat this type of question using 1 kg and 2 kg and 5 kg and 10 kg objects.
- Show the learners the objects with a mass of 500 g and 1 kg.
- Ask: **How many 500 grams objects do I need to make a mass of 1 kg?** (2)
- Discuss that 1000 g = 1 kg.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1. Draw five objects, each with a different mass. Write the mass of each object under the picture. (Answers will vary.)
2. What is the total mass of the objects whose pictures you drew? _____ kg.
3. Jabu buys 2 kg of sugar and Vusi buys 5 kg of sugar. How many kilograms of sugar do they have together? (7 kg)
4. Nomsa's mass is 30 kg. Busi's mass is 24 kg. How many kilograms less is Busi's mass than Nomsa's? (6 kg)

4 HOMEWORK ACTIVITY (5 MINUTES)

Solve the following:
1. 3 kg + 16 kg = ___ (19 kg)
2. 26 kg – 13 kg = ___ (13 kg)
3. Jack buys 4 kg of bananas. Warona buys 7 kg of bananas. How many kilograms of bananas do they have together? (11 kg)

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 solved addition and subtraction problems that involve mass.

Lesson 40: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 4.3 Mass, 1.6 Problem-solving techniques 1.7 Addition and Subtraction.		
Lesson Objective: To measure, compare, add and subtract the mass of a variety of objects using standard units.		
Lesson Vocabulary: Mass, kilograms, light, heavy, lighter, heavier, estimate, measure, compare.		
Resources: n/a.		
Date:	Week	Day

1 NOTES FOR THE TEACHER RELATING TO THIS WEEK'S WORK

The lessons this week have covered mass. Learners should know the standard units of mass (kilogram and gram). They should able to read mass on a scale and to estimate the mass of given objects.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Learners may experience difficulties with understanding that 1000 g = 1 kg. .It is important that you show the learners this relationship using objects. You can show the learners this relationship by using a kitchen scale. Place 2 x 500 g items on the scale. Discuss that when added together it is 1000 g. Place a 1 kg item on the scale. Discuss the relationship between 1000 g and 1 kg.

3 CLASSWORK/HOMEWORK – COMPLETE THIS WEEK'S CLASSWORK AS NEEDED

Today we are going over what we learned this week. We are learning more about measuring mass.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 Draw the following products each with a different mass:
3 kg tomatoes, 5 kg bananas, 8kg mangoes, 1 kg potatoes. Write down the mass of each product.

2 Use the pictures from Question 1 to complete the following:
- **a** Musi bought bananas and mangoes. What is the total mass of her products? (13 kg)
- **b** I bought tomatoes and potatoes. What is the total mass of my products? (4 kg)
- **c** Sipho bought mangoes and tomatoes. What is the total mass of his products? (11 kg)

3 Jabu buys 10 kg of mielie meal and Busi buys 7 kg of mielie meal. How many more kilograms does Jabu have than Busi? (3 kg)

5 REFLECTION AND SUMMARY OF LESSON

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

Today we have learnt to measure, compare, add and subtract the mass of a variety of objects.

Week 9

Lesson 41: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 4.3 Mass, 1.6 Problem-solving techniques 1.7 Addition and Subtraction.		
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 rubric below).

2 DISCUSS ASSESSMENT ITEMS WITH THE CLASS (45 MINUTES)

Take in the learners' work when they are done.

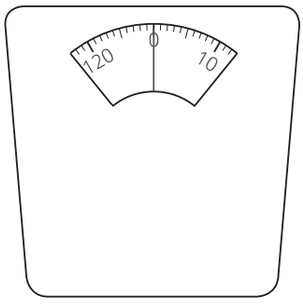
There should be time for you to discuss a few of the items with the class:

- 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



a What mass reading is shown on this bathroom scale? _____ (1)

b Is anyone standing on the scale? Circle: yes/no (no) (1)

c How do you know? _____ (zero mass) (1)

2 20 kg + 11 kg = ___ (31 kg) (1)

3 21 kg – 14 kg = ___ (7 kg) (1)

4 Arrange from lightest to heaviest: 8 kg, 5 kg, 2 kg, and 10 kg. (1)
_____ (2 kg, 5 kg, 8 kg, 10 kg) _____

5 Solve the problems: (2 × 2=4)

a Sam's mass is 21 kg. Steve's mass is 20 kg. How many kilograms is their total mass? (21 kg + 20 kg = 41 kg)

b Mom buys 12 kg potatoes. Dad buys 5 kg potatoes. How many kilograms more did Mom buy than Dad? (12 kg – 5 kg = 7 kg)

CAPS: Measurement: Mass **Activity: Assess the learners' ability to use the concept vocabulary for mass and to measure mass in kilograms.**	**Mark: 7**
Mark (percentage)	**Criteria – rubric**
1	Use vocabulary to describe mass – light and heavy
2	Use vocabulary to describe mass – light and heavy, lighter and heavier
3	Use vocabulary to describe mass – light and heavy, lighter and heavier and measure own mass using a scale
4	Use vocabulary and estimate the mass of objects which have their mass stated in kilograms
5	Use vocabulary, estimate and measure the mass of objects which have their mass stated in kilograms
6	Use vocabulary and order the mass of objects which have their mass stated in kilograms
7	Use vocabulary, order and compare the mass of objects which have their mass stated in kilograms

Unit 4 Introduction

Unit 4 focuses on solving word problems using and comparing a number of strategies. This is an important unit as it continues to lay the foundation for learners' understanding of problem solving. The learners solve problems by increasing/decreasing terms and making multiples of 10. Towards the end of the unit, learners are introduced to the associative law of addition. The associative law states that when you add three or more numbers you can do so by pairing them in any order. The learners use brackets to work with and understand the associative law.

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

- **Conceptual understanding**: Learners will develop their understanding of calculations for solving addition and subtraction word problems.
- **Procedural fluency**: Learners will be exposed to repeated examples that they have to solve. This will enable them to build their procedural fluency for the solution of addition and subtraction problems. Learners need to learn to work efficiently with adding and subtracting 3 numbers when performing the operations,
- **Strategies**: Learners will discover that there are two different strategies that can be used to solve addition and subtraction problems using the associative law.
- **Reasoning**: Learners are given opportunities to reason mathematically when they explain the ways in which they solve addition and subtraction word problems and when they verbalise their understanding.

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

- **Connecting topics and concepts**: In this unit, learners are applying what they have learnt in Units 1 and 2. An understanding of numbers and problem solving are an integral part of addition and subtraction. The teacher should help the learners make connections between these concepts.
- **Problem solving**: Through working through the word problems, learners are able to explore and solve problems using a variety of strategies.
- **Justifying answers**: Learners justify their answers by discussing the strategies that they select to solve the word problems.

Lesson 42: Problem solving (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.
Lesson Objective: To solve word problems which involve two increases which need to be calculated one at a time.
Lesson Vocabulary: addition, increase, twice, number sentence.
Resources: Bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	80 + 3 =	83	**6**	10 + 90=	100
2	70 + 5 =	75	**7**	50 + 8 =	58
3	90 + _ = 94	4	**8**	_ + 90 = 97	7
4	_ + 70 = 75	5	**9**	80 + _ =82	2
5	_+ 9 =	69	**10**	_ + 40 = 46	6

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

There are 4 lessons in this unit. In this lesson, learners deal with the situation of two increases. They learn that when we add three numbers we can add them in pairs from the left or from the right. This means that we can pair the numbers as we choose to, when we add a string of numbers. *You should also refer to the tracker for the summary of the problem solving approach used in this lesson.*

Today we are learning to solve addition and subtraction word problems through increasing the terms.

Activity 1: Whole class activity

- Write the following word problem on the board.
  There are 10 children in a room.
  2 children came in and
  then 5 more came in.
  How many children are there now?
- *The word problem must be written on four lines as shown above to assist learners to identify the critical information/numbers needed to solve the problem.*

- Read the problem.
- Let learners read the problem until they read it fluently.
- Underline the numbers, 10, 2 and 5.
- Underline the question (How many children are there now?) with a wavy line.
- Let learners manipulate bottle tops to represent the story.
- Then, let them draw circles in their classwork book (with words explaining it) as follows.

	2 children came	5 more children came
10 children	←○○	←○○○○○

- Draw a diagram as above.
- *This is a special case diagram since two numbers are added. This diagram helps learners focus on the numbers to add to the first number. Hence, teachers can draw it and learners copy it.*
- Let the learners draw the diagram.
- Let learners determine the operation from the bar diagram and write the number sentence.
- Let learners present their number sentence and confirm with the class the correct number sentence.
- Let the learners solve the number sentence (10 + 2 + 5 = 17).
- Ask: **How did you do the calculation?** (a. 10 + 2 = 12, then 12 + 5 = 17 or b. 2 + 5 = 7, 10 + 7 = 17).
- *If all the learners answered in the answer a, ask the following questions.*
  How many children increased in total? (2 + 5 = 7)
  How many is the total in that case? (10 + 7 = 17)
- Discuss the differences between the 2 methods with the learners. Let them explain which method they prefer and why.
- Ask: **What is the answer for the word problem?** (There are 17 children now.)
- *Learners have to answer with unit, 17 children.*

Activity 2: Whole class activity

- Write the following word problem on the board:
  There were 12 birds in the park.
  7 birds flew in and
  then another 3 came.
  How many birds are there now?
- Using the steps from activity 1 solve this word problem with the learners.
- (12 + 7 + 3 = 19 + 3 = 22 or 12 + 7 + 3 = 12 + 10 = 22, 22 birds.)

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Note: Do not erase the workings for Activity 1 and 2. The learners will need these to guide them with their classwork. In this activity learners as asked to solve the questions using two different methods. They could add the numbers in the order that they are written or they could add them by selecting a different order to add the numbers.

Add these numbers:

1 Add them in the order in which they are written.

2 Add them by writing them in a different order.

a 10 + 2 + 4 = (16)

b 10 + 6 + 3 = (19)

c 11 + 4 + 3 = (18)

d 12 + 2 + 3 = (17)

e 13 + 3 + 3 = (19)

f 12 + 1 + 5 = (18)

a	10 + 2 + 4 = 12 + 4 = 16	10 + 2 + 4 = 10 + 6 = 16
b	10 + 6 + 3 = 16 + 3 = 19	10 + 6 + 3 = 10 + 9 = 19
c	11 + 4 + 3 = 15 + 3 = 18	11 + 4 + 3 = 11 + 7 = 18
d	12 + 2 + 3 = 14 + 3 = 17	12 + 2 + 3 = 12 + 5 = 17
e	13 + 3 + 3 = 16 + 3 = 19	13 + 3 + 3 = 13 + 6 = 19
f	12 + 1 + 5 = 13 + 5 = 18	12 + 1 + 5 = 12 + 6 = 18

4 HOMEWORK ACTIVITY (5 MINUTES)

Add these numbers:

1 Add them in the order in which they are written.

2 Add them by writing them in a different order.

a 10 + 2 + 1 = (13)

b 12 + 3 + 2 = (17)

c 14 + 2 + 2 = (18)

d 15 + 3 + 1 = (19)

a	10 + 2 + 1 = 12 + 1 = 13	10 + 2 + 1 = 10 + 3 = 13
b	12 + 3 + 2 = 15 + 2 = 17	12 + 3 + 2 = 12 + 5 = 17
c	14 + 2 + 2 = 16 + 2 = 18	14 + 2 + 2 = 14 + 4 = 18
d	15 + 3 + 1 = 18 + 1 = 19	15 + 3 + 1 = 15 + 4 = 19

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 addition and subtraction word problems through increasing the terms.

Lesson 43: Problem solving (2)

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.		
Lesson Objective: To solve word problems with two increases by making a ten.		
Lesson Vocabulary: addition, increase, twice, number sentence, efficient.		
Resources: Bottle tops.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	13 + 10 =	23	**6**	30 + 14 =	44
2	15 + 30 =	45	**7**	50 + 23 =	73
3	36 + 20 =	56	**8**	40 + 26 =	66
4	35 + 50 =	85	**9**	50 + 34 =	84
5	28 + 70 =	98	**10**	30 + 65 =	95

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the second lesson in this unit. This lesson covers problem solving which involves two increases and gives learners the opportunity to think about how to choose the most efficient way to solve the problem. For example, if by adding the second and the third numbers first, we can make a 10 which is easy to work with, we should do this first. Learners need to have a thorough understanding of how to make a ten (in 2-digit numbers. e.g. 27 + 10 = 37). They can practise this using base ten kits if necessary. *You should also refer to the tracker for the summary of the problem solving approach used in this lesson.*

Today we are learning to solve word problems by choosing the most efficient approach.

Activity 1: Whole class activity

- Write the following word problem on the board**.**
  Sophie had 17 cards.
  She bought 6 cards yesterday and
  4 cards today.
  How many cards does she have now?
- *The word problem must be written on four lines as shown above to assist learners to identify the critical information/numbers needed to solve the problem.*

- Read the problem.
- Let learners read the problem until they read it fluently.
- Underline the numbers, 17, 6 and 4.
- Underline the question (How many cards does she have now?) with a wavy line.
- Let learners manipulate bottle tops to represent the story.
- Then, let them draw circles in their classwork book (with words explaining it) as follows.

	6 cards	4 more cards
17 cards	←OOOOOO	←OOOO

- Draw a diagram as above.
- *This is a special case diagram. This diagram helps learners focus on the numbers to add to the first number. Hence, teachers can draw it and learners copy it.*
- Let the learners draw the diagram.
- Let learners determine the operation from the bar diagram and write the number sentence.
- Let learners present their number sentence and confirm with the class the correct number sentence.
- Let the learners solve the number sentence (17 + 6 + 4 = 27).
- Ask: **How did you do the calculation?** (a. 17 + 6 = 23, then 23 + 4 = 27 or b. 6 + 4 = 10, 17 + 10 = 27).
- *If all the learners answered in the answer a, ask the following questions.*
  How many cards increased in total? (6 + 4 = 10)
  How many is the total in that case? (17 + 10 =27)
- Discuss the differences between the 2 methods with the learners. Let them explain which method they prefer and why.
- *Learners are expected to find that adding 10 (answer b) is easier than carrying (answer a). If they don't agree, learners need to practise adding multiples of 10 using base ten kits.*
- Ask: **What is the answer for the word problem?** (There are 27 cards now.)
- *Learners have to answer with the unit, 27 cards.*

Activity 2: Whole class activity

- Write the following word problem on the board:
  Thabo had 12 marbles.
  He bought 8 marbles yesterday.
  Then he bought another 5 today.
  How many marbles does he have now?
- Using the steps from activity 1 solve this word problem with the learners.
- *Discuss: This time, adding from left in order is easier because if you add 8 + 5 first, it includes addition with carrying and then, adding 2-digit numbers. Rather, add 12 + 8 first to make 20 which is a multiple of 10.*
- 12 + 8 + 5 = 20 + 5 = 25 or (8 + 5 = 13, 12 + 13 = 25), 25 marbles.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Note: Do not erase the workings for Activity 1 and 2. The learners will need these to guide them with their classwork.

1 Add these numbers. Think about how to pair the numbers when you add.

a 15 + 6 + 4 = (25)

b 14 + 6 + 7 = (27)

c 24 + 6 + 9 = (39)

d 34 + 8 + 2 = (44)

e 43 + 7 + 4 = (54)

f 54 + 8 + 2 = (64)

(Solution)

a 15 + 6 + 4 = 15 + 10 = 25

b 14 + 6 + 7 = 20 + 7 = 27

c 24 + 6 + 9 = 30 + 9 = 39

d 34 + 8 + 2 = 34 + 10 = 44

e 43 + 7 + 4 = 50 + 4 = 54

f 54 + 8 + 2 = 54 + 10 = 64

2 Solve the problem.

There are 18 chickens on the farm.
The farmer buys another 9 and
then another 1 chicken.
How many chickens does the farmer have altogether?
(18 + 9 + 1 = , 18 + 9 = 27, 27 + 1 = 28, 9 + 1 = 10, 18 + 10 = 28, 28 chickens)

4 HOMEWORK ACTIVITY (5 MINUTES)

Solve the questions. Think about how to pair the numbers when you add.

a 13 + 8 + 2 = (23)

b 15 + 5 + 8 = (28)

c 24 + 6 + 4 = (34)

d 47 + 8 + 2 = (57)

(Solution)

a 13 + 8 + 2 = 13 + 10 = 23

b 15 + 5 + 8 = 20 + 8 = 28

c 24 + 6 + 4 = 30 + 4 = 34

d 47 + 8 + 2 = 47 + 10 = 57

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 word problems by choosing the most efficient approach.

Lesson 44: Problem solving (3)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.
Lesson Objective: To solve addition and subtraction word problems by choosing the most efficient strategy.
Lesson Vocabulary: addition, subtraction, increase, decrease, number sentence, efficient.
Resources: Bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	12 + 4=	16	**6**	17 – 5 =	12
2	15 – 2=	13	**7**	13 + 6 =	19
3	14 – 3 =	11	**8**	16 – 5 =	11
4	12+ 6 =	18	**9**	12 +7 =	19
5	14 + 3=	17	**10**	18 – 6 =	12

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the third lesson in this unit. The previous two lessons covered word problems which involved two increases. The learners practised deciding on which strategy was best to solve a word problem. In this lesson, learners begin to solve word problems that involve both addition and subtraction. They experiment with different approaches and decide which is the simplest method. *You should also refer to the tracker for the summary of the problem solving approach used in this lesson.*

Today we are learning to solve addition and subtraction word problems using different approaches.

Activity 1: Whole class activity

- Write the following word problem on the board.
  There were 15 passengers on the bus.
  6 passengers got on and
  2 passengers got off at the next bus stop.
  How many passengers are there on the bus now?

- *The word problem must be written on four lines as shown above to assist learners to identify the critical information/numbers needed to solve the problem.*
- Read the problem.
- Let learners read the problem until they read it fluently.
- Underline the numbers, 15, 6 and 2.
- Underline the question (How many passengers are there on the bus now?) with a wavy line.
- Let learners manipulate bottle tops to represent the story.
- Then, let them draw circles in their classwork book (with words explaining it) as follows.

	6 passengers get on
15 passengers	←○○○○○○ ○○→
	2 passengers left

- Draw a diagram as above.
- *This is a special case diagram. This diagram helps learners focus on the numbers to add to the first number. Hence, teachers can draw it and learners copy it.*
- Let the learners draw the diagram.
- Let learners determine the operation from the bar diagram and write the number sentence.
- Let learners present their number sentence and confirm with the class the correct number sentence.
- Let the learners solve the number sentence (15 + 6 – 2 = 19).
- Ask: **How did you do the calculation?** (a. 15 + 6 = 21, then 21 – 2 = 19 or b. 6 – 2 = 4, 15 + 4 = 19).
- *If all the learners answered in the answer a, ask the following questions.*
  By how many did the passengers increase in total? (6 – 2 = 4)
  How many is the total in that case? (15 + 4 =19)
- Discuss the differences between the 2 methods with the learners. Let them explain which method they prefer and why.
- *Subtracting the third number from the second number first is easier because if we add, then subtract, we have to calculate addition with carrying and subtraction with borrowing.*
- Ask: **What is the answer for the word problem?** (There are **19 passengers** now).
- *Learners have to answer with unit, 19 passengers.*

Activity 2: Whole class activity

- Write the following word problem on the board:
  Tim had 17 sweets.
  His mom gave him 5 sweets.
  Then he ate 4 sweets.

How many sweets does Tim have left?

- Using the steps from activity 1 solve this word problem with the learners.
- (17 + 5 – 4 = 22 – 4 = 18) or 17 + 5 – 4 = ,5 – 4 = 1, 17 + 1 = 18, 18 sweets.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Note: Do not erase the workings for Activity 1 and 2. The learners will need these to guide them with their classwork.

1 Solve the questions. Think about how to pair the numbers when you add.

a 16 + 5 – 4 = (17)
b 15 + 8 – 4 = (19)
c 24 + 7 – 5 = (26)
d 34 + 9 – 6 = (37)
e 46 + 8 – 5 = (49)
f 57 + 7 – 6 = (58)

(Solution)

a 16 + 5 – 4 = 16 + 1 = 17
b 15 + 8 – 4 = 15 + 4 = 19
c 24 + 7 – 5 = 24 + 2 = 26
d 34 + 9 – 6 = 34 + 3 = 37
e 46 + 8 – 5 = 46 + 3 = 49
f 57 + 7 – 6 = 57 + 1 = 58

2 Solve the problem.
There were 19 cars in the parking lot.
5 more cars parked.
Then 4 cars left.
How many cars are left?
(5 – 4 = 1, 19 + 1 = 20, 20 cars)

4 HOMEWORK ACTIVITY (5 MINUTES)

Solve the questions. Think about how to pair the numbers when you add.

a 17 + 4 – 2 = (19)
b 14 + 7 – 3 = (18)
c 23 + 8 – 6 = (25)
d 43 + 9 – 8 = (44)

(Solution)

a 17 + 4 – 2 = 17 + 2 = 19
b 14 + 7 – 3 = 14 + 4 = 18
c 23 + 8 – 6 = 23 + 2 = 25
d 43 + 9 – 8 = 43 + 1 = 44

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 solved addition and subtraction word problems using different methods.

Lesson 45: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.		
Lesson Objective: To practise solving word problems by combining terms.		
Lesson Vocabulary: addition, subtraction, increase, decrease, number sentence, efficient.		
Resources: Bottle tops.		
Date:	Week	Day

1 NOTES FOR THE TEACHER RELATING TO THIS WEEK'S WORK

This week we have focused on problem solving using a variety of methods. All the word problems have involved 2 steps. The learners have looked at different ways to add or subtract terms in the most efficient way.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Learners may experience difficulties with understanding and solving the word problems. This may be because the problems involve 2 steps and the order of solving these 2 steps can vary. It is important that the learners practise the different methods. Allow the learner to explain each step to you or a peer before working it out. You can also write down the steps in different colours so that learners can see them more easily.

3 CLASSWORK/HOMEWORK – COMPLETE THIS WEEK'S CLASSWORK AS NEEDED

Today we are going over what we learned this week. We are learning more about solving addition and subtraction word problems using different methods.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

Read the problems below. Solve them using 2 different methods.

1 I picked 7 apples on Monday.
I picked 3 apples on Tuesday and
5 more apples on Wednesday.
How many apples did I pick altogether?
(7 + 3 + 5 = ___ , 7 + 3 = 10, 10 + 5 = 15 or 3 + 5 = 8, 8 + 7 = 15, 15 apples)

2 There were 14 children swimming in the pool.
7 children arrive and
then another 3 arrive.
How many children are there altogether swimming in the pool?

(14 + 7 + 3 = ___ , 14 + 7 = 21, 21 + 3 = 24 or 7 + 3 = 10, 14 + 10 = 24, 24 children)

3 Maria has 16 crayons.
Her mom buys her another 5 crayons.
She loses 4 of the crayons.
How many crayons does she have left?
(16 + 5 – 4 = ___ , 16 + 5 = 21, 21 – 4 = 17 or 5 – 4 = 1, 16 + 1 = 17, 17 crayons)

4 There were 14 children in the classroom.
6 children arrived in the classroom and
then another 3.
How many children are there now?
(14 + 6 + 3 = ___ , 14 + 6 = 20, 20 + 3 = 23 or 6 + 3 = 9, 14 + 9 = 23, 23 children)

5 There were 23 cows in the field.
6 more cows arrived in the field and
then another 4.
How many cows are there now?
(23 + 6 + 4 = ___ , 23 + 6 = 29, 29 + 4 = 33 or 6 + 4 = 10, 23 + 10 = 33, 33 cows).

6 There were 12 pigs in the field.
6 more pigs came to the field and
then 5 pigs left.
How many pigs are left in the field?
(12 + 6 – 5 =___ , 12 + 6 = 18, 18 – 5 = 13 or 6 – 5= 1, 12 + 1 = 13, 13 pigs)

5 REFLECTION AND SUMMARY OF LESSON

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

Today we have learnt to solve addition and subtraction word problems using a variety of strategies.

Week 10

Lesson 46: Addition using brackets

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques.		
Lesson Objective: To solve addition word problems using brackets to simplify number sentences.		
Lesson Vocabulary: addition, brackets, number sentence, efficient.		
Resources: Bottle tops.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	23 + 10 =	33	**6**	30 + 23 =	53
2	35 + 20 =	55	**7**	20 + 45 =	65
3	36 + 30 =	66	**8**	60 + 36 =	96
4	38 + 40 =	78	**9**	40 + 32 =	72
5	47 + 50 =	97	**10**	20 + 68 =	88

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This is the last lesson in this unit. In this lesson, the learners solve addition word problems using brackets. We use brackets to create groups. In maths, we solve brackets first. You will need to explain the use of brackets to the learners in order for them to understand why and how we use them. You will need to work through the word problems step by step and may want to use different colours to show the brackets. *You should also refer to the tracker for the summary of the problem solving approach used in this lesson.*

Today we are learning to solve addition word problems using brackets.

Activity 1: Whole class activity

- Write the following word problem on the board**.**
  There are 18 cars in the parking.
  4 cars came in and
  6 cars came in later.
  How many cars are there in the parking?

- *The word problem must be written in several rows divided to assist learners to identify the critical information/numbers needed to solve the problem.*
- Read the problem.
- Let learners read the problem until they read it fluently.
- Underline the numbers, 18, 4 and 6.
- Underline the question (How many cards does she have now?) with a wavy line.
- Let learners manipulate bottle tops to represent the story.
- Then, let them draw circles in their classwork book (with words explaining it) as follows.

	4 cars	6 cars came
18 cars	←OOOO	←OOOOOO

- Draw a diagram as above.
- *This is a special case diagram. This diagram helps learners focus on the numbers to add to the first number. Hence, teachers can draw it and learners copy it.*
- Let the learners draw the diagram.
- Let learners determine the operation from the bar diagram and write the number sentence.
- Let learners present their number sentence and confirm with the class the correct number sentence.
- Let the learners solve the number sentence (18 + 4 + 6 = 28).
- Ask: **How did you do the calculation?** (a. 18 + 4 = 22, then 22 +6 =28 or b. 4 + 6 = 10, 18 + 10 = 28).
- Introduce bracket that shows adding the numbers in bracket first, i.e. 18 + (4 + 6) = 18 + 10 =28.
- Ask: **What is the answer for the word problem?** (There are **28 cars** now).
- *Learners have to answer with unit, 28 cars.*

Activity 2: Whole class activity

- Write the following word problem on the board:
  There were 17 ducks in the pond.
  6 more ducks came and
  another 4 came later.
  How many ducks are there altogether?
- Using the steps from activity 1 solve this word problem with the learners.
- 17 + 6 + 4 = 17 + (6 + 4) = 17 + 10 = 27, 27 ducks

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Solve the following problems. Remember to start with the brackets.

a 14 + (7 + 3) = ___ (24)

b 25+ (3 + 2) = ___ (30)

c 19 + (2 + 18) = ___ (39)

d 24 + (17 + 3) = ___ (44)

e 35+ (14 + 6) = ___ (55)

f 49 + (8+22) = ___ (79)

2 Use brackets to solve this problem.
There were 16 dogs in the park.
7 more dogs came and
another 3 came later.
How many dogs are there altogether?
(16 + (7 + 3) = 26 dogs)

4 HOMEWORK ACTIVITY (5 MINUTES)

Solve the following problems. Remember to solve the brackets first.

a 15+ (5+5) = ___ (25)

b 19 + (4 + 6) = ___ (29)

c 27 + (12+8) = ___ (47)

d 37 + (46 + 4) = ___ (87)

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 addition word problems using brackets.

Lesson 47: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date. CAPS topics: 1.13 Addition and Subtraction, 1.7 Addition and Subtraction, 1.6 Problem-solving techniques, 1.12 Techniques. 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 Solve the following. Remember start with the brackets. (3)

a 20 + (4 + 6) = ___
(20 + 10 = 30)

b 40 + (5 + 5) = ___
(40 + 10 = 50)

c 43 + (30 + 10) = ___
(43 + 40 = 83)

2 Use two different methods to solve each problem. (4 × 3=12)

a There were 15 books on the shelf.
I put in 3 more books on the shelf and then
I put another 7 books.
How many books do I have altogether?
(15 + 3 = 18, 18 + 7 = 25 or 3 + 7 = 10, 15 + 10 =25, 25 books)

b There were 25 oranges in a basket.
Mom bought 7 more oranges and then
she bought another 3 oranges.

How many oranges are there now?
(25 + 7 = 32, 32 + 3 = 35 or 7 + 3 =10, 25 + 10 = 35, 35 books).

c There were 15 horses in the field.
7 more horses came to the field and then
5 horses left the field.
How many horses are left in the field?
(15+ 7 = 22, 22 -5 = 17 or 7 – 5 = 2, 15+2 = 17, 17 horses)

Unit 5 Introduction

In this unit, learners will solve problems by considering differences and starting numbers. It is important that these are related back to learners' everyday experiences, so that their learning can be based upon strong connections to their world. This unit links back to Units 1 to 4, where the concepts of problem solving, addition and subtraction were addressed. Learners will use this knowledge to develop an understanding of problem solving.

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

- **Conceptual understanding**: A bar diagram helps learners represent and understand the problem situation and determine the operation to use.
- **Procedural fluency**: Learners will develop procedural fluency in the drawing of diagrams which they learned in unit 2 of term 2.
- **Strategies**: Learners will discover that it is essential for them to establish a strategy before solving a word problem.
- **Reasoning**: Learners will have to justify why they have identified and used a specific strategy to solve the word problem.

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

- **Addressing learners' errors**: The teacher can address learners' errors in this unit, as the unit might expose learners' misconceptions in relation to problem solving. Teachers should ask learners probing questions in order to find the source of their errors so that he/she can address them most effectively.
- **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 back to number concepts covered in the term. The teacher is therefore able to revise and build on previous knowledge.

Lesson 48: Word problems – difference

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and Subtraction.		
Lesson Objective: To solve word problems by looking at the difference.		
Lesson Vocabulary: bar diagram, difference, subtract.		
Resources: n/a.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	51 – 10 =	41	**6**	55 – 40 =	15
2	49 – 20 =	29	**7**	88 – 70 =	18
3	62 – 50 =	12	**8**	66 – 30 =	36
4	75 – 30 =	45	**9**	73 – 50 =	23
5	99 – 20 =	79	**10**	81 – 20 =	61

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

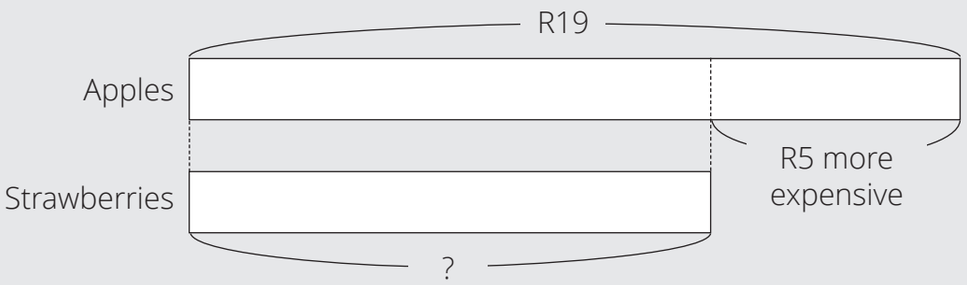
This is the first of two lessons in the unit. In this lesson, learners solve word problems of subtraction which include a word indicating *more*. This is potentially confusing as the word *more* is usually associated with addition. This lesson also revises using bar diagrams to solve word problems. *You should also refer to the tracker for the summary of the problem solving approach used in this lesson.*

Today we are learning to solve word problems by looking at the difference.

Activity 1: Whole class activity

- Write the following word problem on the board**.**
  A packet of apples costs R19.
  It is R5 more expensive than a packet of strawberries.
  How much is a packet of strawberries?
- *The word problem must be written on four lines as shown above to assist learners to identify the critical information/numbers needed to solve the problem.*
- Read the problem.
- Let learners read the problem until they read it fluently.
- Underline the numbers, 19 and 5.

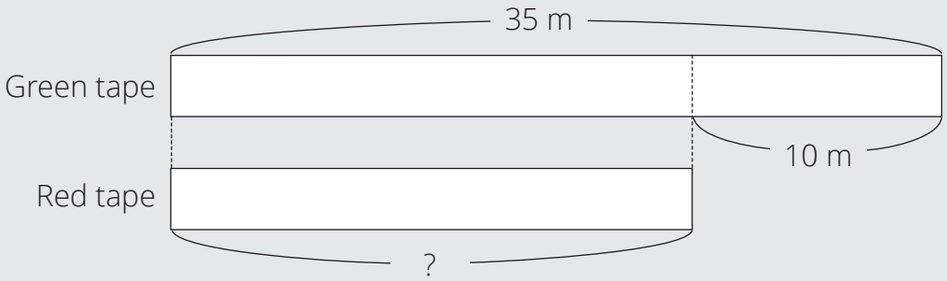
- Underline the question (How much is a packet of strawberries?) with a wavy line.
- Let learners draw bar diagram to represent the story.



- Let some learners present their diagrams.
- Let learners determine the operation from the bar diagram and write the number sentence.
- *Avoid teaching to determine the operation by keywords, e.g. if there is a word 'more' in the word problem, it is addition. This is not always true.*
- Let learners present their number sentence and confirm with the class the correct number sentence.
- Let the learners solve the number sentence (19 – 5 = 14).
- Ask: **What is the answer for the word problem?** (A packet of strawberry is **R14.**)
- *Learners have to answer with unit, R14.*

Activity 2: Whole class activity

- Write the following word problem on the board:
  There are red and green tapes.
  The green tape is 35 m.
  The green tape is 10 m longer than the red tape.
  How long is the red tape?



(35 – 10 = 25, 25 m)

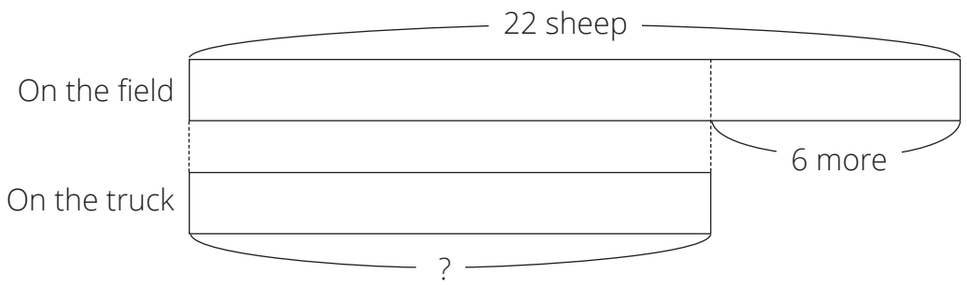
- Using the steps from activity 1 solve this word problem with the learners.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Note: Do not erase the workings for Activity 1 and 2. The learners will need these to guide them with their classwork.

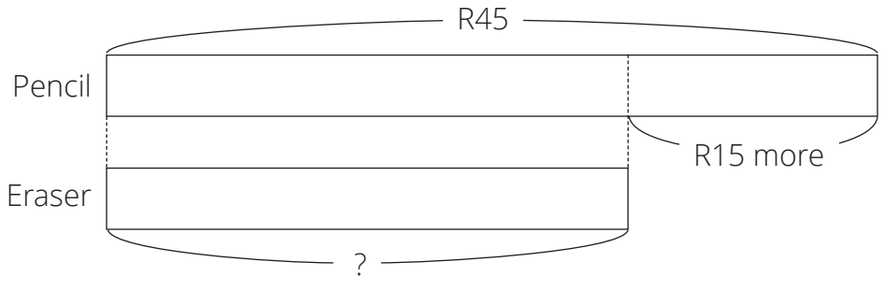
Draw bar diagrams to solve the problems below.

a There are 22 sheep in the field.
There are 6 more sheep in the field than on the truck.
How many sheep are there on the truck?



(22 – 6 = 16)

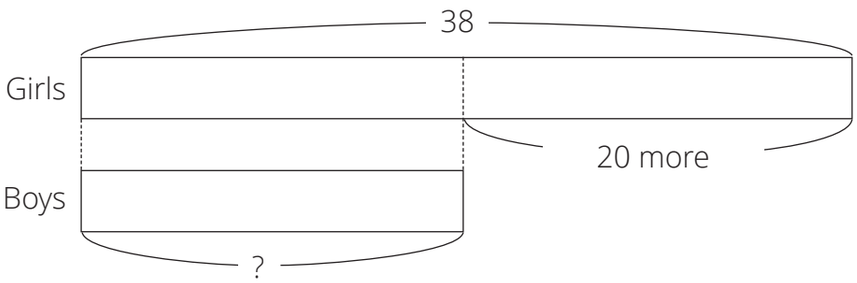
b A dozen pencils costs R45.
This is R15 more expensive than a packet of erasers.
How much is a packet of erasers?



(R45 – R15 = R30, R30)

4 HOMEWORK ACTIVITY (5 MINUTES)

Draw a bar diagram to solve the problems below.
There are 38 girls on the playground.
There are 20 more girls than boys on the playground.
How many boys are there?



(38 – 20 = 18, 18 boys)

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 word problems by looking at the difference.

Lesson 49: Word problems – comparison

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 2 curriculum.		
CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and Subtraction.		
Lesson Objective: To solve problems looking at the first amount.		
Lesson Vocabulary: bar diagram, first amount, addition.		
Resources: n/a.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	Calculate:	Answer			Answer
1	15 + 10 =	25	**6**	30 + 21 =	51
2	16 + 20 =	36	**7**	20 + 42 =	62
3	34 + 30 =	64	**8**	20 + 33 =	53
4	38 + 40 =	78	**9**	30 + 47 =	77
5	22 + 60 =	82	**10**	40 + 29 =	69

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

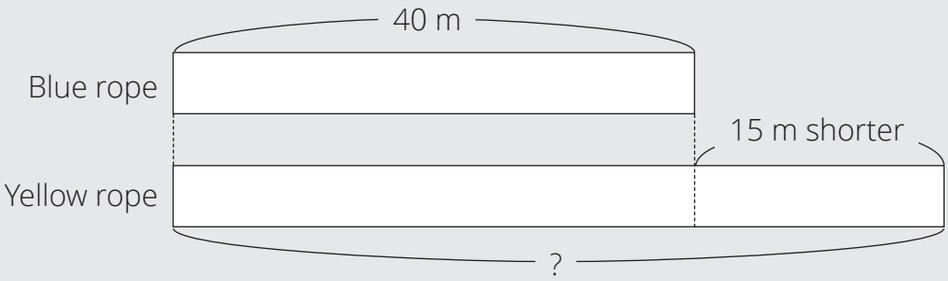
This is the second and last lesson of this unit. In this lesson, learners solve addition (compare) problems including words indicating *less*. This is potentially confusing as the word *less* is usually associated with subtraction. The learners will use the first amount to work out the answer to the word problem. *You should also refer to the tracker for the summary of the problem solving approach used in this lesson.*

Today we are learning to use the first amount (starting number) to solve word problems.

Activity 1: Whole class activity

- Write the following word problem on the board**.**
  There is a blue and a yellow rope.
  The blue rope is 40 m.
  The blue rope is15 m shorter than the yellow rope.
  How long is the yellow rope?
- *The word problem must be written on four lines as shown above to assist learners to identify the critical information/numbers needed to solve the problem.*
- Read the problem.
- Let learners read the problem until they read it fluently.

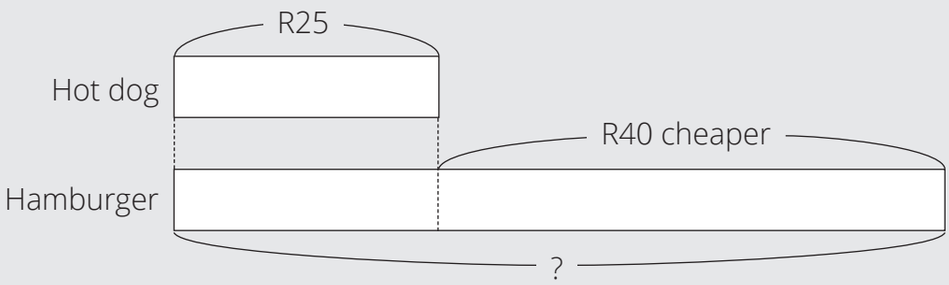
- Underline the numbers, 40 and 15.
- Underline the question (How long is the yellow tape?) with a wavy line.
- Let learners draw bar diagram to represent the story.



- Let some learners present their diagrams.
- Let learners determine the operation from the bar diagram and write the number sentence.
- *Avoid teaching to determine the operation by keywords, e.g. if there is a word 'less' in the word problem, it is subtraction. This is not always true.*
- Let learners present their number sentence and confirm with the class the correct number sentence.
- Let the learners solve the number sentence (40 + 15 = 55).
- Ask: **What is the answer for the word problem?** (The yellow rope is **55 m.**)
- *Learners have to answer with unit, 45 m.*

Activity 2: Whole class activity

- Write the following word problem on the board:
  There is a hamburger and hot dog in a menu.
  A hot dog costs R25.
  The hot dog is R40 cheaper than the hamburger.
  How much does the hamburger cost?
- Using the steps from activity 1 solve this word problem with the learners.



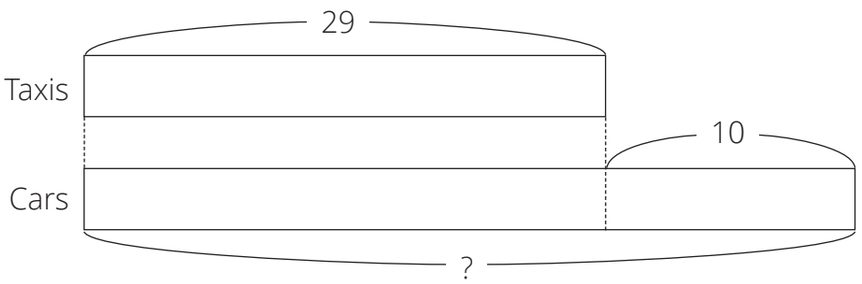
- The number sentence and the answer is R25 + R40 = R65, R65.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Note: Do not erase the workings for Activity 1 and 2. The learners will need these to guide them with their classwork.

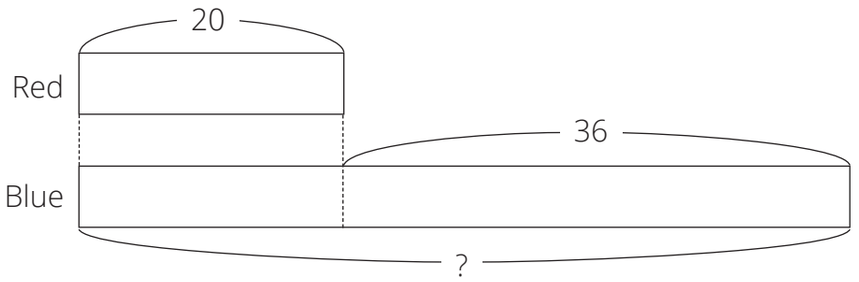
Draw bar diagrams to solve the problems below.

a There are 29 taxis on the road.
The number of taxis is 10 less than the cars.
How many cars are there?



(29 + 10 = 39, 39 cars)

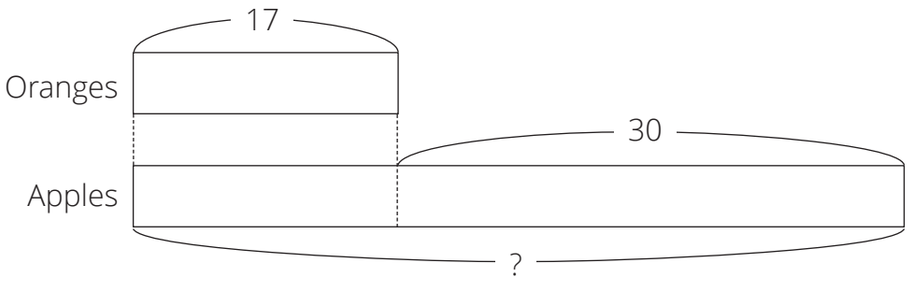
b A red ribbon is 20 m long.
It is 36 m shorter than a blue ribbon.
How long is the blue ribbon?



(20 + 36 = 56, 56 m)

4 HOMEWORK ACTIVITY (5 MINUTES)

Draw a bar diagram to solve the problem.
There are 17 oranges.
There are 30 less oranges than apples.
How many apples are there?



(17 + 30 = 47, 47 apples)

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 problems looking at the first amount.

Lesson 50: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and Subtraction.		
Lesson Objective: To revise solving word problems using bar diagrams.		
Lesson Vocabulary: bar diagram, difference, subtraction, first amount, addition.		
Resources: n/a.		
Date:	Week	Day

1 NOTES FOR THE TEACHER RELATING TO THIS WEEK'S WORK

This week the learners have solved problems that involved brackets. They have learnt that we solve brackets first. Then we revised problem solving using bar diagrams. We looked at the differences between given bar diagrams.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The learners may be struggling with the different strategies to solve word problems. It is important that they practise each strategy and follow the steps carefully. Allow the learners to work at their own pace. You may ask the learners to work in pairs to assist each other.

3 CLASSWORK/HOMEWORK – COMPLETE THIS WEEK'S CLASSWORK AS NEEDED

Today we are going over what we learned this week. We are learning more about solving word problems.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

Draw bar diagrams to show the difference.

1 There are 18 pigs on the farm.
There are 5 more pigs than goats.
How many goats are there?
(18 – 5 = 13, 13 goats)

2 There are 25 books on the shelf.
There are 10 more books than magazines.
How many magazines are there?
(25 – 10 = 15, 15 magazines)

3 There are 30 plates on the table.
There are 16 less plates than spoons on the table.
How many spoons are there?
(30 + 16 = 46, 46 spoons)

4 Mealie Meal costs R20.
Mealie meal is R15 cheaper than Rama.
How much is Rama?
(R20 + R15 = R35, R35)

5 REFLECTION AND SUMMARY OF LESSON

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

Today we have learnt to solve word problems using different methods.