MATHEMATICS

Grade 1

TERM 3 2020

Lesson Plans

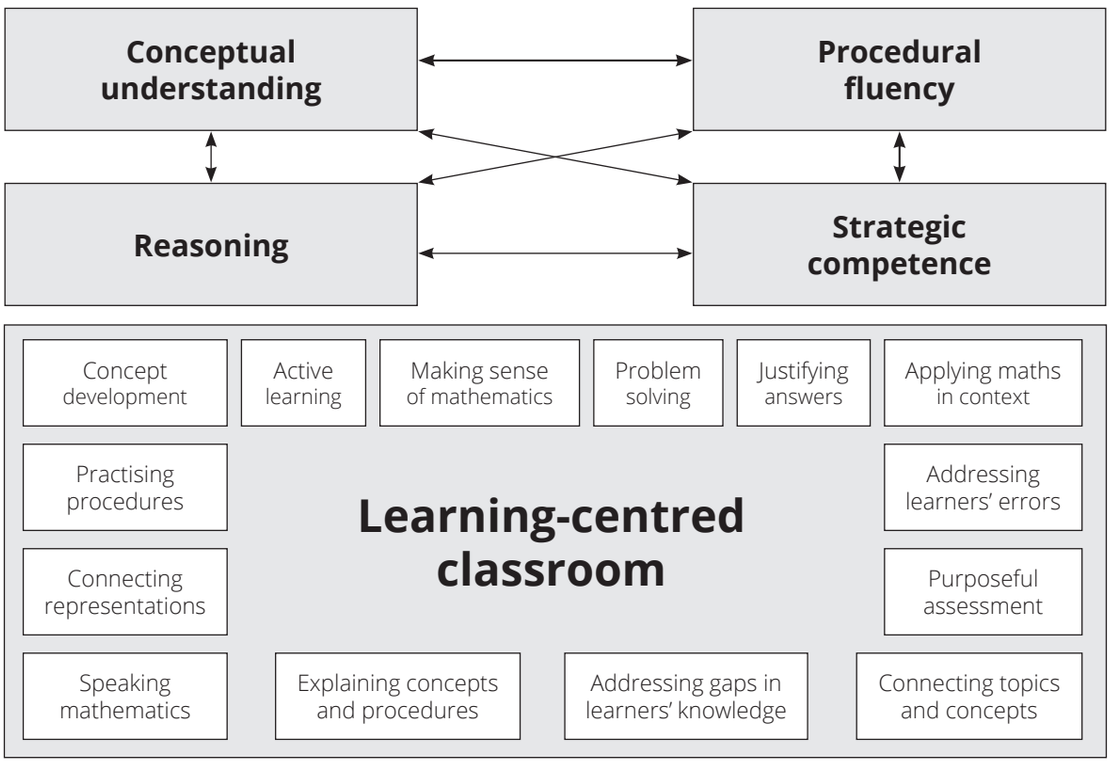
Acknowledgement:

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. Mathematical examples of the dimensions can be found in the framework document. There are also examples of the four dimensions at the start of each new unit in the lesson plans. Teachers should strive to:

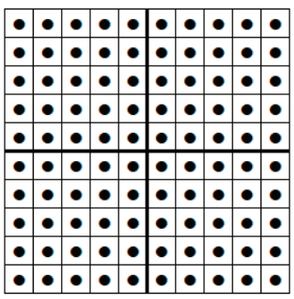
- teach mathematics for **conceptual understanding** to enable comprehension of mathematical concepts, operations, and relations;
- teach so that learners develop **procedural fluency** which involves skill in carrying out procedures flexibly, accurately, efficiently, and appropriately;
- develop learners' **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.

TMU summary of maths teaching approaches

CPA APPROACH

The Concrete-Pictorial-Abstract (CPA) approach helps learners to develop the concepts of numbers. The CPA approach uses several different representations for the concepts of numbers 1, 10 and 100. For instance, the number '5' can be represented by 5 bottle tops (concrete objects), 5 circles (pictorial representations) and the number symbol '5' (abstract). The following table shows the materials used in the TMU lesson plans. It is important to connect each representation to the other representations.

Number Symbols	100	10	1
Number Nmaes	hundred	Ten	one
Base ten kit (manipulatives)			
Simplified pictorials (drawing)			

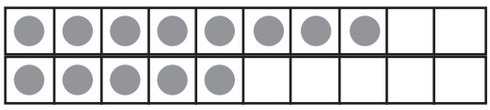
In the CPA approach, the following methods are of great importance.

a. Pre-number concepts using a ten frame (Grade 1)

Ten frames can make all critical activities easier and clearer. (CAPS P93 English version)

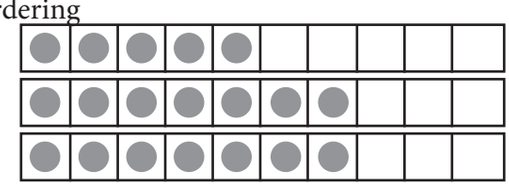
- Matching (one-to-one correspondence)
- Sorting

- Comparing

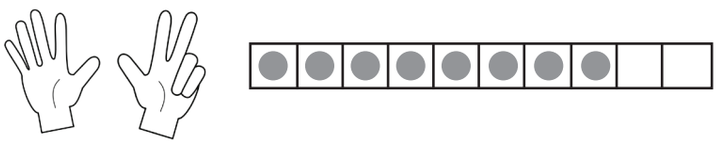


- Ordering

5
7
8

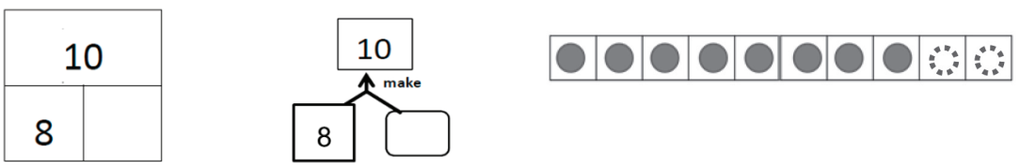


- Subitising



All the following problems are based on the same concept. Manipulating concrete objects in a ten frame helps learners to visualise the concept.

8 +☐= 10, 10 – 8 = ☐, 8 + 2 = ☐

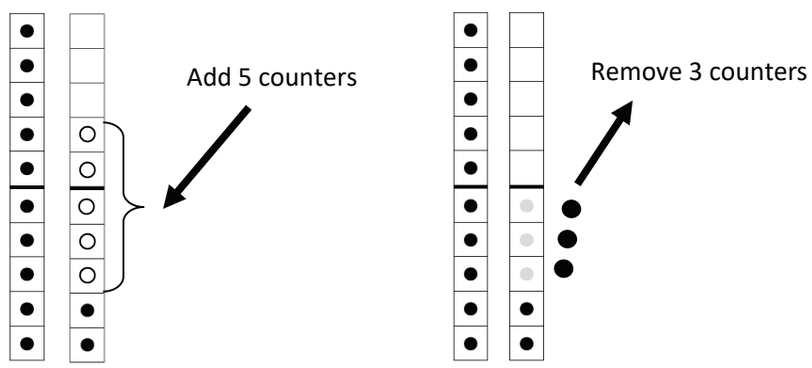


b. Make-a-ten method (Grade 1)

The 'Make-a-ten' method assists learners in shifting methods from counting to using the base-ten number system. The idea of number bonds 2 to 9 and subitising are critical for using the make-a-ten method. 'Make-a-ten' helps learners to develop the concept of place value.

- Addition without carrying and subtraction without borrowing. There is no change in the tens place.

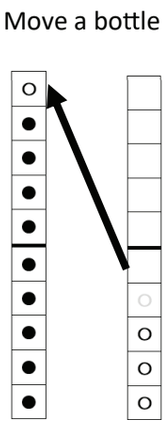
1. 12 + 5 **2.** 15 – 3



10 and 7 make 17. 10 and 2 make 12.

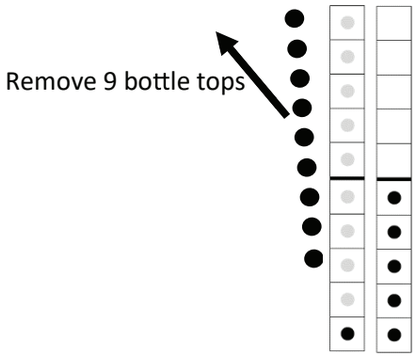
- Addition with carrying and subtraction with borrowing.

3) 9 + 4

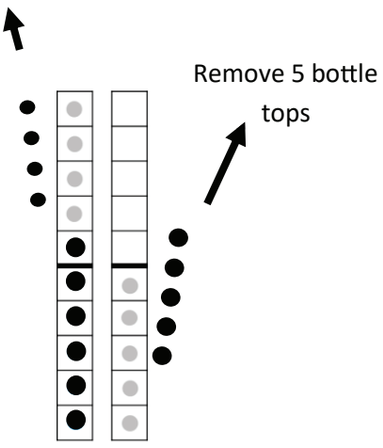


10 and 3 make 13.

4) 15 – 9



1 and 5 make 6.



5 and 1 is 6.

c. Column method using a base ten kit [concrete objects] (Grade 2, 3)

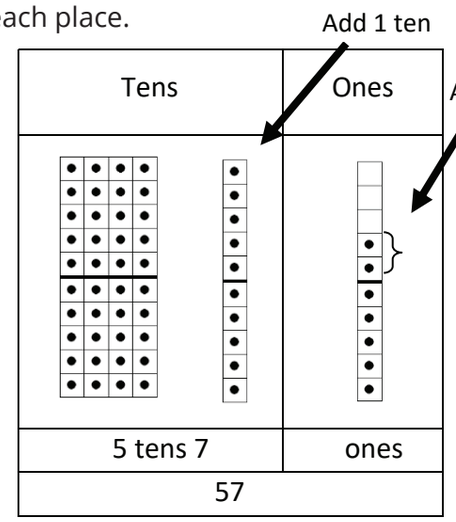
It is critical to show the connection between the place value table and the column method.

In Grades 2 and 3, learners use base ten kits on a place value table.

1) 45 + 12

Step 1. Add bottle tops in each place.

Use base ten kits →



	T	O
	4	5
+	1	2
	5	7

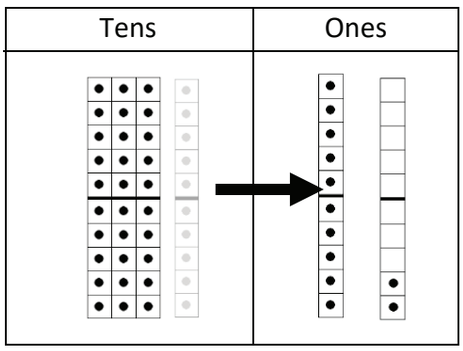
Step 2. Write numbers in each place.

Step 3. Write the answer.

2) 42 – 19

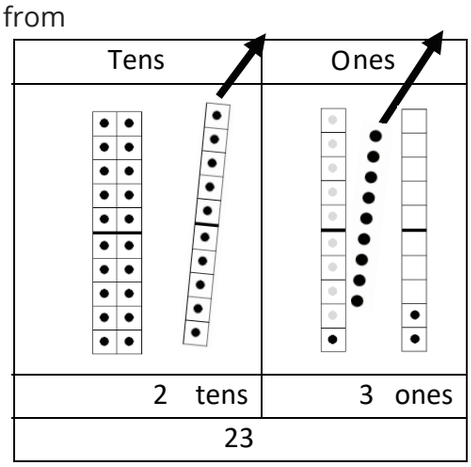
Step 1. Exchange 1 ten for 10 ones.

Use base ten kits →



Step 2. Remove bottle tops from each place.

Use base ten kits →



	T	O
	3	1
	4	2
–	1	9
	2	3

Step 3. Write numbers in each place.

Step 4. Write the answer.

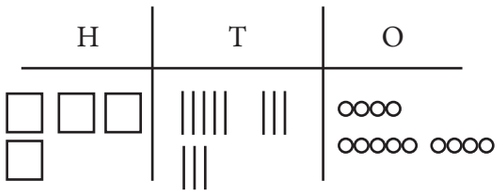
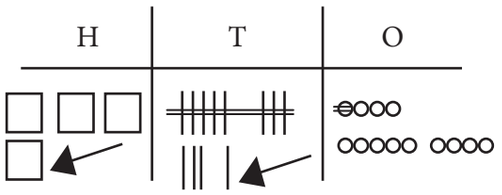
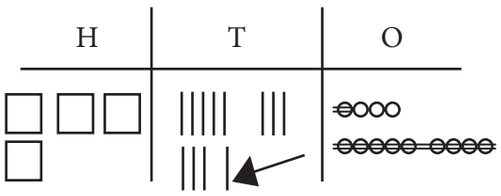
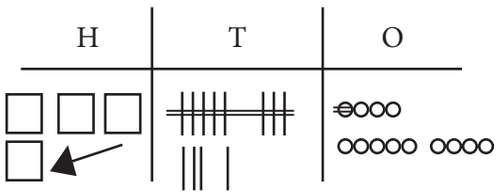
d. Column method using simplified pictorials [pictorial representation] (Grade 3)

In Grade 3, learners use simplified pictorials. In the following diagrams, all the steps can be drawn

in one diagram. Let learners make a group of five to show numbers 6 to 10 by organising pictorials

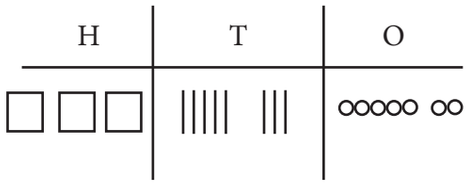
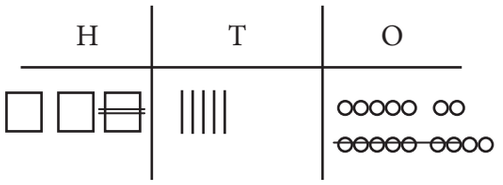
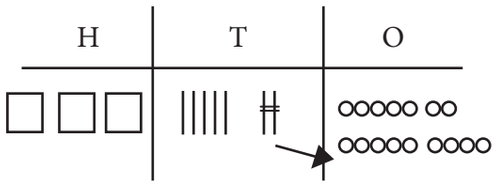
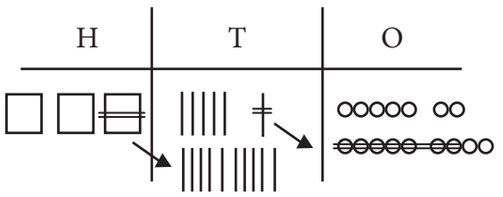
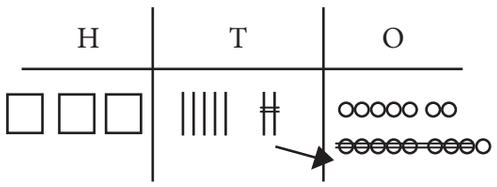
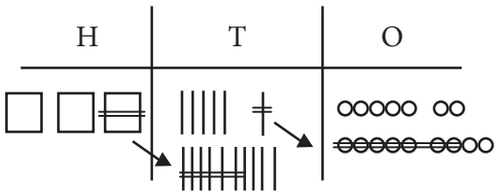
as follows.

1) 384 + 139

Step 1. Draw 384 and 139 vertically. 	Step 3. Since 8 + 4 in the tens place exceeds 10, exchange 10 tens for 1 hundred (carrying). 
Step 2. Since 4 + 9 in the ones place exceeds 10, exchange 10 ones for 1 ten (carrying). 	Step 4. Write the answer. 

	H	T	O
	1	1	
	3	8	4
+	1	3	9
	5	2	3

2) 367 – 78

Step 1. Draw 367.  	Step 4. Since we can't do 5 – 7 in the tens place, exchange 1 hundred for 10 tens (borrowing). 
Step 2. Since we can't do 7 – 8 in the ones place, exchange 1 ten for 10 ones (borrowing).  	Step 5. 15 – 7 = 8 in the tens place. 
Step 3. 17 – 8 = 9 in the ones place.  	Step 6. Write the answer.  The answer is 289.

	H	T	O
	2	1 5	1
	3	6	7
–		7	8
	2	8	9

e. Column method [abstract representation] (Grade 2, 3)

In Grade 2, learners are shown how to write the column method using two rows as follows. Each row shows the number place of ones and tens. In Grade 3, learners can use one row.

Grade 2

1) 45 + 12

	T	O	
	4	5	
+	1	2	
		7	O: 5 + 2 = 7
	5	0	T: 40 + 10 = 50
	3	9	

2) 42 Đ 19

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

Grade 3

3) 26 + 38

	T	O
	1	
	2	6
+	3	8
	6	4

4) 81 Đ 47

	T	O
	7	1
	8	1
Đ	4	7
	3	4

5) 384 + 139

	H	T	O
	1	1	
	3	8	4
+	1	3	9
	5	2	3

6) 367 Đ 78

	H	T	O
	2	1	
	3	6	7
Đ		7	8
	2	8	9

PROBLEM SOLVING

a. Problem solving in general

1. Present a problem (e.g. a number sentence) to learners.
2. Let the learners work on it individually.
3. (Work in pairs or groups of less than 4). * This step can sometimes be skipped.
4. Ask several learners to give their answers.
5. Discuss the answers that are presented and find the correct one. Discuss errors as well.
6. Let the learners correct their work in their classwork books if necessary.

b. Word problem solving with manipulatives or diagrams
4 steps to solve word problems

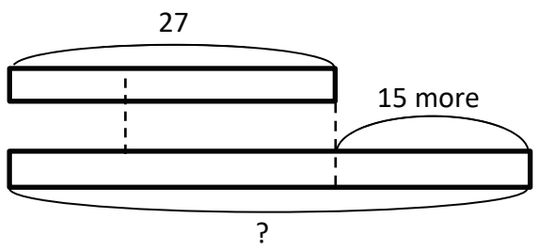
Step 1. Understand the problem.

1. Write the word problem on the chalkboard
2. Read the problem.
3. Let the learners read the problem until they read it fluently.
4. Underline the numbers.
5. Underline the question with a wavy line.
6. Let the learners reproduce the story with manipulatives or diagrams.

Thoko has 27 sweets.

Silo has 15 more than Thoko.

How many sweets does Silo have?



Step 2. Devise a plan.

1. Determine the operation.
2. Write a number sentence.

Step 3. Carry out the plan.

1. Find the answer to the number sentence.

Step 4. Look back.

1. Compare the learners' solutions.
2. Do the corrections.
3. Let the learners record all the work in their classwork books.

Glossary of important terms used in the TMU lesson plans

The following terminologies are used in the TMU lesson plan s for Grades 1 to 3. Some of them also appear in CAPS. This is a general glossary which has been prepared for Grades 1 to 3. Terms used in the TMU that expand on the CAPS repertoire are indicated.

Calculation

ADDITION WITH CARRYING (TMU)

The type of addition which occurs when we bridge ten, in single digit (or 2-digit or 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 (TMU)

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 to teachers. What is happens when we 'borrow' is that 1 ten is 'exchanged' for 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 that 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 its position in the number. 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 governed by the base-ten number system.

MAKE-A-TEN METHOD (TMU)

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

COLUMN METHOD (TMU)

A calculation technique used in addition and subtraction that helps to 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 making tallies and counting).

NUMBER BONDS

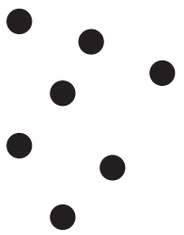
A calculation technique that consists of building up (composition) and breaking down (decomposition). For instance, 4 can be broken down into 1 and 3, 2 and 2 and 3 and 1. These are the number bonds of 4. The number bonds of 10 are the most important since they are used in all calculation strategies.

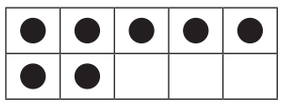
EXPANDED NOTATION

Representation of a number by writing it out using place value. In Grades 1 and 2, learners can use expanded notation to write out numbers. For example, 18 = 10 + 8. In Grade 3, 3-digit numbers are expanded. 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 used only with regard to number bonds. Flard card can help learners to acquire knowledge of expanded notation.

SUBITISING

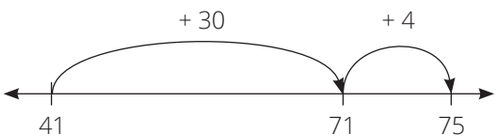
Subitising is 'an instant cognition of the number of objects'. This is one of the most important skills that learners should acquire in the Foundation Phase. A ten frame is a useful tool to help learners to subitise objects. In the example below, it is easier to recognise the number of dots by putting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

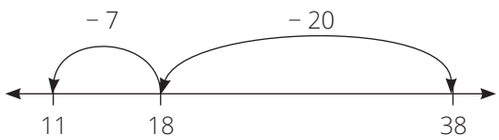




JUMPING STRATEGIES ON A NUMBER LINE

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

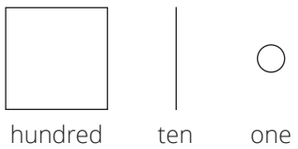
CPA APPROACH (ALSO KNOWN AS THE CRA APPROACH)

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 (OF THE TMU BASE TEN KIT WHICH IS SIMILAR TO DIENES BLOCKS)

A simplified pictorial representation of hundreds, tens and ones is used to depict numbers on paper. The concept of the numbers represented by the pictorials is reinforced when the learners draw simplified pictorials. By using simplified pictorials, an enormous time of writing can be saved compared to drawing tallies, circles etc. Simplified pictorials are much more effective than tallies. Tallies should not be drawn beyond a maximum of 20 items and preferably not for more than ten items.



PLACE VALUE TABLE (GR 2, 3)

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). The following is an example of the number 37 shown in a place value table.

ARRAY DIAGRAM (GR 2, 3)

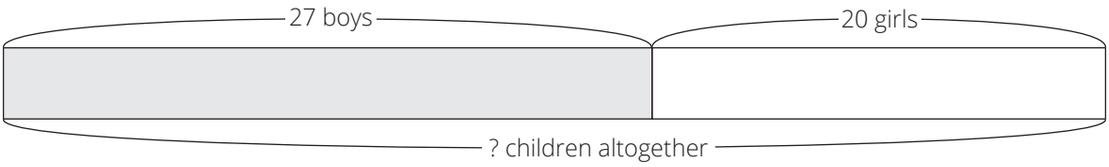
The following is the array diagram of 2 × 4. The order of multiplication is important and is consistent with CAPS.

MULTIPLICATION TABLE (GR 2, 3)

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

BAR DIAGRAM

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



Resources

MANIPULATIVES

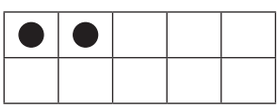
These are concrete apparatus such as counters, printed tens, printed hundreds, box and ball shapes, etc. that can be manipulated by learners.

COUNTERS

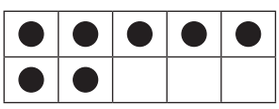
These are any (loose) concrete objects that learners can manipulate when counting. In the TMU, bottle tops are recommended since they are freely available but other counters can also be used such as interlocking cubes (e.g. Unifix cubes). Teachers are expected to use concrete counters such as bottle tops on a big ten frame to help learners to 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 gives visual clues about the numbers shown on it. This is the number 2 represented on a double-decker ten frame:

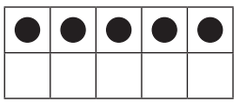


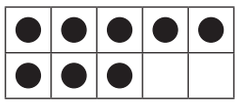
This is the number 7 represented on a double-decker ten frame (visually 5 plus 2):



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)

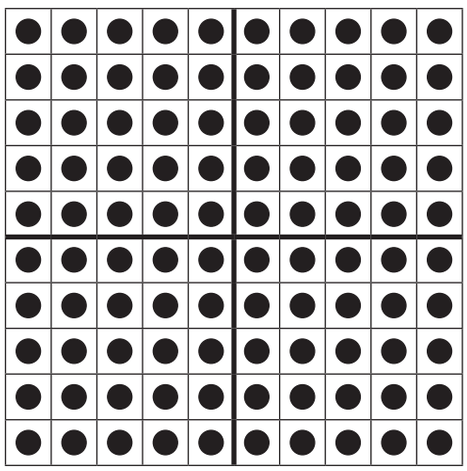
A ten frame which is straight. The thicker line in the middle shows the 5. This line is important because it helps learners to recognise the numbers 6 to 10 by using the building up skill of 5 and … (numbers 1 to 5). A straight ten frame is helpful to deal with numbers bigger than 10.

PRINTED TEN

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

PRINTED HUNDRED (GR 3)

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

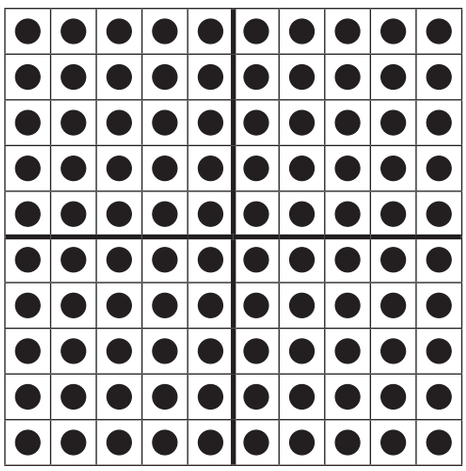
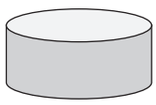


BASE TEN KITS (ALL)

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.

(In the TMU bottle tops are used as counters. Throughout the lesson plans, counters are thus referred to as bottle tops. One bottle top represents one. The use of bottle tops with the base ten kit is carefully introduced and is used repeatedly throughout the TMU lesson plans. Teachers could of course use other counters should they have them.)

100	10	1
hundred	ten	one
		

Assessment for learning

Teaching is an engagement with learners that is ongoing. The engagement should be planned o the achievement of learning goals in a meaningful way. Particularly in the Foundation Phase, teaching and assessment should be closely aligned so that teachers draw on knowledge gained through assessment to inform and enrich their classroom activities. This is assessment for learning. The TMU pilot has planned assessment activities. You should use these activities to find out what has been learned in your class and what you need to do to take this learning further. The planned lesson activities also provide opportunities for you to listen to your learners (while you teach) and to think diagnostically about learners' responses in discussions.

You can then build on what you have learned through this activity to deepen the learning that takes place in your class. The teachers' notes in the TMU lesson plans indicate daily objectives. Another way of thinking about the lesson objectives is to think about the Learning Intentions and Success Criteria for a lesson. This provides teachers a cognitive and conceptual reference for the lesson.

Definition of learning objectives and success criteria

> '… we must help students develop a deep understanding of what they are supposed to learn, help them understand what success will look like, how the lesson's tasks relate to the lesson objectives, and at the end of the lesson, how much closer they have come to achieving the success criteria."
> "Success criteria let students know when they have achieved the learning goal."

SOURCE: (HATTIE, 2012)

One of the most important things you can do as a teacher is focus on classroom activities; in other words on discussions that make a difference to learning in the classroom.

Your task is to make sense of the TMU lesson plans so that you can strive to enact better quality teaching and learning in your classroom. Lesson plans provide useful information, but you need

to make good sense of the lesson plans in order to use them well and extend their possibilities.

Below is an instructional framework that you can use as a tool to understand classroom work.

The instructional framework is made up of the following components, which align to the components of the TMU lesson plans.

Lesson Topic
Learning Objectives
Success Criteria
Dialogue Oral
Written
Homework
Assessment

We suggest that you write up the lesson objectives and success criteria for at least one lesson in every unit of the TMU lesson plans. Take time to do this, in your own words and in relation to your own classroom context, as this will help you to develop as a professional teacher. After teaching the lesson using the instructional framework, reflect on its successes and gaps to adjust your teaching for future lessons.

Lesson objectives	Lesson 36. Ordinal numbers.
Success criteria	The learner can the position of a number or shape shown in an ordered sequence. The learner can sit in the correct position according to a given ordinal number. The learner can understand the meaning of first, second, third … The learner can draw a shape in a given position (using ordinal numbers). The learner can distinguish between left and right. The learner can name shapes or objects. The learner can draw shapes or objects.

The table below gives you a framework to use as you draw up lesson objectives and Success Criteria when you work through the TMU lesson plans. Each time:

- Go back to the Maths lesson plan you are considering.
- Align the contents of the lesson plan to the instructional framework.
- Do this by filling in the table below with sections from the lesson plan.
- Answer the questions that follow.

Grade	
Subject	Maths
Week	
Lesson	
1 Learning Objectives	
2 Success Criteria	a) The learner can b) The learner can c) The learner can

3. Oral Dialogue / Activity	
4. Written Activity / Task	
5. Homework	
6. Assessment Questions	

Further reading:

Black, P., & Wiliam, D. 1998. Inside the black box : raising standards through classroom assessment. London: King's College London School of Education 1998.

CITY, E. A., ELMORE, R. F., FIARMAN, S. E. & TEITEL, L. 2010. Instructional Rounds in Education, Cambridge, Massachusetts, Harvard Education Press.

HATTIE, J. 2012. Visible Learning for Teachers, USA, Routledge

Programme of Assessment

CONTENT AREA	ASSESSMENT TYPES	LESSON NUMBER	ASSESSMENT TYPE	MARKING GUIDE
NUMBER OPERATIONS & RELATIONSHIPS (NOR)	2 orals 1 practical 5 written	Lesson 7	Written, oral and practical	Memo and rubrics
		Lesson 13	Written	Memo
		Lesson 18	Written and oral	Memo and rubrics
		Lesson 23	Written	Memo
		Lesson 29	Written	Memo
		Lesson 36	Written	Memo
		Lesson 42	Written and practical	Memo and checklist
		Lesson 49	Written, oral and practical	Memo and checklist

CAPS calls for ongoing assessment which should be made up of both formal and informal assessment. TMU fully endorses this approach. The TMU material does not distinguish between formal and informal assessment. This is to be agreed on by users of the material in collaboration with teacher CoP groups and supporting officials. The assessment provided in the TMU documentation is all linked to the suggested mark sheet which can be found in the Teacher's Resource document. This sheet is to be used at the professional discretion of the teacher based on decisions made in terms of formal and informal assessment. Formal assessment marks can then be entered into SA SAMS from the suggested mark sheet since the mark sheet shows totals per content area, per term. In this way, the TMU assessment programme has been designed to fully support teachers in assessment each term.

About the Lesson Plans and Resources

The lesson plans and resources in this book are part of the Grade 1 Term 3 Teacher Toolkit for the pilot implementation of the mathematics framework.

The other documents in the toolkit are:

- a bilingual Learner Activity Book
- a bilingual Teachers' Resource pack
- 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 each lesson's 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. The DBE workbook could be used for extension or additional activities if the teacher has time and wishes to do so.

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 the marks to the SA SAMS marksheets.

In the Learner Activity Book, there is a blank page on the day that an assessment is done. This provides the teacher with a space for learners to write corrections or do additional problems that the teacher may want them to solve after going over the written test with the class.

The programme of assessment suggested in the lesson plans complies with revised CAPS Section 4. Written, oral and practical assessments are provided. Rubrics and checklists with criteria for the oral and practical assessments are also included.

The checklists that are provided enable teachers to allocate a mark that can be entered onto SA SAMS. Each criterion in the checklist is allocated a mark (1 = achieved and a 0 = not achieved). Teachers could vary this system should they wish to.

The rubrics that are provided have 7 levels which can be used to allocate a mark from 1 to 7 that can also be used to enter marks into the SA SAMS marksheets.

5 MANAGING YOUR TEACHING USING THE LESSON PLAN

A set of revision 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 3 of Grade 3 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. 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 any of these lessons. Should you miss a school day for any reason, rather skip a consolidation lesson near 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 contents 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.

7. UNIT OVERVIEW

Each unit is introduced with a description of the unit content. Links to the four framework dimensions are included in the introduction to the unit. The introduction is followed by a unit overview which gives a tabulated summary of the lessons contained in the unit. The lesson objectives and resources required for each lesson are included in the table. There is also a column provided for you to use to keep a record of your teaching progress.

It is a good idea to reflect on your teaching. You could write about what went well, or not so well, when you taught the lessons and how you would teach the lessons again the next time. Use the space provided at the end of each unit overview to record your thoughts. Some questions are provided to guide your reflection.

Reflect on this as you prepare lessons that follow the CPA approach.

Learners need to make the move from concrete to abstract, but this does not happen suddenly or in one move. They may need to go backwards and forwards between representations in the CPA method many times until they have fully achieved abstraction. That is why in your lessons you will continue to provide concrete and pictorial representations – but as soon as a learner shows he/she can work abstractly, you should not hold them back, allow them to do so. When they need the support of concrete/pictorial material, offer it to them again.

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 become aware of any difficulties the 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.

You can make the learning and teaching of maths more effective by remembering a few simple DOs and DON'Ts

DO	DON'T
Teach with a SMILE	
Give learners enough time to think/struggle and discover something on their own and to keep quiet while they are thinking/working individually.	Explain everything.
Plan the lesson with enough time to let learners deepen their own thinking. Be patient!	Rush learners into saying/ doing something by saying 'quick, quick, quick'.
Share a variety of answers/thinking with all the learners and let them compare, think and explain which ones are OK/not OK and why. Discuss important errors so that everyone can learn from them.	Erase/remove incorrect answers. Say 'No', 'Wrong', 'Next', 'Right', 'Yes',
Ask the learners 'why did you think so', regardless of whether their answer is correct or incorrect.	'Correct', etc. immediately after learners give you their answers.
Assist learners to discover where and why they made mistakes. Use other learners as well to explain why something is not correct.	Answer the phone.

It is important to note that:

There is **one week** of planned baseline assessment activities and **10 weeks** of teaching planned in this set of lesson plans.

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

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 Learning and Teaching (LoLT), try to 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 which resources you need in advance for each lesson so that you are ready to teach the 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 that 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 count on their fingers.

- Observe which learners struggle with mental activities, and make sure that 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 to 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 proceeding. 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, allowing 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 books 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 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 each day's lesson by focussing the learners on the content covered and the concepts they should have learned.

Week 1

Unit 1 Introduction

This unit focuses on numbers up to 20. Learners will be given opportunities to compare, order and describe numbers up to 20 as they progress through the lessons in this unit. A key aspect of this unit is for learners to see that the two digit numbers up to 20 are made of 10 + ☐. This is important in terms of their understanding of place value and will enable them to solve mathematical problems more quickly and efficiently.

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

- **Conceptual understanding**: Learners will be developing their conceptual understanding of numbers up to 20. They will understand that these numbers are made up of 10 + ☐, which deepens their understanding of each number as well as its relationship to other numbers (e.g. Lesson 2 Activity 1).
- **Procedural fluency**: In working through each of the numbers from 11 to 20 in a similar way, learners will begin to be able to identify patterns. Learners are thereby able to develop procedural fluency in their working with number bonds as they gain confidence (e.g. Lesson 2 Activity 2).
- **Strategies**: The use of bottle tops and ten frames helps learners to solve problems and to begin to develop effective and efficient strategies (e.g. Lesson 3 Activity 1).
- **Reasoning**: Learners are encouraged to verbalise their solutions to problems, and to explain why they have placed bottle tops on the ten frames in a particular way. This helps them to reinforce their own understanding (e.g. Lesson 3 Activity 2).

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

- **Active learning**: Learners are actively involved in solving problems and manipulating resources. Learners are also expected to communicate in pairs and to verbalise their understanding.
- **Speaking Mathematics:** Learners talk to their partners about possible solutions and situations, and verbalise what they are doing by using the correct vocabulary.
- **Explaining concepts and procedures**: This unit provides an important foundation for the upcoming units, so it is necessary for learners to understand the use of the ten frames in the solution of problems. As the teacher models the language and learners verbalise what they are doing, their understanding of concepts and procedures is solidified.
- **Applying maths in context**: Learners solve word problems using calculation strategies and procedures in context.

Unit 1 overview

Day	LP	Lesson Objective	Lesson Resources	Date Completed
Mon	1	Revise breaking down and building up of numbers 0 to 10.	Double decker ten frames (See *Printable Resources*), straight ten frames, bottle tops.	
Tue	2	Identify the tens and ones in numbers 11 to 15 using a straight ten frame.	Bottle tops, straight ten frames, large ten frame (teacher), number cards (11 to 15) (see *Printable Resources*).	
Wed	3	Identify the tens and ones in numbers 16 to 20 using a straight ten frame.	Bottle tops, straight ten frames (2 per learner), large ten frames (teacher) (2).	
Thur	4	Compare and sequence numbers 0 to 20 using a straight ten frame.	Bottle tops.	
Fri	5	Consolidation of work done this week.	Learner Activity Book.	
Mon	6	Compare and order numbers 0 to 20.	Number cards (0 to 20) (see *Printable Resources*), large number cards (teacher) (11 to 20).	
Tue	7	Assessment	Assessment activity in teacher's resources.	
Wed	8	Add and subtract 10 to/from numbers 0 to 20.	Straight ten frames (2 per learner), bottle tops.	
Thur	9	Add and subtract with numbers 0 to 20.	Straight ten frames (2 per learner), bottle tops.	
Fri	10	Consolidation of work done this week.	Learner Activity Book.	
Mon	11	Solve addition word problems with numbers 0 to 20.	Ten frames, bottle tops.	
Tue	12	Solve subtraction word problems with numbers 0 to 20.	Ten frames, bottle tops.	
Wed	13	Assessment	Assessment activity in teacher's resources.	

Assessment for learning

Use the templates provided at the front of this guide to think deeply about at least one of the lessons in this unit.

Reflection

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

What will you change next time? Why?

Lesson 1: Numbers 0 to 10 revision

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.4 Describe, compare and order numbers.
Lesson Objective: Revise breaking down and building up of numbers 0 to 10.
Lesson Vocabulary: More than, less than, equal to, before, after, in between.
Resources: Double decker ten frames (see *Printable Resources*), straight ten frames, bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	1 and 3 is __	4	**6**	4 less than 5 is __	1
2	2 and 3 is __	5	**7**	2 less than 4 is __	2
3	4 and 1 is __	5	**8**	2 less than 5 is __	3
4	1 and 1 is __	2	**9**	1 less than 3 is __	2
5	2 and 1 is __	3	**10**	1 less than 2 is __	1

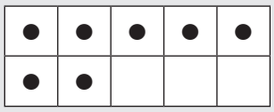
2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will revise numbers 0 to 10 by using a double decker ten frame to build up and break down numbers. It is important to also introduce a straight ten frame so that learners can see the difference in the layout whilst recognising that the numbers remain the same. You need to prepare the paper double decker ten frames for this lesson.

Today we are learning to break down and build up numbers 0 to 10.

Activity 1: Learners work in pairs

- Give each pair of learners a double decker ten frame and 10 bottle tops.
- Say: **Show me 7 on your ten frame.** (Learners place bottle tops on their ten frames.)

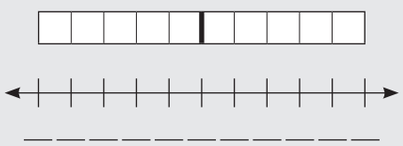


- Ask: **How did you place your bottle tops on your ten frame?** (Encourage learners to talk about whether they filled up five spaces in one row and 2 spaces in the other, or whether they laid their bottle tops out in a different way.)
- Repeat the above steps with numbers 4 and 6.
- Say: **Show me 8 on your ten frame.** (Learners place bottle tops on their ten frame.)

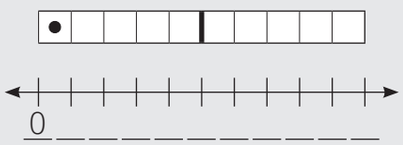
- Ask: **How did you place your bottle tops on your ten frame?** (Encourage learners to think about whether they filled up five spaces on the top and 3 spaces below, or whether they laid their bottle tops out in a different way.)
- Hold up a double decker ten frame and cut down the middle so that you have 2 rows of five spaces.
- Show learners that you can re-join the 2 rows of five spaces to make one row of ten spaces.
- Say: **This is also a ten frame. Can you see that it still has ten spaces, but the spaces are now laid out differently?**
- Ask each pair of learners to cut down the middle of their double decker ten frame and re-join the two pieces to create a straight ten frame.
- Say: **Show me 8 on your straight ten frame with bottle tops.** (Encourage learners to take note of the fact that they used the same bottle tops as those that were on their double decker ten frame.)
- Ask: **How did you place your bottle tops on your straight ten frame?** (Encourage learners to think about whether they started at one end and filled up 8 spaces, or whether they put 5 bottle tops on one side and 3 bottle tops at the other end.)
- Ask: **What do you notice about the double decker ten frame and the straight ten frame?** (They both have ten spaces; we used the same number of bottle tops to show 8 on both ten frames; the straight ten frame has a thick line at 5.)
- Ask learners to show 9, 5 and 10 on their straight ten frames.

Activity 2: Whole class activity

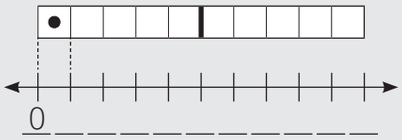
- Place a large straight ten frame on the board for the learners to see.
- Draw a blank number line underneath the ten frame with lines for the numbers as shown below.



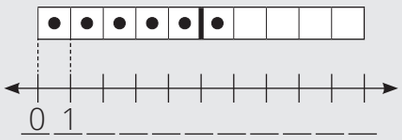
- Write a 0 (zero) in the first empty space underneath the number line.



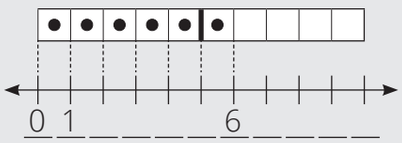
- Show the learners that the 0 is written directly underneath the first vertical line of the number line.
- Then place one bottle top in the first space on the ten frame.
- Draw dotted lines from the ten frame to the number line, to help learners see that the one bottle top on the ten frame takes up the space between the first two lines on the number line.



- Ask: **What number do you think we should write in the second (empty) space underneath the number line?** (Learners are likely to say 1.)
- Ask: **Why do you say that?** (Encourage learners to recognise that the one bottle top on the ten frame takes up one space on the number line; the 1 is written directly underneath the calibration line on the number line which shows the one.)
- Call a learner to the board to place 6 bottle tops on the large ten frame.



- Ask: **In which space underneath the number line do you think we should write a six to show we have six bottle tops in the ten frame?** (Encourage learners to discuss amongst themselves).
- Ask: **Why do you say that?** (Encourage learners to draw dotted lines to recognise that the one bottle top on the ten frame takes up one space on the number line, and to help them see where to write the number 6.)



- Continue in this way to complete the rest of the numbers (0 to 10) on the number line, helping learners to see the link between the ten frame and the spaces on the number line.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Question 2 in the classwork activity below is intended for the learners who finish question 1 of the activity early. Learners will need to work in pairs to play the card game (question 2) and should each have a straight ten frame and ten bottle tops to work with.

Build numbers. Rules of the game:

1 Work with a partner

2 The first learner calls out a number between 2 and 10.

3 The second learner uses the bottle tops to show the number on his/her ten frame as quickly as possible.

4 Then the second learner calls out a number between 2 and 10, and the first learner shows the number on his/her ten frame.

5 Repeat the above steps with other numbers between 2 and 10.

6 Learners should try to build the numbers more quickly each time.

1 Draw dots in the ten frame to show the numbers.

a	5	(●)	(●)	(●)	(●)	(●)					
b	9	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)	
c	2	(●)	(●)								
d	7	(●)	(●)	(●)	(●)	(●)	(●)	(●)			
e	3	(●)	(●)	(●)							
f	8	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)		
g	4	(●)	(●)	(●)	(●)						
h	10	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)
i	1	(●)									
j	6	(●)	(●)	(●)	(●)	(●)	(●)				

2 Play the build numbers game. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

Draw dots in the ten frame to show the numbers.

a	3	(●)	(●)	(●)							
b	6	(●)	(●)	(●)	(●)	(●)	(●)				
c	10	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)
d	8	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)		
e	1	(●)									

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have learnt to break down and build up numbers 0 to 10.

Lesson 2: Numbers up to 15

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.1 Count objects; 1.3 Number symbols and number names; 1.4 Describe, compare and order numbers; 1.5 Place value.
Lesson Objective: Identify the tens and ones in numbers 11 to 15 using a straight ten frame.
Lesson Vocabulary: Number names (11 to 15), tens, ones, more, less, and, add.
Resources: Bottle tops, straight ten frames, large ten frame (teacher), number cards (11 to 15) (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	2 and 5 is __	7	**6**	8 less than 10 is __	2
2	3 and 6 is __	9	**7**	5 less than 6 is __	1
3	3 and 7 is __	10	**8**	4 less than 7 is __	3
4	4 and 2 is __	6	**9**	1 less than 9 is __	8
5	5 and 3 is __	8	**10**	4 less than 8 is __	4

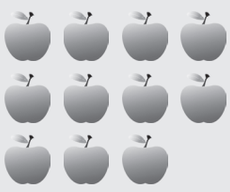
2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In today's lesson, the learners will learn more about the numbers 11 to 15. Learners will investigate the breaking down and building up of these numbers, as well as identify the tens and ones in each number. The use of a straight ten frame will help the learners to recognise the ten in each number, and to be able to build up the numbers 11 to 15 quickly. You need to prepare the learner number cards for this lesson.

Today we are learning to identify the tens and ones in numbers 11 to 15 using a straight ten frame.

Activity 1: Learners work in pairs

- Learners should refer to the picture of 11 apples in the LAB. They also need some bottle tops and a straight ten frame.



- Ask: **How many apples there are? How did you find this out?** (Let learners explain the different ways they found the number of apples. There are many ways: Counting, circling groups of apples in 2s / 3s / 4s / 5s, putting bottle tops on the apples and then sorting the bottle tops on a ten frame, etc.)
- Ask: **Can you do it without counting the apples?** (Using the ten frame.)
- Say: **Place a bottle top on top of each apple. Then take the bottle tops off the apples and sort them onto a ten frame.** (NOTE: Learners should do this without counting. Learners must do this activity.)
- *Note that putting one bottle top on each apple develops the concept of one-to-one correspondence and sorting the bottle tops onto the ten frame develops the concept of the sameness (conservation).*
- Ask a learner to come to the chalkboard and place bottle tops on a large ten frame in the same way they placed the bottle tops on their own ten frame.
- Walk around to check if there are learners who are counting one by one rather than by filling the ten frame first.
- Encourage learners to start filling up the ten frame rather than counting each bottle top.

- Ask: **Have you filled your ten frame? What do you notice? (**My ten frame is full and I have 1 more bottle top; 1 bottle top cannot fit in the ten frame).
- *It is important that learners fill the ten frame first and then see how many bottle tops are left off of the ten frame.*
- Say: **You have one full ten frame and 1 more bottle top. That makes 11**.
- Write the numeral '11' under the large ten frame as well as the number name 'eleven'.
- Ask learners to repeat '11' after you as they write '11' in the air.
- Write '10 and 1 make 11' under the large ten frame.
- Ask: **How do we write '10 and 1 make 11' as a number sentence?** Let learners write it down in their classwork books. (10 + 1 = 11)
- Ask a learner to write '10 + 1 = 11' on the board.
- *Note that it is **not** necessary for learners write the number name.*

Activity 2: Learners work in pairs

- Make sure that each pair of learners has some bottle tops and a straight ten frame.
- Let each pair add one more bottle top to the 11 that they have on their desks.
- Ask: **Who can come up to the board to add one more bottle top to 11?**
- Let a learner say: **We now have one full ten frame and 2 more bottle tops.**
- Ask: **How may bottle are there? (12)**
- Ask: **How do you write 12?** (Let some learners write 12 on the chalkboard. Some learners may write 12 whilst others may write 102 – this is a common error that you need to address. It comes from 10 + 2)
- Show the number card 12 to the learners.
- Ask: **Why do you think some of us incorrectly wrote it as 102?** (This is a misconception that you should address. Learners may respond that 12 is made up of 10 and 2, so they put the 10 next to the 2 and made 102.)
- Write the numeral 12 and the number name 'twelve' under the large ten frame.
- Let learners repeat '12' after you as they write 12 in the air.
- Write '10 and 2 make 12' under the big ten frame.
- Ask: **How do we write '10 and 2 makes 12' as a number sentence?** Let learners write it down in their classwork books. (10 + 2 = 12)
- Let a learner write 10 + 2 = 12' on the board.
- Repeat the above steps for the numbers 13, 14 and 15.
- *If learners have another ten frame for their loose bottle tops, you can give them another ten frame. For sorting loose bottle tops it is better to have two ten frames, so that learners can see how many more bottle tops are needed to fill up the second ten frame.*
- Ask: **How can we organise all the loose bottle tops?** (We could use a second ten frame.)

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

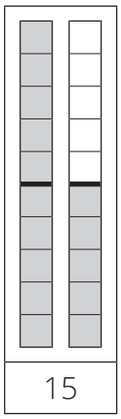
NOTE: Question 2 in the classwork activity below is intended for the learners who finish question 1 of the activity early. Learners will need to work in pairs to play the card game (question 2) and should each have a straight ten frame and ten bottle tops to work with.

Build numbers. Rules of the game:

1. Work with a partner.
2. The first learner calls out a number between 10 and 15.
3. The second learner uses the bottle tops to show the number on his/her ten frame as quickly as possible.
4. Then the second learner calls out a number between 10 and 15, and the first learner shows the number on his/her ten frame.
5. Repeat the above steps with other numbers between 10 and 15.
6. Learners should try to build numbers more quickly each time.

1 Shade the ten frames to show the numbers.

a



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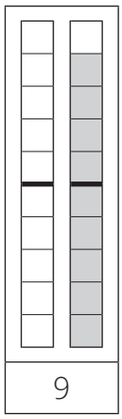

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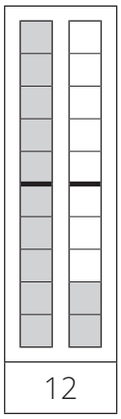

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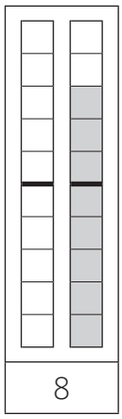

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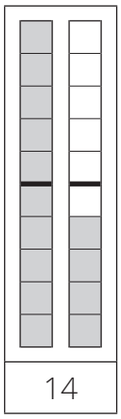

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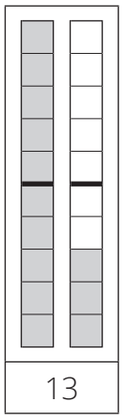
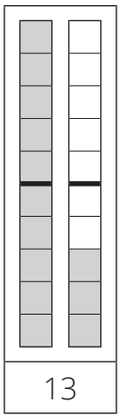


2 Play the build numbers game. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

Shade the ten frames to show the numbers.

a



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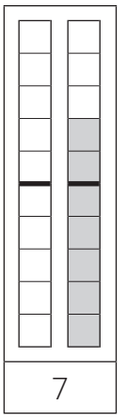

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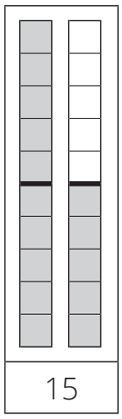


5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have learnt to identify the tens and ones in numbers 11 to 15 using a straight ten frame.

Lesson 3: Numbers up to 20

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.1 Count objects; 1.3 Number symbols and number names; 1.4 Describe, compare and order numbers; 1.5 Place value.
Lesson Objective: Identify the tens and ones in numbers 16 to 20 using a straight ten frame.
Lesson Vocabulary: Number names (16 to 20), tens, ones, more, less, and, add.
Resources: Bottle tops, straight ten frames (2 per learner), large ten frames (teacher) (2).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	10 and 5 is __	15	**6**	10 is 10 and __	0
2	10 and 2 is __	12	**7**	15 is 10 and __	5
3	10 and 3 is __	13	**8**	12 is 10 and __	2
4	10 and 1 is __	11	**9**	14 is 10 and __	4
5	10 and 4 is __	14	**10**	13 is 10 and __	3

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

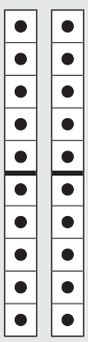
In today's lesson, the learners will learn more about numbers 16 to 20. Learners will investigate the breaking down and building up of these numbers, as well as identify the tens and ones in each number. The use of a straight ten frame will help the learners to recognise the ten in each number, and to be able to build up the numbers 16 to 20 quickly. In this lesson the number 20 will be introduced first so that learners can work with the two full ten frames. Then the number 19 will be introduced so as to highlight the idea of "less than" 20. The numbers 18, 17 and 16 will be introduced in descending order so that learners can reinforce the ideas of take away and less than.

Today we are learning to identify the tens and ones in numbers 16 to 20 using a straight ten frame.

Activity 1: Learners work in pairs

- Learners should refer to the picture of 20 cupcakes in the LAB. They also need some bottle tops and two straight ten frames.

- Ask: **How many cupcakes are there? How did you find this out?** (Many possible ways: Counting: circling groups of cupcakes in 2s / 3s / 4s / 5s: putting bottle tops on the cupcakes and then sorting the bottle tops on a ten frame, etc.)
- Ask: **Can you find out how many cupcakes there are without counting the cupcakes?** (Yes, by using the ten frame.)
- Say: **Place a bottle top on top of each cupcake. Then take the bottle tops from the cupcakes and sort them onto the ten frames.** (NOTE: Learners should do this without counting. Learners must do this activity.)
- Ask a learner come to the chalkboard and place bottle tops on the large ten frames in the same way they placed them on their own ten frames.
- Walk around to check if there are learners who are counting one by one rather than by filling the ten frames first.



- Ask: **What do you see in your ten frames?** (I have 2 full ten frames; I have 2 tens; I count 10 twice; I have 20 bottle tops.)
- Say: **You have two full ten frames. This makes 20**.
- Write the numeral '20' under the large ten frames as well as the number name 'twenty'.
- Ask learners to repeat '20' after you as they write '20' in the air.
- Write '10 and 10 make 20' under the large ten frames.
- Ask: **How do we write '10 and 10 make 20' as a number sentence?** (10 + 10 = 20)
- Ask a learner to write '10 + 10 = 20' on the board.
- Let learners write the number sentence in their classwork books.
- *Note that it is **not** necessary for learners write the number name.*

Activity 2: Whole clas s activity

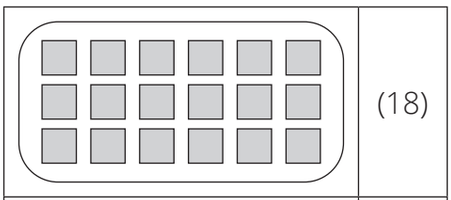
- Make sure that each pair of learners has some bottle tops and two straight ten frames.
- Write 19 on the board and say: **Now we are going to make 19**.
- Ask: **How can we make 19 on our 10 frames?** (Give learners time for trial and error in their 10 frames. Learners may say 'we make a full 10 frame and 9 in another 10 frame', '9 is 1 less than 10. I take away 1 bottle top from 20', etc.)
- Let some learners come to the chalkboard one by one and show how they made 19.
- As a class discuss which way is quicker and simpler.
- Encourage all the learners to check if their bottle tops displays show 19.
- Let learners repeat '19' after you several times, writing 19 in the air.
- Write the number name under the number symbol on the board.
- Write '10 and 9 make 19' under the large ten frames.
- Ask: **How do we write '10 and 9 make 19' as a number sentence**? (10 + 9 = 19)
- Let learners write it down in their classwork books.
- Ask a learner to write '10 + 9 = 19' on the chalkboard.
- Say: **Now we're going to take away 1 bottle top from 19.**
- Let a learner come to the chalkboard and take away 1 bottle top from the ten frame with 9 bottle tops.
- Ask: **We now have 1 ten and how many bottle tops?** (8)
- Ask: **How many bottle tops are there?** (18)
- Write the number symbol '18' and the number name 'eighteen' under the big ten frames.
- Write '10 and 8 make 18' under the large ten frames.
- Ask: **How do we write '10 and 8 makes 18' as a number sentence?** (10 + 8 = 18)
- Let learners write it down in their classwork books.
- Ask a learner to write '10 + 8 = 18' on the chalkboard.
- *Repeat the same process as above for the numbers 17 and 16.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: In this activity learners should group the shapes into tens and ones to find the number. They can use their ten frames and bottle tops to help them if necessary.

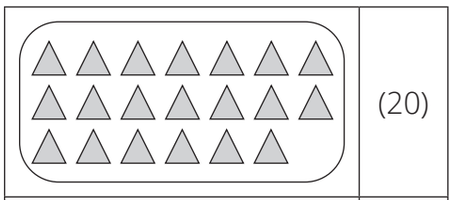
1 How many shapes?

a



(18)

b

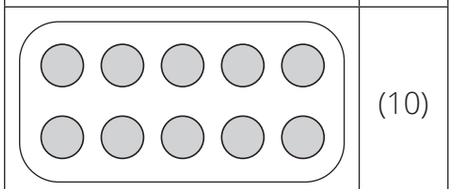


(20)

c

(16)

d



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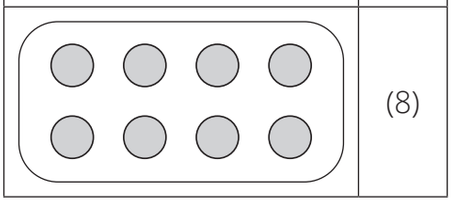

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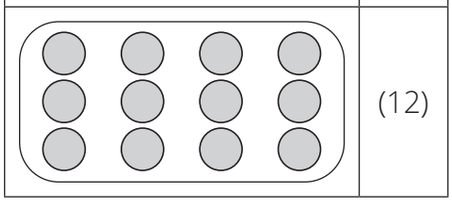


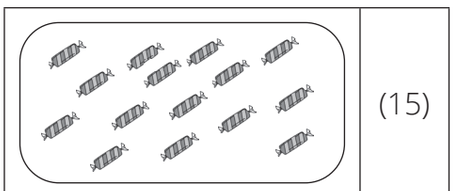
(12)

2 Discuss with your partner how you counted the shapes.

4 HOMEWORK ACTIVITY (5 MINUTES)

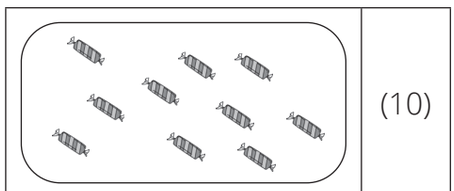
How many sweets?

a



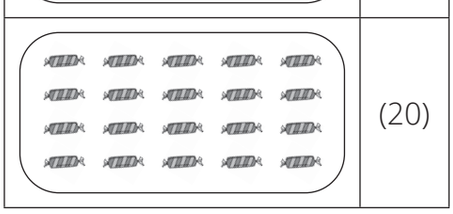
(15)

b



(10)

c



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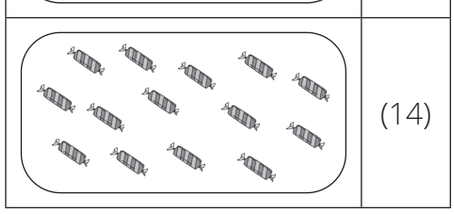
d



(14)

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have learnt to identify the tens and ones in numbers 16 to 20 using a straight ten frame.

Lesson 4: Numbers 0 to 20

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.		
CAPS topics: 1.2 Count forwards and backwards; 1.3 Number symbols and number names; 1.4 Describe, compare and order numbers; 2.2 Number patterns.		
Lesson Objective: Compare and sequence numbers 0 to 20 using a straight ten frame.		
Lesson Vocabulary: Before, after, in between, more than, less than.		
Resources: Bottle tops.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	Count forwards in:	Answer
1	1s up to 20	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
2	2s up to 20	2, 4, 6, 8, 10, 12, 14, 16, 18, 20
3	5s up to 20	5, 10, 15, 20
	Count backwards in:	**Answer**
1	1s from 20	20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1
2	2s from 20	20, 18, 16, 14, 12, 10, 8, 6, 4, 2
3	5s from 20	20, 15, 10, 5

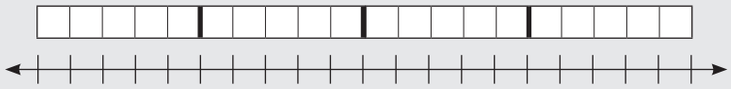
2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will revise numbers 0 to 20. They will describe, order and compare these numbers, using vocabulary such as more than and less than. It is essential that learners use the vocabulary themselves in order to learn the language of mathematics and to better their understanding of this concept.

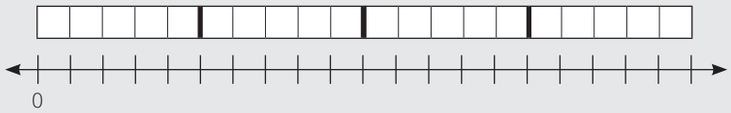
Today we are learning to compare and sequence numbers 0 to 20 using a straight ten frames.

Activity 1: Whole class activity

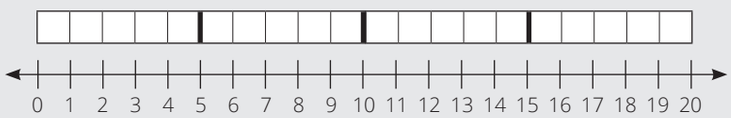
- Draw two large ten frames horizontally on the board and then draw a number line under the ten frames. Learners should refer to the number line in the LAB.



- Call a learner to the board to write 0 on the number line.
- Ask: **How do we know that this is the correct place for the 0?** (Because there is no bottle top on the ten frame above.)

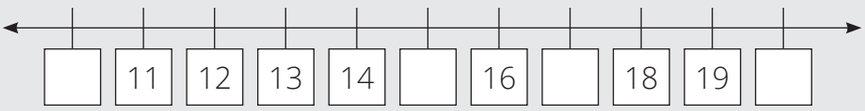


- Give learners time to write 0 on their number lines in their LAB.
- Say: **Colour in five blocks in the ten frame above your number line.**
- Say: **Now write 5 on your number line.**
- *Note: Learners should colour the 5 blocks at the same time (this is the subitising way) instead of colouring the blocks one by one.*
- Colour in 5 blocks on the large ten frame on the board in order to demonstrate how this should have been done.
- Ask learners to colour in 5 more blocks to show 10, and then to write 10 on their number lines.
- Do the same on the large ten frame on the board.
- Ask: **Have you written 5 and 10 in the same place on your number line as I have on the board?**
- Give learners time to correct their number line if necessary.
- Ask learners to write 1 to 4 and 6 to 9 on their number lines.
- Call a learner to the board to write 1 to 4 and 6 to 9 on the large number line.
- You can also write the number names 0 to 10 underneath the number symbols on the number line as reinforcement for the learners.
- Ask learners to write 15 and 20 on their number lines.
- Write 15 and 20 on the large number line on the board, and confirm with the whole class whether the positions of 15 and 20 are correct or not by colouring in on the ten frames above.
- Let learners correct their number lines if necessary.
- Ask learners to write 11 to 14 and 16 to 19 on their number lines.
- Call a learner to the board to write 11 to 14 and 16 to 19 on the large number line.
- You can also write the number names 11 to 20 underneath the number symbols on the number line as reinforcement for the learners.
- Walk around and do the corrections individually.



Activity 2: Whole class activity

- Draw the number line below on the board (number as shown below).



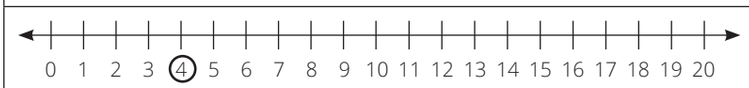
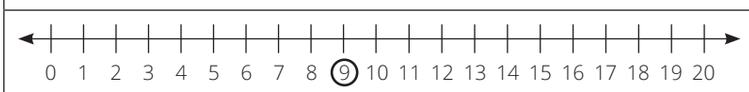
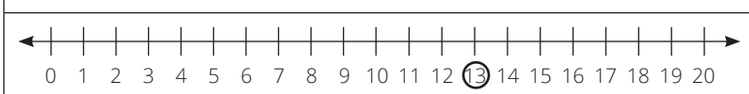
- Ask: **What number should go in the first empty block?** (10)
- Ask: **How did you know that?** (Because 10 comes before 11.)
- Ask: **What number should come after 14?** (15)
- Ask: **How did you know that?** (Encourage learners to verbalise the language of sequencing such as 15 comes after 14, 15 comes before 16, 15 is in between 14 and 16.)
- Repeat with the rest of the missing numbers 17 and 20 on the number line.
- Give learners time to draw a number line with missing numbers in their classwork books.
- Learners can then exchange books with a partner and fill in the missing numbers on their partner's number line.
- Walk around the class to check the learners' number lines.

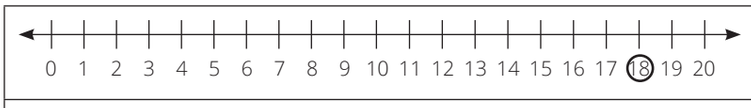
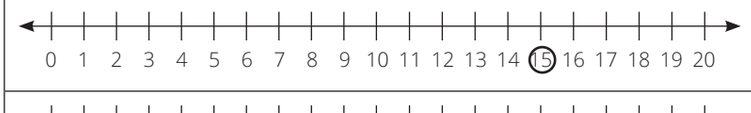
Activity 3: Whole class activity

- Use the drawing from Activity 2.
- Ask: **What number is 1 more than 18?** (19)
- Let a learner show how they found the answer on the number line on the board. (By moving one to the right from 18.)
- Ask: **What number is 1 less than 11?** (10)
- Let a learner show how they found the answer on the number line on the board. (By moving one to the left from 11.)
- *Repeat the same activity with other numbers to find 2 more than and 2 less than.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

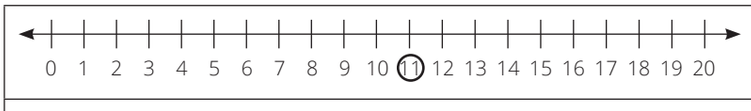
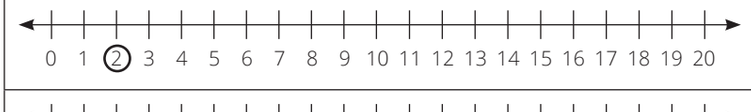
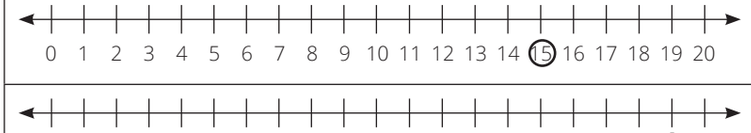
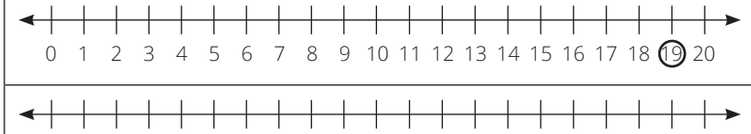
Use the number line to show more than or less than the circled number.

a		1 more than 8 is	(9)
b		2 less than 14 is	(12)
c		2 more than 4 is	(6)
d		1 less than 9 is	(8)
e		1 more than 13 is	(14)

f		2 more than 18 is	(20)
g		2 less than 15 is	(13)
h		1 less than 6 is	(5)

4 HOMEWORK ACTIVITY (5 MINUTES)

Use the number line to show more than or less than the circled number.

a		2 more than 11 is	(13)
b		1 less than 2 is	(1)
c		1 more than 15 is	(16)
d		2 less than 19 is	(17)
e		2 more than 7 is	(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 learnt to compare and sequence numbers 0 to 20 using a straight ten frame.

Lesson 5: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.3 Number symbols and number names; 1.4 Describe, compare and order numbers.		
Lesson Objective: Revise working with numbers 0 to 20.		
Lesson Vocabulary: Number names (11 to 20), tens, ones, more, less, and, add.		
Resources: Bottle tops, straight ten frames.		
Date:	Week	Day

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

This week's lessons have focused on recognising and working with numbers. Learners have to compare and sequence numbers, and have been introduced to number names and number symbols for the numbers 11 to 20.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Learners may find understanding the concept of 2-digit numbers confusing, which is why the use of the ten frames is useful in developing their understanding of place value. It is important for learners to recognise the fact that a number such as 16 is made up of one ten and 6 ones.

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 numbers 0 to 20.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 Draw dots in the ten frame to show the number.

a 3 (●) (●) (●)

b 8 (●) (●) (●) (●) (●) (●) (●) (●)

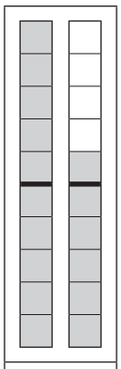
c 10 (●) (●) (●) (●) (●) (●) (●) (●) (●) (●)

d 5 (●) (●) (●) (●) (●)

e 7 (●) (●) (●) (●) (●) (●) (●)

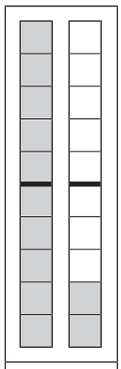
2 Shade the ten frames to show the numbers.

a



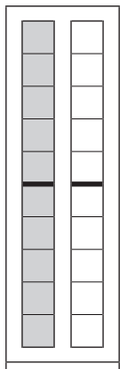
16

b



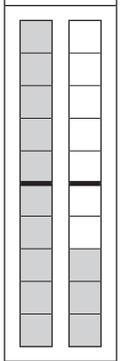
12

c



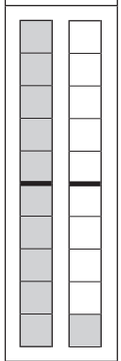
10

d



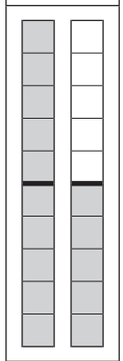
13

e



11

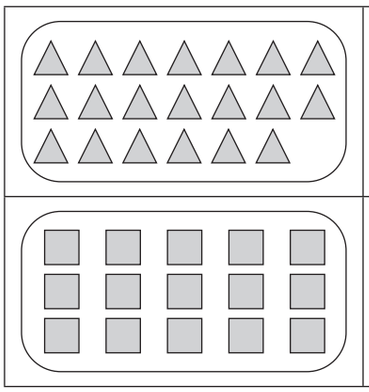
f



15

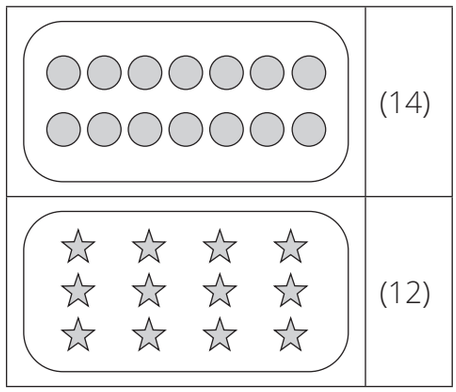
3 How many shapes?

a



(20)

b



(14)

c

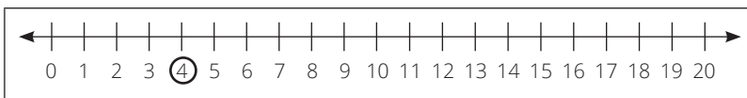
(15)

d

(12)

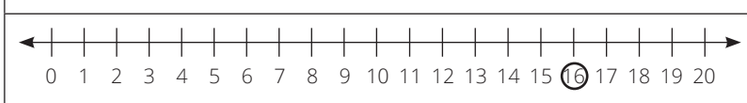
4 Use the number line to show more than or less than the circled number.

a



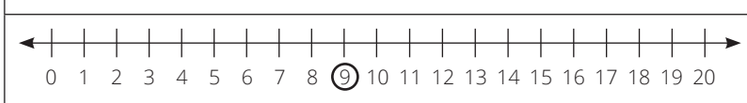
1 less than 4 is (3)

b



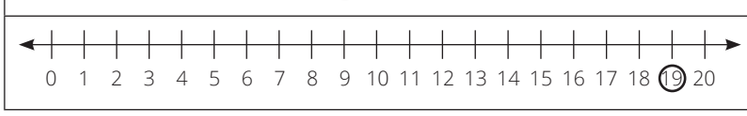
2 less than 16 is (14)

c

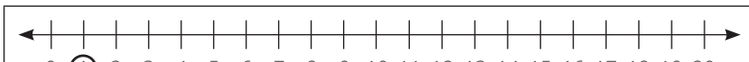
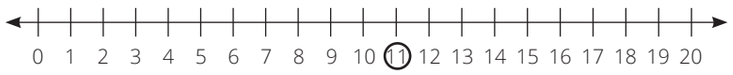


2 more than 9 is (11)

d



1 more than 19 is (20)

e		1 more than 1 is	(2)
f		2 more than 11 is	(13)

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 work with numbers 0 to 20.

Week 2

Lesson 6: Compare and order numbers 0 to 20

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.4 Describe, compare and order numbers; 1.5 Place value.
Lesson Objective: Compare and order numbers 0 to 20.
Lesson Vocabulary: Tens, ones, more, less, and, add, before, after, in between.
Resources: Number cards (0 to 20) (se *Printable Resources*), large number cards (teacher) (11 to 20).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

		Answer			Answer
1	19 is 10 and __	9	**6**	15 is 5 and __	10
2	17 is 7 and __	10	**7**	12 is 10 and __	2
3	13 is 3 and __	10	**8**	18 is 8 and __	10
4	16 is 10 and __	6	**9**	14 is 4 and __	10
5	11 is 10 and __	1	**10**	10 is 10 and __	0

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This lesson is similar to Lesson 4 in that learners will continue to familiarise themselves with numbers 0 to 20. Learners will verbalise their understanding by using the correct vocabulary whilst working with number lines. You need to prepare the learner number cards for this lesson.

Today we are learning to compare and order numbers 0 to 20.

Activity 1: Learners work in pairs

- Give each pair of learners a set of number cards (11 to 20).
- Draw a number line showing numbers 0 to 20 on the board, as a point of reference for the learners.

- Show learners two large number cards (for example 12 and 16).
- Ask: **Which number is bigger?** (Learners should say 16, but some may say 12.)

- Ask: **How do you know that 16 is bigger than 12?** (16 is on the right hand side of 12 on the number line so that means 16 is bigger than 12; when I put 16 bottle tops in a line and 12 bottle tops underneath the first line, I see that the 16 line is longer than the 12 line, which means 16 is bigger than 12.)
- Ask learners to play a game with their number cards in their pairs.
  - One learner holds up two number cards.
  - The other learner says **which number is bigger**. They explain why each time.
  - Each learner should have multiple opportunities to show two number cards and ask their partner which number is bigger.
- After giving learners some time to play the game, change the question to: **Which number is smaller?**
- Walk around and assist learners who don't understand how to compare numbers.
- *If you have sufficient time, this activity can also be done in the learners' classwork books. You could write sets of two numbers on the board (for example 8 and 13, 14 and 11, 17 and 19) and get the learners to copy the numbers into their books. The learners can then circle the bigger number in their books.*

Activity 2: Learners work in pairs

- Call three learners to the front of the class and ask them to select a large number card each.
- Say: **Show your number cards to the class.** (Each learner holds up their card.)
- Say: **Put these three numbers in order from the smallest to the biggest.**
- Let the learners suggest which number should be on the left, on the right and in the middle.
- Paste the three large number cards on the chalkboard.
- Repeat the same activity, but increase the number of learners to four, five and so on.
- Allow time for pairs of learners to play the same game with their own sets of number cards, this time using the cards 0 to 20 (Give each pair of learners the rest of the 0 to 20 number card set.).
  1. One learner holds up two number cards.
  2. The other learner says **which number is bigger**. They explain why each time.
  3. Each learner should have multiple opportunities to show two number cards and ask their partner which number is bigger.
  4. If there is time the pairs of learners can change the question to **which number is smaller.**
- Walk around and observe the learners. Assist where necessary.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Fill in the missing numbers:

a	10, 11, ☐, ☐, ☐, 15	(12, 13, 14)
b	1, ☐, 3, ☐, 5, ☐, 7, ☐	(2, 4, 6, 8)
c	9, 10, ☐, ☐, ☐, ☐	(11, 12, 13, 14)
d	☐, 12, ☐, 10, ☐, 8	(13, 11, 9)
e	6, 7, ☐, ☐, 10, 11, ☐, ☐, ☐, 15	(8, 9, 12, 13, 14)
f	15, 14, ☐, ☐, ☐, 10, ☐, ☐, ☐, 6	(13, 12, 11, 9, 8, 7)
g	0 ——— 15	(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14)

2 Circle the bigger number.

15	13	(15)
8	9	(9)
20	12	(20)

3 Circle the smaller number.

3	7	(3)
19	9	(9)
16	15	(15)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Circle the bigger number.

6	7	(7)
11	10	(11)
14	12	(14)

2 Circle the smaller number.

15	5	(5)
18	19	(18)
20	10	(10)

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have learnt to compare and order numbers 0 to 20.

Lesson 7: Assessment

Teacher's notes
This lesson should be used for assessment of the content covered in this unit to date.
CAPS topics: 1.3 Number symbols and number names; 1.4 Describe, compare and order numbers; 1.5 Place value; 2.2 Number patterns.
Resources: Printable assessment in teacher's resources.
Date: Week Day

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

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

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

This week you will need to take some time to do the *oral and practical assessment* (see rubric or checklist below). The oral and practical activities should be done individually/in groups over the course of the week.

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 (19)

1 Draw dots in the ten frame to show the number. (4)

a

7	(●)	(●)	(●)	(●)	(●)	(●)	(●)			

b

4	(●)	(●)	(●)	(●)						

c

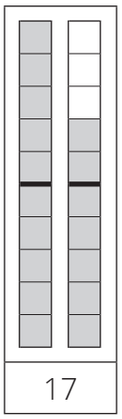
9	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)	(●)	

d

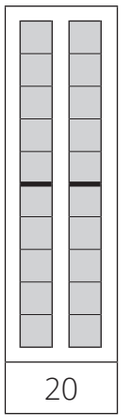
2	(●)	(●)								

2 Shade the ten frames to show the numbers. (3)

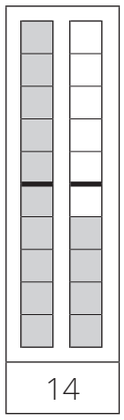
a



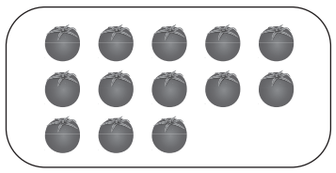
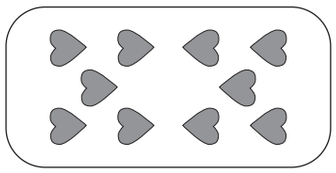
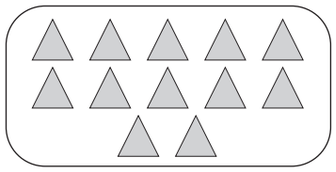
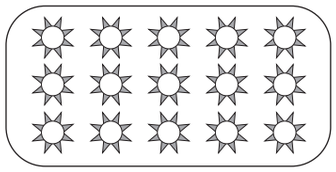
b



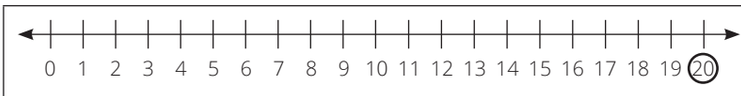
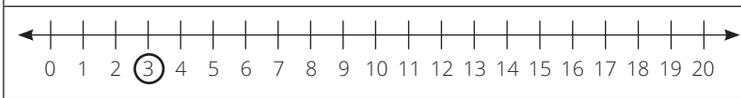
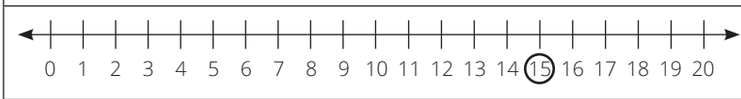
c



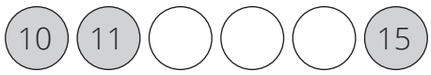
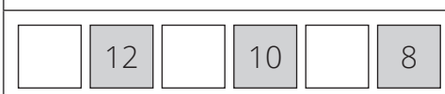
3 How many? (4)

a		(13)	**b**		(10)
c		(12)	**d**		(15)

4 Use the number line to show more than or less than the circled number. (4)

a		2 less than 20 is	(18)
b		1 more than 3 is	(4)
c		1 less than 15 is	(14)
d		2 more than 7 is	(9)

5 Fill in the missing numbers. (4)

a		(12, 13, 14)
b		(2, 4, 6, 8)
c		(11, 12, 13, 14)
d		(13, 11, 9)

ORAL AND PRACTICAL

CAPS: Numbers, operations and relationships: Number concept **Activity: Revision of numbers 0 to 20. Assess the learners' ability to count, name and compare numbers from 0 to 20 using ten frames**				Mark: 7
	Level 1	Level 2-3	Level 4-5	Level 6-7
Criterion	Able to display, group and count numbers in a ten frame from 0 to 10	Able to display, group and count objects in ten frames from 0 to 20.	Able to display and count numbers in ten frames to 10 and show one or two more (or less) than a given number up to 10.	Able to display and count numbers in ten frames to 20 and show one or two more (or less) than a given number up to 20.

Mark ✓/7	Criteria – Checklist: (1 mark for each criterion achieved)	Achieved – ✓	Not yet – ✘	Almost – ★
1	Able to display numbers in a ten frame from 0 to 10			
1	Able to display numbers in ten frames from 11 to 20			
1	Able to group and count objects from 0 to 10			
1	Able to group and count objects from 0 to 20			
1	Able to show one more (or less) than a given number up to 10.			
1	Able to show two more (or less) than a given number up to 20.			

Lesson 8: Addition and subtraction up to 20

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.		
CAPS topics: 1.13 Addition and subtraction (context free).		
Lesson Objective: Add and subtract 10 to/from numbers 0 to 20.		
Lesson Vocabulary: Add, subtract, more than, less than.		
Resources: Straight ten frames (2 per learner), bottle tops.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	14 is 10 and __	4	**6**	19 is 9 and __	10
2	16 is 6 and __	10	**7**	13 is 10 and __	3
3	11 is 1 and __	10	**8**	10 is 0 and __	10
4	18 is 10 and __	8	**9**	17 is 10 and __	7
5	15 is 10 and __	5	**10**	12 is 2 and __	10

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

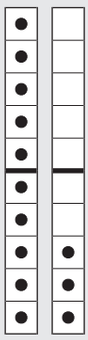
Learners will use ten frames to practise adding and subtracting 10 to and from numbers up to 20. The use of ten frames will help learners to solve the problems quickly, and will reinforce their understanding of place value.

Today we are learning to add and subtract 10 to and from numbers 0 to 20.

Activity 1: Learners work in pairs

- Make sure that each pair of learners has a ten frame and some bottle tops.
- Write 10 + 3 = on the board.
- Say: **Show the problem on your ten frame.**

- Learners may ask for another ten frame so that they can sort their loose bottle tops. This is helpful for them to develop their understanding of place value, so allow them to use a second ten frame.



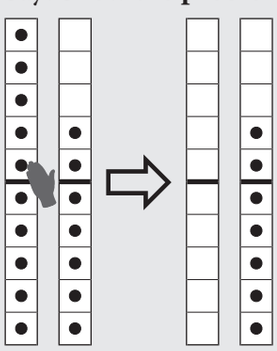
- Ask: **What can you tell me about your bottle tops?** (I have one full ten frame and 3 extra bottle tops).
- Let learners complete the number sentence in their classwork books. (10 + 3 = 13)
- Call a learner to the front to write the number sentence on the board.
- Confirm with the learners that the number bond table below represents the same addition by filling in the missing number in the table.

(13)	
10	3

- Repeat with other examples such as
  - **a** 10 + 7 = 17;
  - **b** 6 + 10 = 16;
  - **c** 10 + 0 = 10.
- *Make sure that you encourage learners to notice that each time they have a full ten frame and some loose bottle tops. This is important in developing their understanding of place value, as they begin to realise that they do not need to count all bottle tops each time.* ***(When a ten frame is full, that means I have 10. I do not have to count.)***

Activity 2: Learners work in pairs

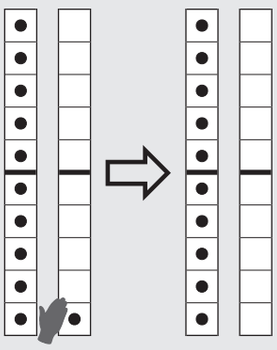
- Make sure that each pair of learners has two ten frames and some bottle tops.
- Write 17 – 10 = on the board.
- Say: **Show the problem on your ten frames.**



- Ask: **What can you tell me about your bottle tops?** (I took away one full ten frame and was left with 7 bottle tops.)
- Let learners complete the number sentence in their classwork books. (17 – 10 = 7)
- Call a learner to the front to write the number sentence on the board.
- Confirm with the learners that the number bond table below represents the same subtraction by filling in the missing number in the table.

17	
10	(7)

- Repeat with other examples such as
  - **a** 14 – 10 = 4;
  - **b** 19 – 10 = 9.
- *Encourage learners to notice that each time they are removing a full ten frame and leaving less than ten bottle tops behind. This helps them to solve the problem more quickly as they do not need to count each individual bottle top.*
- Write 11 – 1 = on the board.
- Say: **Show the problem on your ten frames.**



- Ask: **What can you tell me about your bottle tops?** (I took away one bottle top from the incomplete ten frame and was left with a full ten frame.)
- Let learners complete the number sentence in their classwork books. (11 – 1 = 10)
- Call a learner to the front to write the number sentence.
- Confirm with the learners that the number bond table below represents the same addition by filling in the missing number in the table.

11	
(10)	1

- Repeat with other examples such as
  - **a** 15 – 5 = 10;
  - **b** 12 – 2 = 10;
  - **c** 19 – 9 = 10.
- *Encourage learners to notice that each time they are removing bottle tops from the incomplete ten frame and leaving a full ten frame behind. This helps them to solve the problem more quickly as they do not need to count each individual bottle top.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learners can use their ten frames to help them solve these problems. Encourage learners to represent the problems using their ten frames before completing each number bond table and number sentence.

1 Fill in the missing numbers.

a

13	
10	(3)

b

17	
(10)	7

c

15	
10	(5)

d

(19)	
10	9

e

20	
10	(10)

f

(16)	
10	6

2 Fill in the missing numbers.

a	10	+	(5)	=	15
b	17	–	(10)	=	7
c	(10)	+	0	=	10
d	13	–	3	=	(10)
e	19	–	(10)	=	9
f	10	+	4	=	(14)

4 HOMEWORK ACTIVITY (5 MINUTES)

Fill in the missing numbers.

a	12	–	2	=	(10)
b	(10)	+	9	=	19
c	17	–	(10)	=	7
d	10	+	5	=	(15)
e	18	–	(8)	=	10

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have learnt to add and subtract 10 to and from numbers 0 to 20.

Lesson 9: More addition and subtraction up to 20

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.13 Addition and subtraction (context free).
Lesson Objective: Add and subtract with numbers 0 to 20.
Lesson Vocabulary: Add, subtract, more than, less than.
Resources: Straight ten frames (2 per learner), bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	10 + 0 = __	10	**6**	13 – 10 = __	3
2	10 + 6 = __	16	**7**	18 – 10 = __	8
3	10 + 1 = __	11	**8**	14 – 4 = __	10
4	10 + 9 = __	19	**9**	15 – 5 = __	10
5	10 + 7 = __	17	**10**	12 – 2 = __	10

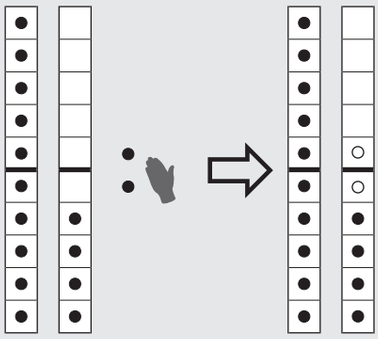
2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This lesson is similar to Lesson 8 in that learners will practise adding and subtracting with numbers up to 20. However, in this lesson, learners are not restricted to adding and subtracting 10 to and from numbers as they did in Lesson 8. Learners are able to add or subtract any number in the range 0 to 20 as long as they do not need to carry as part of their calculation.

Today we are learning to add and subtract with numbers 0 to 20.

Activity 1: Learners work in pairs

- Make sure that each pair of learners has two ten frames and some bottle tops.
- Write 14 + 2 = on the board.
- Say: **Show the problem on your ten frames.**

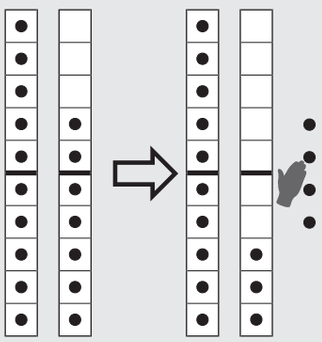


- Ask: **What can you tell me about your bottle tops?** (I had one full ten frame and 4 extra bottle tops, then I added 2 more bottle tops to the 4 loose bottle tops to make 6 extra bottle tops.)
- Let learners complete the number sentence in their classwork books. (14 + 2 = 16)
- Call a learner to the front to write the number sentence on the board.
- *Help learners realise that they do not need to count each bottle top, as they can see that they have a full ten frame. They therefore simply need to add two onto the four bottle tops in the incomplete ten frame.*
- Confirm with the learners that the number bond table below represents the same addition by filling in the missing number in the table.
- Repeat with other examples such as 3 + 16 = 19.

(16)	
14	2

Activity 2: Learners work in pairs

- Make sure that each pair of learners has two ten frames and some bottle tops.
- Write 17 – 4 = on the board.
- Say: **Show the problem on your ten frames.**



- Ask: **What can you tell me about your bottle tops?** (I had one full ten frame and 7 extra bottle tops. I took away 4 bottle tops and was left with one full ten frame and 3 extra bottle tops.)
- Let learners complete the number sentence in their classwork books. (17 – 4 = 13)
- Call a learner to the front to write the number sentence on the board. (17 – 4 = 13).

- *Encourage learners to realise that they don't need to count each bottle top as they are left with a full ten frame each time. They simply need to remove the number of bottle tops they must subtract from the incomplete ten frame.*
- Confirm with the learners that the number bond table below represents the same subtraction by filling in the missing number in the table.

17	
4	(13)

- Repeat with other examples such as 14 – 3 = 11.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learners can use their ten frames to help them solve these problems. Encourage learners to represent the problems using their ten frames before completing each number bond table and number sentence.

1 Fill in the missing numbers.

a

(16)	
11	5

b

13	
1	(12)

c

19	
(6)	13

d

(17)	
14	3

e

14	
2	(12)

f

18	
(5)	13

2 Fill in the missing numbers.

a	5	+	12	=	(17)
b	19	–	5	=	(14)
c	11	+	4	=	(15)
d	16	–	3	=	(13)
e	18	–	4	=	(14)
f	17	+	1	=	(18)

4 HOMEWORK ACTIVITY (5 MINUTES)

Fill in the missing numbers.

a

(18)	
13	5

b

16	
4	(12)

c

15	
4	(11)

d

(19)	
12	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 learnt to add and subtract with numbers 0 to 20.

Lesson 10: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.13 Addition and subtraction (context free).		
Lesson Objective: Add and subtract with numbers 0 to 20.		
Lesson Vocabulary: Add, subtract, more than, less than.		
Resources: Ten frames, Bottle tops.		
Date:	Week	Day

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

This week learners have focused on adding and subtracting numbers. Learners have added 10 to numbers 0 to 10, and subtracted 10 from numbers 10 to 20. Learners have also subtracted single digit numbers from numbers 10 to 20 to leave an answer of 10. Learners then practised the addition and subtraction of numbers up to 20 without carrying. Learners have used ten frames to help them solve problems quickly and easily.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Place value is an important part of the lessons from this week as learners begin to realise that they do not need to count every bottle top in order to determine the solutions to their problems. Learners need to see the full ten frame as a whole, so that solving problems becomes easier as they realise that they can solve problems without changing the number in the tens place.

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 adding and subtracting with numbers 0 to 20.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

NOTE: Learners can use their ten frames to help them solve these problems. Encourage learners to represent the problems using their ten frames before completing each number bond table and number sentence.

1 Fill in the missing numbers.

a

(19)	
16	3

b

14	
1	(13)

c

13	
(3)	10

d

(18)	
14	4

e

15	
3	(12)

f

16	
(6)	10

g

(17)	
10	7

h

(13)	
12	1

i

14	
2	(12)

j

12	
(2)	10

2 Fill in the missing numbers.

a	(5)	+	10	=	15
b	17	–	5	=	(12)
c	12	+	4	=	(16)
d	18	–	3	=	(15)
e	12	–	(2)	=	10
f	(10)	+	8	=	18
g	16	–	3	=	(13)
h	10	+	9	=	(19)

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 add and subtract with numbers 0 to 20.

Week 3

Lesson 11: Addition word problems

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.7 Addition and subtraction (in context); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve addition word problems with numbers 0 to 20.
Lesson Vocabulary: Add, and, more than, equals.
Resources: Ten frames, bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	11 + 1 = __	12	**6**	3 + 13 = __	16
2	4 + 15 = __	19	**7**	12 + 6 = __	18
3	12 + 3 = __	15	**8**	12 + 2 = __	14
4	10 + 1 = __	11	**9**	3 + 14 = __	17
5	1 + 12 = __	13	**10**	15 + 5 = __	20

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

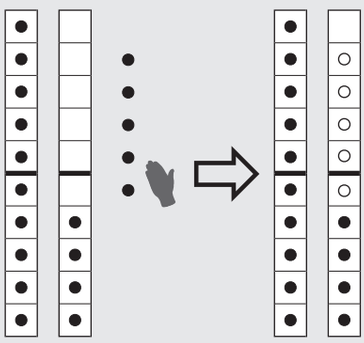
In this lesson learners will continue to practise adding with numbers up to 20. The learners will use a variety of word problems in this lesson, including combine, compare and change problems. Learners do not need to use their ten frames to represent the problems. However, they can use the ten frames to help them find the answer.

Today we are learning to solve word problems with numbers 0 to 20.

Activity 1: Whole class activity

- Write the following word problem on the board. *This is an example of an addition (change) problem.*
  Nzumbululo has 14 sweets.
  Tshilidzi gives her 5 more sweets.
  How many sweets does Nzumbululo have altogether?
- Read the problem.
- Ask: **What is the story about?** (Sweets)
- Ask: **What numbers do you see in the story?** (14 and 5)

- Underline these numbers.
- Ask: **What is the question?** (How many sweets does Nzumbululo have altogether?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem again, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Let learners represent the story using bottle tops.
- Let some learners present their representation using bottle tops to the class.
- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Add because Nzumbululo is getting more sweets so the answer must be bigger.)
- Write the number sentence (14 + 5 = __). Read the number sentence together several times.
- Let learners write the number sentence in their classwork books.
- Let the learners solve the number sentence using bottle tops and ten frames (14 + 5 = 19).

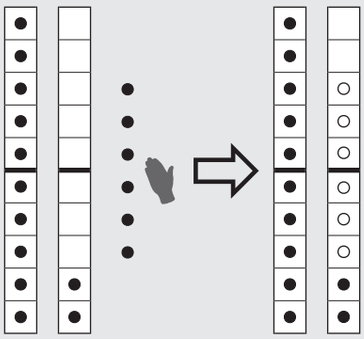


- Ask: **What is the answer to the word problem?** (19 sweets).
- *Learners must answer with the unit 19* ***sweets****.*

Activity 2: Learners work in groups

- Write the following word problem on the board. *This is an example of an addition (compare) problem.*
  I have 12 balloons.
  My friend has 6 more balloons than I have.
  How many balloons does she have?
- Read the problem.
- Ask: **What is the story about?** (Balloons)
- Ask: **What numbers do you see in the story?** (12 and 6)
- Underline these numbers.
- Ask: **What is the question?** (How many balloons does my friend have?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem in their groups, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.

- Let learners represent the story in their groups using bottle tops.
- Let some groups present their representation using bottle tops to the class.
- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Add, because my friend has more balloons than I do so the number must get bigger.)
- Let learners write the number sentence in their classwork books.
- Write 12 + 6 = __. Read the number sentence together several times.
- Let the learners solve the number sentence in their groups using bottle tops and ten frames to complete the number sentence (12 + 6 = 18).



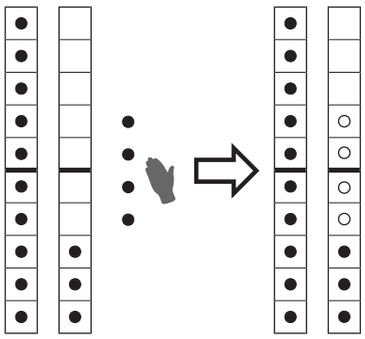
- Ask: **What is the answer to the word problem?** (18 balloons).
- *Learners must answer with the unit 18* ***balloons****.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: The classwork activity reinforces the method of solving word problems covered in Activity 1 and 2, although a combine addition problem is used. If learners finish their work quickly, then more problems can be given to them in the same way. You can create word problems using the number sentences given in Lessons 8, 9, and 10.

- Write the following word problem on the board. *This is an example of an addition (combine) problem.*
  Nosisi has <u>13</u> green marbles
  and <u>4</u> blue marbles.
  How many marbles does she have?
- Read the problem.
- Ask: **What is the story about?** (Marbles)
- Ask: **What numbers do you see in the story?** (13 and 4)
- Underline these numbers.
- Ask: **What is the question?** (How many marbles does Nosisi have?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Let learners represent the story using bottle tops.
- Let some learners present their representation using bottle tops to the class.

- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Add because Nosisi has blue and green marbles and we want to know how many there are in total.)
- Write 13 + 4 =. Read the number sentence together several times.
- Let the learners solve the number sentence using bottle tops and ten frames to complete the number sentence (13 + 4 = 17).

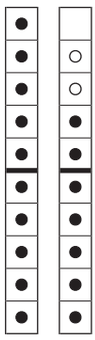


- Ask: **What is the answer to the word problem?** (17 marbles).
- *Learners must answer with the unit 17* ***marbles****.*

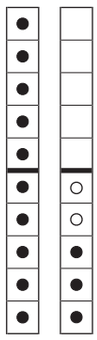
4 HOMEWORK ACTIVITY (5 MINUTES)

Use the ten frames to solve the number sentences.

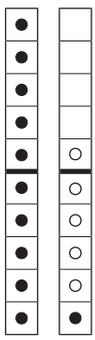
a

	Answer
17 + 2 = (19)	

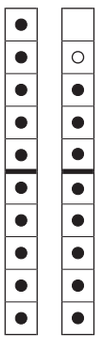
b

	Answer
13 + 2 = (15)	

c

11 + 5 = (16)	

d

18 + 1 = (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 word problems with numbers 0 to 20.

Lesson 12: Subtraction word problems

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.7 Addition and subtraction (in context); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve subtraction word problems with numbers 0 to 20.
Lesson Vocabulary: Subtract, take away, less than, equals.
Resources: Ten frames, bottle tops.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	20 – 2 = __	18	**6**	16 – 5 = __	11
2	11 – 1 = __	10	**7**	18 – 2 = __	16
3	17 – 2 = __	15	**8**	14 – 1 = __	13
4	15 – 3 = __	12	**9**	19 – 1 = __	18
5	19 – 2 = __	17	**10**	18 – 4 = __	14

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

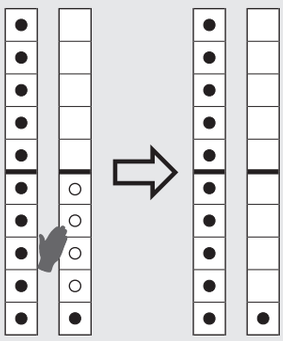
In this lesson learners will practise subtracting with numbers up to 20. The learners will use a variety of word problems in this lesson, including combine, compare and change problems. Learners do not need to use their ten frames to represent the problems. However, they can use the ten frames to help them solve the problems.

Today we are solving word problems with numbers 0 to 20.

Activity 1: Whole class activity

- Write the following word problem on the board. *This is an example of a subtraction (combine) problem.*
  There are 15 trees in the garden.
  4 of them are avocado and the others are pawpaw.
  How many pawpaw trees are there?
- Read the problem.
- Ask: **What is the story about?** (trees)
- Ask: **What numbers do you see in the story?** (15 and 4)
- Underline these numbers.
- Ask: **What is the question?** (How many pawpaw trees are there in the garden?)
- Underline the question with a wavy line.

- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Let learners represent the story using bottle tops.
- Let some learners present their representation using bottle tops to the class.
- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Subtract, because we know how many trees we have in the garden in total so the number must get smaller.)
- Write the number sentence (15 – 4 = __). Read the number sentence together several times.
- Let learners write the number sentence in their classwork book.
- Let the learners solve and complete the number sentence using bottle tops and ten frames (15 – 4 = 11).

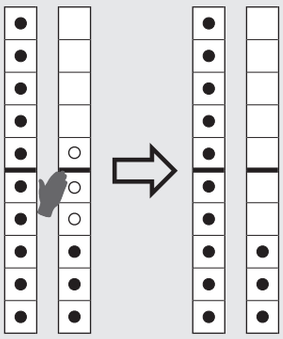


- Ask: **What is the answer to the word problem?** (11 pawpaw trees).
- *Learners must answer with the unit 11* ***paw paw trees****.*

Activity 2: Learners work in groups

- Write the following word problem on the board. *This is an example of a subtraction (compare) problem.*
  There are 16 sheep
  and 3 cows in the backyard.
  What is the difference between the number of sheep and cows?
- Read the problem.
- Ask: **What is the story about?** (Animals)
- Ask: **What numbers do you see in the story?** (16 and 3)
- Underline these numbers.
- Ask: **What is the question?** (What is the difference in the number of sheep and cows?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let the groups of learners read the problem until they read it fluently.
- Let learners represent the story, in their groups, using bottle tops.
- Let some groups present their representation using bottle tops to the class.

- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Subtract. We know how many cows and sheep we have, and we are trying to find out how many less cows we have than sheep.)
- Let learners write down a number sentence in their classwork books.
- Write the number 16 – 3 = __ on the board. Read the number sentence together several times.
- Let the learners solve and complete the number sentence in their groups using bottle tops and ten frames. (16 – 3 = 13)



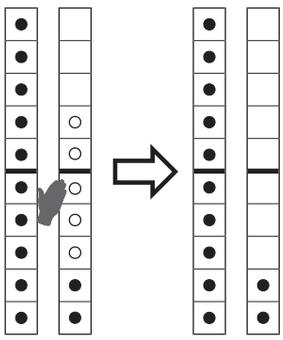
- Ask: **What is the answer to the word problem?** (13 less cows).
- *Learners must answer with the unit 13* ***cows****.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: The classwork activity reinforces the method of solving word problems covered in Activity 1 and 2, although a different subtraction problem is used. If learners finish their work quickly, then more problems can be given to them in the same way. You can create word problems using the number sentences given in Lessons 8, 9, and 10.

- Write the following word problem on the board. *This is an example of a subtraction (change) problem.*
  There are 17 birds on the branch.
  5 of them fly away.
  How many birds are left?
- Read the problem.
- Ask: **What is the story about?** (Birds)
- Ask: **What numbers do you see in the story?** (17 and 5)
- Underline these numbers.
- Ask: **What is the question?** (How many birds are left?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Let learners represent the story using bottle tops.
- Let some learners present their representation using bottle tops to the class.
- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Subtract, because some birds flew away so the number of birds will get smaller.)

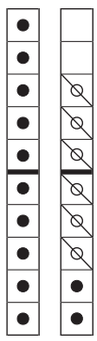
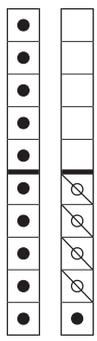
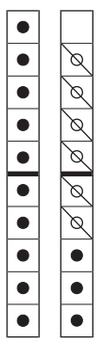
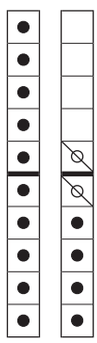
- Let learners write down a number sentence in their classwork books.
- Write the number sentence 17 – 5 = __. Read the number sentence together several times.
- Let the learners solve the number sentence using bottle tops and ten frames. (17 – 5 = 12)



- Ask: **What is the answer to the word problem?** (12 birds.)
- *Learners must answer with the unit 12* ***birds****.*

4 HOMEWORK ACTIVITY (5 MINUTES)

Use ten frames to solve the number sentences.

	Answer
a) 18 – 6 = (12)	
b) 15 – 4 = (11)	
c) 19 – 6 = (13)	
d) 16 – 2 = (14)	

5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have learnt to subtract with numbers 0 to 20.

Lesson 13: 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 (in context); 1.13 Addition and subtraction (context free).		
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.

This week you will need to take some time to do the *oral and practical assessment* (see rubric or checklist below). The oral and practical activities should be done individually/in groups over the course of the week.

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)

NOTE: Learners may use ten frames and bottle tops when they do this written assessment if they would like to. If some learners would like to do it without using the ten frames they may. When you discuss the test you should use ten frames and bottle tops to explain the correct answers.

1 Fill in the missing numbers. (8)

a

(17)	
12	5

b

13	
2	(11)

c

16	
(10)	6

d

(15)	
13	2

e

17	
10	(7)

f

(14)	
4	10

g

(18)	
16	2

h

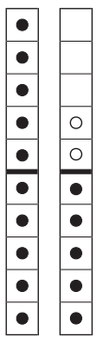
(11)	
10	1

2 Fill in the missing numbers. (8)

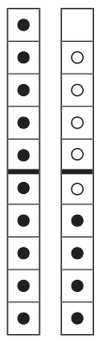
a	14	+	2	=	(16)
b	17	–	4	=	(13)
c	15	–	5	=	(10)
d	16	+	3	=	(19)
e	14	–	(4)	=	10
f	(10)	+	5	=	15
g	18	–	6	=	(12)
h	1	+	10	=	(11)

3 Use the ten frames to solve the number sentences. (2)

a

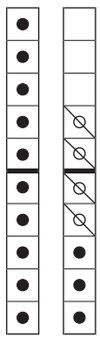
	Answer
15 + 2 = (17)	

b

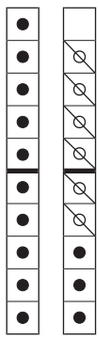
	Answer
14 + 5 = (19)	

4 Use the ten frames to solve the number sentences. (2)

a

	Answer
17 – 4 = (13)	

b

	Answer
19 – 6 = (13)	

ORAL AND PRACTICAL

CAPS: Numbers, operations and relationships: Number concept **Activity: Revision of numbers 0 to 20. Assess the learners' ability to count, name and compare numbers from 0 to 20 using ten frames**				Mark: 7
	Level 1	Level 2-3	Level 4-5	Level 6-7
Criterion	Able to read and understand the problem.	Able to devise a plan (identify the operation and write a number sentence).	Able to find the answer (do the calculation).	Able to discuss the answer/explain the solution found.

Mark ✓/7	Criteria – Checklist: (1 mark for each criterion achieved)	Achieved – ✓	Not yet – ✘	Almost – ★
1	Able to read the problem.			
1	Able to understand the problem.			
1	Able to devise a plan (demonstrate understanding).			
1	Able to identify the operation needed to find the solution.			
1	Able to write a number sentence to find the solution.			
1	Able to find the answer (do the calculation).			
1	Able to discuss the answer/explain the solution found.			

Unit 2 Introduction

This unit focuses on the addition of numbers up to 18 with carrying. The lessons in this unit build on the lessons from Unit 1 in that similar strategies and procedures are applied. However, in this unit, the emphasis falls on the make-a-ten method used when doing addition with carrying. This method helps learners to move away from solving problems through counting, and enables them to develop efficient and effective strategies.

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

- **Conceptual understanding**: Learners develop conceptual understanding of addition with carrying. They use bottle tops and ten frames to solve addition with carrying problems, which helps them to visualise the concept of addition of numbers that bridges 10. This unit prepares learners for subtraction with borrowing in the next unit (e.g. Lesson 14 Activity 1).
- **Procedural fluency**: Learners repeatedly use the same procedure to solve problems in this unit, so they develop procedural fluency as they develop their understanding of the procedures. Procedural fluency of basic number bonds is used to develop fluency of addition of bigger numbers (e.g. Lesson 17 Activity 2).
- **Strategies**: Learners begin to use the make-a-ten method in this unit as they solve addition with carrying problems. Learners focus on developing a solution strategy that is quicker and more efficient than counting (e.g. Lesson 17 Activity 1).
- **Reasoning**: Learners need to verbalise what they are doing which helps them to develop their reasoning skills. They need to work through processes and strategies verbally, which helps them to provide reasons for their choices (e.g. Lesson 15 Activity 2).

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

- **Concept development**: In this unit, learners develop their understanding of the concept of addition with carrying. This concept development is based on their previous learning from Unit 1, and will be further extended in Unit 2.
- **Problem solving**: Learners solve problems in context. While doing this they learn how to make choices about how to most easily make-a-ten when solving problems. Therefore their problem solving skills are developed throughout this unit.
- **Addressing gaps in learners' knowledge**: This unit provides good opportunities to address gaps in learners' knowledge. Learners will build on their knowledge of numbers, bonds of ten, addition and the solving of word problems from Unit 1. Therefore as learners solve problems in Unit 2, be sure to provide opportunities to address gaps in their understanding.
- **Connecting topics and concepts:** As learners develop their understanding of addition with carrying, they make use of their existing knowledge of numbers, place value and addition.
- **Making sense of mathematics**: A key aspect of this unit is getting learners to make sense of mathematics as they become able to make choices about how to solve problems based on their knowledge of numbers, bonds of ten and addition. Learners move away from solving problems through counting and develop an understanding of how to use effective calculation strategies which will enable them to make better sense of number work.

Unit 2 overview

Day	LP	Lesson Objective	Lesson Resources	Date Completed
Thur	14	Add and subtract 3 numbers.	Ten frames, bottle tops, large ten frame (teacher).	
Fri	15	Consolidation of work done this week.	Learner Activity Book.	
Mon	16	Solve problems using 3 numbers and mixed operations of addition and subtraction.	Ten frames, bottle tops.	
Tue	17	Solve addition problems (with carrying) using the make-a-ten method (9 + ☐).	Bottle tops, 2 ten frames.	
Wed	18	Assessment.	Assessment activity in teacher's resources.	
Thur	19	Solve addition problems (with carrying) using the make-a-ten method (8 + ☐ and 7 + ☐).	Bottle tops, ten frames.	
Fri	20	Consolidation of work done this week.	Learner Activity Book.	
Mon	21	Solve addition problems (with carrying) using the make-a-ten method (6 + ☐).	Bottle tops, ten frames.	
Tue	22	Solve addition problems (with carrying) using the make-a-ten method.	Bottle tops, ten frames.	
Wed	23	Assessment.	Assessment activity in teacher's resources.	
Thur	24	Solve addition problems (with carrying) using the make-a-ten method.	Addition (with carrying) cards (see *Printable Resources*), large addition cards (teacher), number cards (11 to 18) (see *Printable Resources*).	
Fri	25	Consolidation of work done this week.	Learner Activity Book.	
Mon	26	Solve addition problems (with carrying) using the make-a-ten method; solve addition problems (with carrying) in context.	Bottle tops, ten frames, addition (with carrying) cards, number cards (11 to 18) (see Printable Resources).	
Tue	27	Solve addition problems (with carrying) in context.	Bottle tops, ten frames, addition (with carrying) cards, number cards (11 to 18) (see *Printable Resources*).	
Wed	28	Create stories for addition with carrying, to assist in developing understanding of word problems.	Bottle tops, ten frames, addition (with carrying) cards, number cards (11 to 18) (see *Printable Resources*).	

Thur	29	Assessment	Assessment activity in teacher's resources.	
Fri	30	Consolidation of work done this week.	Learner Activity Book.	

Assessment for learning

Use the templates provided at the front of this guide to think deeply about at least one of the lessons in this unit.

Reflection

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

What will you change next time? Why?

Lesson 14: Addition and subtraction of 3 numbers

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.7 Addition and subtraction (in context); 1.13 Addition and subtraction (context free).
Lesson Objective: Add and subtract 3 numbers up to 10.
Lesson Vocabulary: Add, subtract, more than, less than.
Resources: Ten frames, bottle tops, large ten frame (teacher).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	4 + 3 = __	7	**6**	4 – 2 = __	2
2	8 – 2 = __	6	**7**	8 – 5 = __	3
3	7 + 2 = __	9	**8**	3 + 2 = __	5
4	1 + 4 = __	5	**9**	9 – 1 = __	8
5	6 – 3 = __	3	**10**	6 + 3 = __	9

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

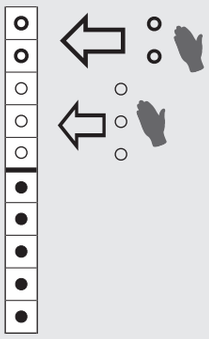
This lesson is similar to the previous lessons on addition and subtraction (Lessons 8 to 12) in that learners will practise adding and subtracting with numbers up to 20. However, in this lesson, learners will be adding and subtracting 3 numbers. This lesson serves as a preparatory lesson for the introduction of addition with carrying and subtraction with borrowing.

Today we are learning to add and subtract 3 numbers.

Activity 1: Whole class activity

- Write the following word problem on the board.
  There were 5 cars in a parking lot.
  3 more cars arrived.
  Then another 2 cars arrived.
  How many cars are in the parking lot now?
- Read the problem.
- Ask: **What is the story about?** (Cars)
- Ask: **What numbers do you see in the story?** (5, 3 and 2)
- Underline these numbers.
- Ask: **What is the question?** (How many cars are in the parking lot?)

- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Let learners represent the story using bottle tops.
- Let some learners present their representation using bottle tops to the class.
- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Add, because we're trying to find out how many cars there are altogether.)
- Let learners write down a number sentence in their classwork books.
- Write the number sentence 5 + 3 + 2 = __ on the board. Read the number sentence together several times.
- Let the learners solve and complete the number sentence using bottle tops and ten frames. (5 + 3 + 2 = 10)



- Ask: **What is the answer to the word problem?** (10 cars.)
- *Learners must answer with the unit 10* ***cars****.*

Activity 2: Learners work in pairs

- Make sure that each pair of learners has a ten frame and some bottle tops.
- Place a large ten frame on the board.
- Write a problem (for example 3 + 4 + 2 =) on the board.
- Ask: **How can you calculate the answer to this number sentence?** (We can use our bottle tops on our ten frames, and see how many bottle tops there are altogether.)
- Give learners time to solve the problem in pairs, using their ten frames and bottle tops.
- Ask: **What can you tell me about your ten frames?** (I have one less than a full ten frame which means that 3 + 4 + 2 = 9.)
- Ask a learner to come up to the board, and to place bottle tops on the large ten frame to show their solution to the problem.
- Ask: **Did everyone solve the problem in the same way? Did anyone do it differently?** (Allow time for discussion so that you allow learners to 'speak mathematics'. While they do this you can determine the learners' level of understanding.)
- Let learners write down the number sentence and complete it in their classwork books.
- Ask a learner to complete the number sentence 3 + 4 + 2 = **9** on the board.

- Repeat the above steps but this time use a subtraction problem with 3 numbers. (10 – 4 – 2 =)
- Encourage learners to take away 4 bottle tops then 2 bottle tops from the full ten frame. Help learners to see that this is a more efficient way of solving the problem than counting each bottle top individually.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Add and subtract using a ten frame and bottle tops.

a

	Answer
2 + 3 + 1 = (6)	

b

	Answer
10 – 2 – 3 = (5)	

c

	Answer
10 – 5 – 2 = (3)	

d

	Answer
5 + 1 + 4 = (10)	

e

	Answer
6 + 1 + 2 = (9)	

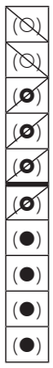
f

	Answer
10 – 6 – 3 = (1)	

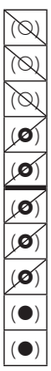
g

	Answer
2 + 4 + 1 = (7)	

h

	Answer
10 – 2 – 4 = (4)	

i

10 – 3 – 5 = (2)	

j

1 + 2 + 7 = (10)	

4 HOMEWORK ACTIVITY (5 MINUTES)

Add and subtract using a ten frame and bottle tops.

a

	Answer
1 + 4 + 2 = (7)	

b

	Answer
10 – 1 – 6 = (3)	

c

	Answer
10 – 3 – 6 = (1)	

d

	Answer
3 + 1 + 5 = (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 learnt to add and subtract 3 numbers.

Lesson 15: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.7 Addition and subtraction (in context); 1.13 Addition and subtraction (context free).		
Lesson Objective: Add and subtract with numbers up to 20.		
Lesson Vocabulary: Add, subtract, more than, less than.		
Resources: Ten frames, bottle tops.		
Date:	Week	Day

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

This week learners have been adding and subtracting numbers. Learners have worked with problems that did not involve carrying or borrowing. They have had a lot of practice with this type of calculation before moving on to the lessons that follow in which they will bridge 10.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Learners have solved many problems using ten frames and bottle tops. This is necessary in order for them to begin to understand that they do not need to count to solve problems. By using the ten frames, they begin to work more efficiently (using number bonds), in preparation for future problems that will involve carrying and borrowing.

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

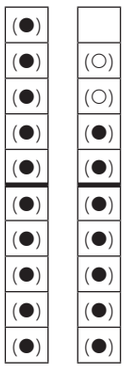
Today we are going over what we learned this week. We are learning more about adding and subtracting with numbers up to 20.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

Calculate using ten frames and bottle tops.

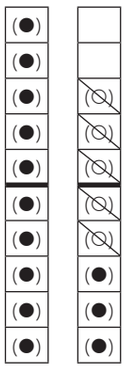
a

17 + 2 = (19)



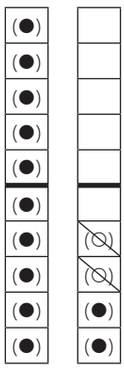
b

18 – 5 = (13)



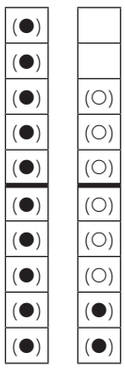
c

14 – 2 = (12)



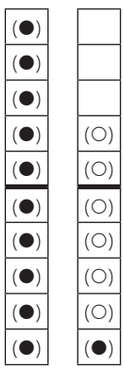
d

12 + 6 = (18)



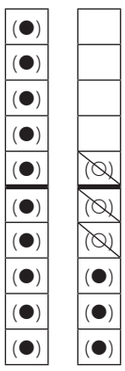
e

11 + 6 = (17)



f

16 – 3 = (13)

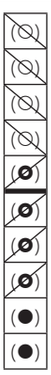


g

3 + 2 + 1 = (6)

h

10 – 5 – 1 = (4)

		Answer
i	10 – 2 – 3 = (5)	
j	2 + 4 + 3 = (9)	
k	2 + 6 + 1 = (9)	
l	10 – 3 – 5 = (2)	
m	10 – 4 – 4 = (2)	
n	4 + 1 + 5 = (10)	

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 add and subtract numbers up to 20.

Week 4

Lesson 16: Mixed operations

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.		
CAPS topics: 1.13 Addition and subtraction (context free).		
Lesson Objective: Solve problems using 3 numbers and mixed operations of addition and subtraction.		
Lesson Vocabulary: Add, subtract, more than, less than.		
Resources: Ten frames, bottle tops.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	7 + 3 = __	10	**6**	10 – 9 = __	1
2	10 – 5 = __	5	**7**	10 – 6 = __	4
3	8 + 2 = __	10	**8**	5 + 5 = __	10
4	6 + 4 = __	10	**9**	10 – 2 = __	8
5	10 – 3 = __	7	**10**	1 + 9 = __	10

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This lesson follows on from Lesson 14 in that learners will continue adding and subtracting with 3 numbers. However, in this lesson, learners will be using both addition and subtraction in one problem, without carrying or borrowing, using numbers up to 20. This is an important lesson in the preparation for the introduction of subtraction with borrowing. Learners need to be able to make a ten by combining 2 of the 3 numbers in the number sentences they work with, in order to simplify the calculation of the solution to the problem.

Today we are learning to solve problems using 3 numbers and mixed operations of addition and subtraction.

Activity 1: Learners work in pairs

- Make sure that each pair of learners has 2 ten frames and some bottle tops.
- Place a large ten frame on the board.
- Write the problem 8 + 2 – 3 = on the board.
- Ask: **How can you solve this problem?** (We can use our bottle tops and ten frames.)
- Give learners time to solve the problem in pairs, using their ten frames and bottle tops.
- Ask: **What can you tell me about your ten frames?** (We can make a full ten frame with the 8 + 2, and then we can take 3 away from 10.)
- Encourage learners to see that they can make a ten with the first two numbers. This helps them to calculate quickly and efficiently.
- Ask a learner to come up to the board, and to place bottle tops on the large ten frame to show their solution to the problem.
- Ask: **Did everyone solve the problem in the same way? Did anyone do it differently?** (Allow time for discussion so that you allow learners to 'speak mathematics'. While they do this you can determine the learners' level of understanding.)
- Ask a learner to complete the number sentence 8 + 2 – 3 = **7** on the board.
- Repeat the above steps, using the problems below. If you make up additional problems of your own, then ensure that the first two numbers add up to 10.
  - **a** 7 + 3 – 6 = __
  - **b** 5 + 5 – 4 = __
  - **c** 6 + 4 – 9 = __
- Let learners record all the number sentences with their answers in their classwork books.

Activity 2: Learners work in pairs

- Make sure that each pair of learners has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write the problem 13 – 3 + 5= on the board.
- Ask: **How can you solve this problem?** (We can use our bottle tops on our ten frames; we subtract 3 from 13 first and then we add 5.)
- Give learners time to solve the problem in pairs, using their ten frames and their bottle tops.
- Ask: **What can you tell me about your ten frames?** (13 – 3 = 10 (one full ten frame), and then we added 5 to 10.)
- Encourage learners to see that they can make ten with the first two numbers. This is an important strategy and prepares learners for subtraction with borrowing.
- Ask a learner to come up to the board, and to place bottle tops on the large ten frames to show their solution to the problem.
- Ask: **Did everyone solve the problem in the same way? Did anyone do it differently?** (Allow time for discussion so that you allow learners to 'speak mathematics'. While they do this you can determine the learners' level of understanding.)

- Ask a learner to complete the number sentence 13 – 3 + 5 = **15** on the board.
- Repeat the above steps, using the problems below. If you make up additional problems of your own, ensure that the first two numbers make 10.
  - **a** 16 – 6 + 7 =
  - **b** 12 – 2 + 5 =
  - **c** 19 – 9 + 3 =
- Let learners record all the number sentences with their answers in their classwork books.

Activity 3: Learners work in pairs

- Make sure that each pair of learners has a ten frame and some bottle tops.
- Place a large ten frame on the board.
- Write the problem 10 – 9 + 2 = on the board.
- Ask: **How can you solve this problem?** (We can use our bottle tops on our ten frames; we take 9 away from 10 and then we add 2.)
- Give learners time to solve the problem in pairs, using their ten frames and bottle tops.
- Ask: **What can you tell me about your ten frames?** (We have one bottle top left after we take away 9, and then we add another 2 bottle tops to the 1 remaining bottle top.)
- Encourage learners to see that they are using their bonds of ten for the first two numbers. They should be very comfortable with these combinations of numbers by now, which should help them to solve the problems efficiently.
- Ask a learner to come up to the board, and to place bottle tops on the large ten frames to show their solution to the problem.
- Ask: **Did everyone solve the problem in the same way? Did anyone do it differently?** (Allow time for discussion so that you allow learners to 'speak mathematics' and while they do this you can determine the learners' level of understanding.)
- Ask a learner to complete the number sentence 10 – 9 + 2 = **3** on the board.
- Repeat the above steps, using the problems below. If you make up additional problems of your own, then ensure that the first number is 10. Make sure that the problems don't involve carrying and borrowing.
  - **a** 10 – 6 + 4 =
  - **b** 10 – 2 + 1 =
  - **c** 10 – 8 + 3 =
- Let learners record all the number sentences with their answers in their classwork books.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learners are expected to work on the problems without using bottle tops by the end of this classwork activity. They can start working on them using bottle tops in ten frame(s), but suggest to them to gradually leave the manipulatives and solve the problems mentally.

All learners must finish up to at least question g.

Calculate.

a 2 + 8 – 4 = (6)
b 17 – 7 + 3 = (13)
c 10 – 5 + 4 = (9)
d 6 + 4 – 8 = (2)
e 16 – 6 + 7 = (17)
f 10 – 9 + 5 = (6)
g 3 + 7 – 1 = (9)
h 19 – 9 + 6 = (16)
i 10 – 3 + 5 = (12)
j 11 – 1 + 8 = (18)
k 1 + 9 – 7 = (3)
l 10 – 4 + 3 = (9)
m 18 – 8 + 9 = (19)
n 10 – 8 + 6 = (8)
o 5 + 5 – 6 = (4)
p 15 – 5 + 1 = (11)

4 HOMEWORK ACTIVITY (5 MINUTES)

Calculate.

a 3 + 7 – 5 = (5)
b 16 – 6 + 2 = (12)
c 10 – 6 + 4 = (8)
d 2 + 8 – 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 learnt to solve problems using 3 numbers and mixed operations of addition and subtraction.

Lesson 17: Adding onto 9

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve addition problems up to 20 (with carrying) using the make-a-ten method (9 + ☐).
Lesson Vocabulary: Make-a-ten, add, and, more.
Resources: Bottle tops, 2 ten frames.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	10 + 6 = __	16	**6**	10 + 1 = __	11
2	10 + 5 = __	15	**7**	10 + 7 = __	17
3	10 + 2 = __	12	**8**	10 + 3 = __	13
4	10 + 4 = __	14	**9**	10 + 8 = __	18
5	10 + 9 = __	19	**10**	10 + 0 = __	10

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

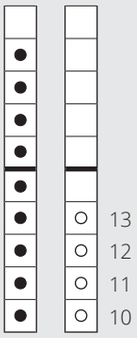
In this lesson learners will be introduced to the make-a-ten method in order to solve addition problems with carrying. In the make-a-ten method learners use ten frames and bottle tops to help them solve problems without counting. This will enable them to solve problems mentally with time. It is important for learners to realise that the make-a-ten method is quicker than counting. If they do many examples, this should become clear to them.

Today we are learning to solve addition problems (with carrying) using the make-a-ten method (9 + ☐).

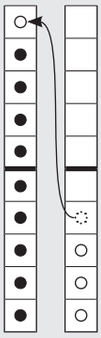
Activity 1: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 9 + 4 = on the board.
- Ask learners set up 9 bottle tops in one ten frame and 4 bottle tops in another ten frame.
- Ask: **How do you add these 2 numbers to find the answer?** (Give the learners time to move the bottle tops on their 10 frames.)
- Give learners an opportunity to discuss how they solved the problem. Learners may say:

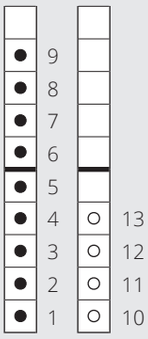
a 'I count on 4 bottle tops from 9 by counting 10, 11, 12, 13'; or



b 'I take 1 bottle top from the 4 bottle tops and put it above the 9 bottle tops to make 10. I can now see 10 and 3 so I know the answer is 13'; or



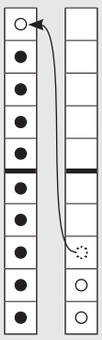
c 'I count each bottle top from 1 and finish counting at 13'.



- *All methods must be presented to the class and shown on the board.*
- Ask: **Which way do you think is quickest and easiest?** (Give learners time to experience the different solution methods by moving their bottle tops and counting.)
- Discuss with the class the suggested ways to calculate 9 + 4 =. All the methods are correct. The sharing of ideas is an important way for learners to experience alternative ways of solving problems, as this exposes them to methods that may be more efficient.
- Encourage learners to attempt solution methods other than counting. The make-a-ten method is quicker and simpler than counting.
- Let learners write down the number sentence and answer and ask a learner to come to the board to write the answer to the number sentence. (9 + 4 = **13**)

Activity 2: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 9 + 3 = __ on the board.
- Give learners time to work on the problem by manipulating bottle tops in their ten frames.
- Discuss the different solution methods used by the learners.
- Give learners time to attempt the different solution methods used.
- Encourage learners to attempt the make-a-ten method by placing 9 bottle tops on one ten frame, and 3 bottle tops on the other ten frame. Learners will then take 1 bottle top from the top of the 3 and put it above the 9 to make 10. Learners will then be able to see one full ten frame and 2 extra bottle tops so they will be able to see that the answer is 12.



- *All learners are expected to manage the make-a-ten method by the end of Activity 2.*
- Write the answer to the number sentence (9 + 3 = **12**) on the board, **after** the learners have recorded the number sentence with its answer in their classwork books.
- Repeat the above steps with the following problems:
  - 9 + 5 = __
  - 9 + 7 = __
  - 9 + 8 = __
- Let the learners record all the number sentences with their answers in their classwork books.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: It is important for learners to be given the opportunity to use their ten frames and bottle tops as they solve the problems in the classwork activity. Move around the classroom and observe how learners are solving the problems, so that you can assist where necessary. Also, allow some conversation between learners if they would like to discuss their solution methods. A large part of this learning process is the sharing of ideas between learners and the exposure to new methods through their communication.

Add using ten frames and bottle tops.

a 9 + 6 = ☐ (15)
b 9 + 2 = ☐ (11)
c 9 + 8 = ☐ (17)

d 9 + 3 = ☐ (12)
e 9 + 7 = ☐ (16)
f 9 + 5 = ☐ (14)
g 9 + 9 = ☐ (18)
h 9 + 4 = ☐ (13)

4 HOMEWORK ACTIVITY (5 MINUTES)

NOTE: Ensure that learners take home their ten frames and bottle tops so that they can use these to solve the homework problems.

Add using ten frames and bottle tops.

a 9 + 3 = ☐ (12)
b 9 + 6 = ☐ (15)
c 9 + 9 = ☐ (18)
d 9 + 7 = ☐ (16)

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 problems (with carrying) using the make-a-ten method (9 + ☐).

Lesson 18: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).		
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: Learners may use ten frames and bottle tops when they do this written assessment if they would like to. If some would like to do it without using the ten frames they may. When you discuss the test you should use ten frames and bottle tops to explain the correct answers.

WRITTEN ASSESSMENT (18)

1 Draw dots in the ten frames to solve the number sentences. (6)

a

	Answer
2 + 4 + 3 = (9)	

b

	Answer
10 – 6 – 3 = (1)	

c

	Answer
10 – 1 – 4 = (5)	

d

	Answer
5 + 1 + 2 = (8)	

e

3 + 2 + 1 = (6)	

f

10 – 2 – 5 = (3)	

2 Add and subtract to find the solution. (6)

a 3 + 7 – 8 = (2)

b 13 – 3 + 7 = (17)

c 10 – 6 + 3 = (7)

d 5 + 5 – 2 = (8)

e 19 – 9 + 4 = (14)

f 10 – 2 + 1 = (9)

3 Calculate. (6)

a 9 + 3 = ☐ (12)

b 9 + 9 = ☐ (18)

c 9 + 6 = ☐ (15)

d 9 + 4 = ☐ (13)

e 9 + 7 = ☐ (16)

f 9 + 2 = ☐ (11)

Lesson 19: Adding onto 8 and 7

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve addition problems up to 20 (with carrying) using the make-a-ten method (8 + ☐ and 7 + ☐).
Lesson Vocabulary: Make-a-ten, add, and, more.
Resources: Bottle tops, ten frames.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	9 + 6 = __	15	**6**	9 + 2 = __	11
2	9 + 5 = __	14	**7**	9 + 4 = __	13
3	9 + 7 = __	16	**8**	9 + 6 = __	15
4	9 + 3 = __	12	**9**	9 + 5 = __	14
5	9 + 9 = __	18	**10**	9 + 8 = __	17

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

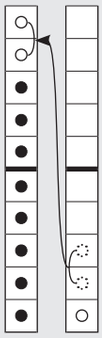
This lesson continues on from Lesson 17, with the only difference being that learners will now make a ten using 8 + ☐ and 7 + ☐. See the notes on lesson content from Lesson 17.

Today we are learning to solve addition problems (with carrying) using the make-a-ten method (8 + ☐ and 7 + ☐).

Activity 1: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 8 + 3 = on the board.
- Discuss whether the make-a-ten method is applicable to solving this problem or not.
- Give learners time to work on the problem by manipulating bottle tops in their ten frames.
- Encourage learners to attempt the make-a-ten method by placing 8 bottle tops on one ten frame, and 3 bottle tops on the other ten frame. Learners will then take 2 bottle tops from the top of the 3 and put them above the 8 to make 10. Learners will then be able to see one full ten frame and 1 extra bottle top so they will be able to see that the answer is 11.

- Let a learner show how they moved their bottle tops on the big ten frames.

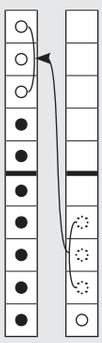


- Ask: **What do you notice about how we used our ten frames?** (Discuss with learners that when adding

  8 + ☐, two bottle tops are moved to make-a-ten, whereas when adding 9 + ☐ only one bottle top is moved to make-a-ten.)
- Write the answer to the number sentence (8 + 3 = **11**) on the board, **after** the learners have recorded the number sentence with its answer in their classwork books.
- Repeat the above steps with the following problems:
  - 8 + 6 = __
  - 8 + 4 = __
  - 8 + 7 = __
- Let the learners record all the number sentences with their answers in their classwork books.

Activity 2: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 7 + 4 = __ on the board.
- Give learners time to work on the problem using the make-a-ten method by manipulating bottle tops in their ten frames.
- Ask a learner to come to the board and present the make-a-ten method by placing 7 bottle tops on one ten frame and 4 bottle tops on the other ten frame. The learner will then take 3 bottle tops from the top of the 4 and put them above the 7 to make 10. Learners will then be able to see one full ten frame and 1 extra bottle top so they will be able to see that the answer is 11.



- Ask: **What do you notice about how we used our ten frames?** (Discuss with learners that, when adding 7 + ☐, we move three bottle tops to make-a-ten, whereas when adding 9 + ☐ only one bottle top was moved to make-a-ten, and when adding 8 + ☐ 2 bottle tops were moved to make-a-ten.)
- Write the answer to the number sentence (7 + 4 = **11**) on the board, **after** the learners have recorded the number sentence with its answer in their classwork books.
- Repeat the above steps with the following problems:
  - 7 + 5 = __
  - 7 + 9 = __
  - 7 + 6 = __
- Let learners record all the number sentences with their answers in their classwork books.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: It is important for learners to be given the opportunity to use their ten frames and bottle tops as they solve the problems in the classwork activity. Move around the classroom and observe how learners are solving the problems, so that you can assist where necessary. Also allow some conversation between learners if they would like to discuss their solution methods. A large part of this learning process is the sharing of ideas between learners and the exposure to new methods through their communication.

All learners must finish up to at least question g.

Add using ten frames and bottle tops.

a 8 + 8 = ☐ (16)
b 7 + 5 = ☐ (12)
c 7 + 7 = ☐ (14)
d 8 + 9 = ☐ (17)
e 7 + 8 = ☐ (15)
f 8 + 6 = ☐ (14)
g 8 + 3 = ☐ (11)
h 7 + 4 = ☐ (11)
i 7 + 9 = ☐ (16)
j 8 + 5 = ☐ (13)
k 8 + 7 = ☐ (15)
l 7 + 6 = ☐ (13)
m 8 + 4 = ☐ (12)

4 HOMEWORK ACTIVITY (5 MINUTES)

Note: Ensure that learners take home their ten frames so that they can use these to solve the homework problems.

Add using ten frames and bottle tops.

a 8 + 8 = ☐ (16)
b 7 + 4 = ☐ (11)
c 8 + 5 = ☐ (13)
d 7 + 6 = ☐ (13)

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 problems (with carrying) using the make-a-ten method (8 + ☐ and 7 + ☐).

Lesson 20: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).		
Lesson Objective: Solve addition problems up to 20 (with carrying) using the make-a-ten method.		
Lesson Vocabulary: Make-a-ten, add, and, more.		
Resources: Bottle tops, ten frames.		
Date:	Week	Day

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

This week learners began to learn about addition with carrying. Learners need many opportunities to discuss the way in which they solve problems, as the sharing of ideas is an important part of their learning process. Learners were introduced to the make-a-ten method, beginning with 9 + ☐. This is because it is easier for learners to realise that they can make ten by adding 1 to 9. The make-a-ten method is recommended as a way to move learners from solving problems by counting to being able to solve problems by using mental calculations.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

When using the make-a-ten method, learners could become confused when the number added to make ten is the same as the number that is 'left over'. For example, when solving 8 + 4 using the make-a-ten method, two would be taken from the 4 to make-a-ten with the 8, leaving 2 'left over'. Be aware that this may cause confusion in some learners.

It is not necessary to force learners to use the make-a-ten method from the beginning. However, it is important that learners understand how to break down and build up numbers by working with ten frames and bottle tops. These skills will be used with larger numbers and place value concepts in Grade 2, Grade 3 and beyond in the Intermediate Phase, so it is essential that learners gain confidence in the make-a-ten method whilst the number range is small.

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 (with carrying) using the make-a-ten method.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

NOTE: It is important for learners to be given the opportunity to use their ten frames and bottle tops as they solve the problems in the classwork activity. Move around the classroom and observe how learners are solving the problems, so that you can assist where necessary.

Also, allow some conversation between learners if they would like to discuss their solution methods. A large part of this learning process is the sharing of ideas between learners and the exposure to new methods through their communication.

If some learners do not need to use their ten frames and bottle tops to add, let them solve the problems mentally and then check their answers using their ten frames and bottle tops.

Add using ten frames and bottle tops.

a	9 + 6 = (15)	**b**	8 + 6 = (14)	**c**	7 + 9 = (16)
d	7 + 4 = (11)	**e**	9 + 4 = (13)	**f**	8 + 4 = (12)
g	8 + 5 = (13)	**h**	7 + 8 = (15)	**i**	9 + 7 = (16)
j	9 + 3 = (12)	**k**	8 + 7 = (15)	**l**	7 + 5 = (12)
m	7 + 7 = (14)	**n**	9 + 2 = (11)	**o**	8 + 8 = (16)
p	8 + 3 = (11)	**q**	7 + 6 = (13)	**r**	9 + 5 = (14)
s	9 + 8 = (17)	**t**	8 + 9 = (17)	**u**	9 + 9 = (18)

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 problems (with carrying) using the make-a-ten method.

Week 5

Lesson 21: Adding onto 6

Teacher's notes		
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.		
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).		
Lesson Objective: Solve addition problems up to 20 (with carrying) using the make-a-ten method (6 + ☐).		
Lesson Vocabulary: Make-a-ten, add, and, more.		
Resources: Bottle tops, ten frames.		
Date:	Week	Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	8 + 8 = __	16	**6**	8 + 6 = __	14
2	8 + 7 = __	15	**7**	8 + 4 = __	12
3	8 + 5 = __	13	**8**	8 + 5 = __	13
4	8 + 3 = __	11	**9**	8 + 3 = __	11
5	8 + 9 = __	17	**10**	8 + 8 = __	16

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

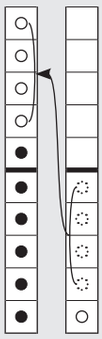
This lesson continues on from Lessons 17 and 19, with the only difference being that learners will now make a ten using 6 + ☐. See the notes on lesson content from Lesson 17.

Today we are learning to solve addition problems (with carrying) using the make-a-ten method (6 + ☐).

Activity 1: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 6 + 5 = __ on the board.
- Give learners time to work on the problem using the make-a-ten method by manipulating bottle tops on their ten frames.
- Ask a learner to come to the board and present the make-a-ten method by placing 6 bottle tops on one ten frame and 5 bottle tops on the other ten frame. Learners will then take 4 bottle tops from the top of the 5 and put them above the 6 to make 10. Learners

will then be able to see one full ten frame and 1 extra bottle top so they will be able to see that the answer is 11.



- Ask: **What do you notice about how we used our ten frames?** (Discuss with learners that when adding 6 + ☐ we move four bottle tops to make-a-ten, whereas when adding 9 + ☐ only one bottle top was moved to make-a-ten, when adding 8 + ☐ 2 bottle tops were moved to make-a-ten, and when adding 7 + ☐ 3 bottle tops were moved to make-a-ten.)
- Write the answer to the number sentence (6 + 5= **11**) on the board, **after** the learners have recorded the number sentence with its answer in their classwork books.
- Repeat the above steps with the following problems:
  - 6 + 9 = __
  - 6 + 8 = __
  - 6 + 7 = __
- Let learners record all the number sentences with their answers in their classwork books.

Activity 2: Learners work in pairs

- Make sure that each learner has two ten frames and some bottle tops.
- Call out questions from the list below for the learners to solve using their ten frames and bottle tops.

  Only call out as many questions as you think is necessary from a time point of view – learners do not need to solve all of the questions if there is limited time available.

  a 9 + 9 =
  b 6 + 6 =
  c 8 + 7 =
  d 7 + 5 =
  e 8 + 3 =
  f 9 + 6 =
  g 7 + 8 =
  h 6 + 7 =
- Each learner should calculate the solution to the question called out as quickly as possible, using whichever method they choose.

- In their pairs, learners compare who solved the question the quickest and determines which solution method was the fastest.
- *Some learners may not want to use bottle tops and ten frames anymore. In this case let them set up the answer with bottle tops in ten frames only.* As soon as possible, move on to calling out the next question for learners to solve.
- Continue in the same way as above, allowing learners to compare their methods each time.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: If some learners do not need to use their ten frames and bottle tops to add, let them solve the problems mentally and then check their answers using their ten frames and bottle tops.

All learners must finish up to at least question j.

Add using ten frames and bottle tops.

a	9 + 8 = (17)	**b**	8 + 3 = (11)	**c**	7 + 6 = (13)
d	6 + 6 = (12)	**e**	7 + 9 = (16)	**f**	8 + 6 = (14)
g	9 + 9 = (18)	**h**	6 + 8 = (14)	**i**	7 + 7 = (14)
j	8 + 8 = (16)	**k**	9 + 2 = (11)	**l**	8 + 4 = (12)
m	7 + 4 = (11)	**n**	6 + 5 = (11)	**o**	9 + 5 = (14)
p	9 + 4 = (13)	**q**	8 + 9 = (17)	**r**	6 + 9 = (15)
s	8 + 7 = (15)	**t**	9 + 7 = (16)	**u**	7 + 5 = (12)

4 HOMEWORK ACTIVITY (5 MINUTES)

NOTE: Ensure that learners take home their ten frames and bottle tops so that they can use these to solve the homework problems.

Add using ten frames and bottle tops:

a	9 + 6 = (15)	**b**	8 + 5 = (13)	**c**	6 + 7 = (13)
d	6 + 9 = (15)	**e**	7 + 8 = (15)	**f**	9 + 3 = (12)

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 problems (with carrying) using the make-a-ten method (6 + ☐).

Lesson 22: Addition with carrying (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve addition problems (with carrying) using the make-a-ten method.
Lesson Vocabulary: Make-a-ten, add, and, more.
Resources: Bottle tops, ten frames.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	7 + 7 = __	14	**6**	7 + 9 = __	16
2	7 + 5 = __	12	**7**	7 + 4 = __	11
3	7 + 4 = __	11	**8**	7 + 8 = __	15
4	7 + 9 = __	16	**9**	7 + 5 = __	12
5	7 + 6 = __	13	**10**	7 + 7 = __	14

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

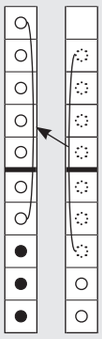
This lesson continues on from Lessons 17, 19, and 21, with learners continuing to solve addition problems (with carrying) using the make-a-ten method. In this lesson, the learners will focus on how to make-a-ten when the first addend is smaller than the second addend. In the problem 3 + 9, 3 is the first addend and 9 is the second addend. In order to make-a-ten, learners will need to decompose (break down) the first addend (3) into 2 + 1. The reason for this is that it is better to make-a-ten with numbers that are closer to 10. See the notes on lesson content from Lesson 17.

Today we are learning to solve addition problems (with carrying) using the make-a-ten method.

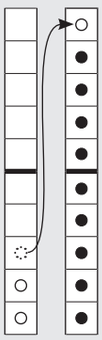
Activity 1: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 3 + 9 = on the board.
- Ask: **How do you think you could solve this problem?** (Learners use the make-a-ten method as they have practised this method in previous lessons.)

- Ask: **With which number should we make 10?** (Give learners the opportunity to move their bottle tops individually and then to discuss their ideas in pairs using their two ten frames.)
- Discuss with the class the possible solution methods. Learners may say:
  - **a** 'I make 10 by taking 7 from 9 and adding the 7 to 3';



  - **b** 'I make 10 by taking 1 from 3 and adding the 1 to 9'.



- Call some learners to the board to share their methods of finding the answer.
- Discuss with the whole class which way is quickest and easiest.
- *Note that it is quicker to make 10 by breaking down the 3 into 2 and 1 in order to give 1 to the 9 to make-a-ten. Breaking down is not always done with the second number, but can also be done with the first number. It is important that learners can identify the number that can make 10 easily.*
- Write the answer to the number sentence (3 + 9 = **11**) on the board, **after** the learners have recorded the number sentence with its answer in their classwork books.
- Repeat the above steps with the following problems:
  - **a** 4 + 7 = __
  - **b** 3 + 8 = __
- Let learners record all the number sentences with their answers in their classwork books.

Activity 2: Learners work in pairs

- Make sure that each learner has two ten frames and some bottle tops.
- Call out questions from the list below for the learners to solve using their ten frames and bottle tops.

Make sure that the first addend is smaller than the second addend.

a 3 + 9 =
b 4 + 7 =
c 5 + 8 =
d 2 + 9 =
e 3 + 8 =
f 5 + 9 =
g 4 + 8 =

- Each learner solves the question that is called out as quickly as possible, using whichever method they choose.
- In their pairs, learners compare who solved the question more quickly and determine which solution method was the fastest.
- *This activity follows on from activity 1, where learners were comparing their solution methods. Ensure that learners have the opportunity to discuss which number should be broken down for the make-a-ten method (the smaller number or the bigger number).*
- As soon as possible, move on to calling out the next question for learners to solve.
- Continue in the same way as above, allowing learners to compare their methods each time.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: If some learners do not need to use their ten frames and bottle tops to add, let them solve the problems mentally and then check their answers using their ten frames and bottle tops.

Add using ten frames and bottle tops.

a 4 + 9 = (13)
b 2 + 9 = (11)
c 3 + 9 = (12)
d 5 + 9 = (14)
e 4 + 7 = (11)
f 4 + 8 = (12)
g 6 + 9 = (15)
h 5 + 8 = (13)
i 3 + 8 = (11)

4 HOMEWORK ACTIVITY (5 MINUTES)

NOTE: Ensure that learners take home their ten frames and bottle tops so that they can use these to solve the homework problems.

Add using ten frames and bottle tops.

a 4 + 7 = (11)
b 2 + 9 = (11)
c 4 + 8 = (12)

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 problems (with carrying) using the make-a-ten method.

Lesson 23: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).		
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.

This week you will need to take some time to do the *oral assessment* (see rubrick or checklist below). The oral activity should be done individually/in groups over the course of the week.

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: Learners may use ten frames and bottle tops when they do this written assessment if they would like to. If some would like to do it without using the ten frames they may. When you discuss the test you should use ten frames and bottle tops to explain the correct answers.

WRITTEN ASSESSMENT (21)

Add: (21)

a	6 + 8 = (14)	**b**	7 + 4 = (11)	**c**	9 + 6 = (15)
d	2 + 9 = (11)	**e**	8 + 9 = (17)	**f**	7 + 6 = (13)
g	8 + 5 = (13)	**h**	3 + 8 = (11)	**i**	9 + 4 = (13)
j	7 + 9 = (16)	**k**	8 + 4 = (12)	**l**	4 + 9 = (13)
m	7 + 5 = (12)	**n**	9 + 9 = (18)	**o**	8 + 7 = (15)
p	4 + 7 = (11)	**q**	9 + 3 = (12)	**r**	6 + 6 = (12)
s	8 + 8 = (16)	**t**	9 + 2 = (11)	**u**	7 + 8 = (15)

ORAL

Note: Number bonds are pairs of numbers that add up to a given number. This oral activity should be used by teachers this week to recap and reinforce the bonds up to 10. This aligns with the teaching focus of the week. Number bonds are the basic facts needed for work done in higher grades when working with bigger numbers. Teachers should make sure that learners grasp them and know them off by heart as early as possible.

CAPS: Numbers, operations and relationships: Number bonds to 10. **Activity: Assess the learners' ability to recall number bonds of addition up to 10.**				Mark: 7
	Level 1	Level 2-3	Level 4-5	Level 6-7
Criterion	Able to give the bonds of 3 and 4 correctly.	Able to give the bonds of 3, 4, 5 and 6 correctly.	Able to give the bonds of 7, 8 and 9 correctly.	Able to give the bonds of 10 correctly.

Mark ✓/7	Criteria – Checklist: (1 mark for each criterion achieved)	Achieved – ✓	Not yet – ✘	Almost – ★
1	Able to give the bonds of 3 and 4 correctly.			
1	Able to give the bonds of 5 correctly.			
1	Able to give the bonds of 6 correctly.			
1	Able to give the bonds of 7 correctly.			
1	Able to give the bonds of 8 correctly.			
1	Able to give the bonds of 9 correctly.			
1	Able to give the bonds of 10 correctly.			

Lesson 24: Addition with carrying (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve addition problems (with carrying) using the make-a-ten method.
Lesson Vocabulary: Make-a-ten, add, and, more.
Resources: Addition (with carrying) cards (see *Printable Resources*), large addition cards (teacher), number cards (11 to 18) (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	2 + 9 = __	11	**6**	4 + 9 = __	13
2	5 + 9 = __	14	**7**	5 + 8 = __	13
3	4 + 8 = __	12	**8**	4 + 7 = __	11
4	5 + 7 = __	12	**9**	5 + 6 = __	11
5	3 + 8 = __	11	**10**	3 + 9 = __	12

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners will be practising addition with carrying. They will use pre-prepared addition cards that have number sentences on one side and the answers on the other side. It is important that these cards are prepared in advance, so that the maths lesson is not used by learners cutting up cards. Make sure that learners have opportunities to play with the cards so that they can experience addition with carrying in a fun way. The teacher should also prepare a set of demonstration addition (with carrying) cards to paste on the board.

Today we are learning to solve addition problems (with carrying) using the make-a-ten method.

Activity 1: Whole class activity

- Paste all the addition cards on the board as laid out below.

9 + 2 =							
9 + 3 =	8 + 3 =						
9 + 4 =	8 + 4 =	7 + 4 =					
9 + 5 =	8 + 5 =	7 + 5 =	6 + 5 =				
9 + 6 =	8 + 6 =	7 + 6 =	6 + 6 =	5 + 6 =			
9 + 7 =	8 + 7 =	7 + 7 =	6 + 7 =	5 + 7 =	4 + 7 =		
9 + 8 =	8 + 8 =	7 + 8 =	6 + 8 =	5 + 8 =	4 + 8 =	3 + 8 =	
9 + 9 =	8 + 9 =	7 + 9 =	6 + 9 =	5 + 9 =	4 + 9 =	3 + 9 =	2 + 9 =

- Draw a block around the 8 + column to highlight this column for the learners.

9 + 2 =							
9 + 3 =	8 + 3 =						
9 + 4 =	8 + 4 =	7 + 4 =					
9 + 5 =	8 + 5 =	7 + 5 =	6 + 5 =				
9 + 6 =	8 + 6 =	7 + 6 =	6 + 6 =	5 + 6 =			
9 + 7 =	8 + 7 =	7 + 7 =	6 + 7 =	5 + 7 =	4 + 7 =		
9 + 8 =	8 + 8 =	7 + 8 =	6 + 8 =	5 + 8 =	4 + 8 =	3 + 8 =	
9 + 9 =	8 + 9 =	7 + 9 =	6 + 9 =	5 + 9 =	4 + 9 =	3 + 9 =	2 + 9 =

- Give learners time to observe the 8 + column.
- Ask: **What do you notice about the order of these number sentences?** (Give learners time to discuss this in pairs.)
- Encourage learners to notice:
  - The numbers on the left hand side of the number sentence are all 8.
  - The numbers on the right hand side increase by 1 each time, starting from 3.
  - The answers increase by 1 each time, starting from 11.
- Ask the class to check if the other columns are in the same order as the 8 + column.
- Paste the number cards 11 to 18 on the board. Ensure that there is space below these number cards so that learners can sort the addition cards underneath them.
- Ask: **Which number sentence has the answer 13?** (Give some learners a chance to come to the chalkboard and select number sentences that have the answer 13.)
- *Note that the answer of 13 is intentionally selected, as it is easier to see the pattern in the middle of the arrangement of addition cards. If you start with 11, it is not as easy to see the pattern.*
- When learners show you the card they have selected, make sure you turn over the card to check the answer with the whole class.

- After all the number sentences have been moved to underneath the 13 number card, ask: **What do you notice about the order of these number sentences?** (While the numbers on the left hand side are decreasing by 1, the numbers on the right hand side are increasing by 1, so that the answer remains 13 for each card.)

13
9 + 4 =
8 + 5 =
7 + 6 =
6 + 7 =
5 + 8 =
4 + 9 =

- Ask: **What do you notice about the rest of the cards?** (The blank spaces go down diagonally; the answers to the other number sentences go down as you go down a column).

9 + 2 =							
9 + 3 =	8 + 3 =						
	8 + 4 =	7 + 4 =					
9 + 5 =		7 + 5 =	6 + 5 =				
9 + 6 =	8 + 6 =		6 + 6 =	5 + 6 =			
9 + 7 =	8 + 7 =	7 + 7 =		5 + 7 =	4 + 7 =		
9 + 8 =	8 + 8 =	7 + 8 =	6 + 8 =		4 + 8 =	3 + 8 =	
9 + 9 =	8 + 9 =	7 + 9 =	6 + 9 =	5 + 9 =		3 + 9 =	2 + 9 =

Activity 2: Learners work in pairs

- Make sure that each pair of learners has a set of addition (with carrying) cards.
- Ask learners to shuffle all their cards, with the number sentence side showing.
- Show a large number card (any number between 11 and 18) to the class.
- Say: **In your pairs, see who can find the number sentences that match this number the fastest.**
- Give learners time to compete in pairs as they find number sentences that have the same answer as the number on the number card. Encourage learners to find as many matching number sentences as possible.
- After 1 minute (or less), stop the learners and let the pairs check to make sure that all the selected number sentences have the same answer as the number given.
- Repeat the steps above several times with different numbers.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Read the rules of the game (in the box below) carefully so that you can explain to the learners how to play the game.

Addition card game: Rules of the game

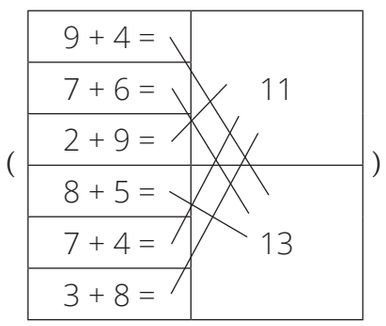
1. Learners play with addition cards in pairs.
2. Give each pair of learners a set of addition cards.
3. Learners shuffle all the addition cards and pile them up between them.
4. Each learner must pick up one card and put it on the table.
5. The learner who gets the card with the bigger number as the answer, wins the round and keeps the cards.
6. Continue doing this until all of the cards in the centre have been used.
7. The learner with the most cards is the winner of the round.
8. Play another round of the game, but this time change the rule so that the learner who gets the smaller number wins.

Play the addition-with-carrying card game. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

Match the number sentences to the correct answer by drawing a line.

9 + 4 =	11
7 + 6 =	
2 + 9 =	
8 + 5 =	13
7 + 4 =	
3 + 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 learnt to solve addition problems (with carrying) using the make-a-ten method.

Lesson 25: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).		
Lesson Objective: Solve addition problems up to 20 (with carrying) using the make-a-ten method.		
Lesson Vocabulary: Make-a-ten, add, and, more.		
Resources: Bottle tops, ten frames.		
Date:	Week	Day

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

This week learners focused on addition with carrying. Give learners a number of opportunities to practise the make-a-ten method, and to discuss their methods in class. This is an important part of the learning process, as it helps them to consolidate the strategy that they have been practising.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The progression of learning in this unit of work has been designed to carefully prepare learners for addition with carrying, as typically this can be quite confusing. The use of the make-a-ten method should have prepared learners to solve problems more efficiently by using mental calculations rather than by counting.

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 (with carrying) using the make-a-ten method.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

NOTE: It is important for learners to be given the opportunity to use their ten frames and bottle tops as they solve the problems in the classwork activity. Move around the classroom and observe how learners are solving the problems, so that you can assist where necessary. Also allow some conversation between learners if they would like to discuss their solution methods. A large part of this learning process is the sharing of ideas between learners and the exposure to new methods through their communication.

If some learners do not need to use their ten frames and bottle tops to add, let them solve the problems mentally and then check their answers using their ten frames and bottle tops.

Add:

a 9 + 9 = (18)	**b** 6 + 8 = (14)	**c** 8 + 8 = (16)
d 3 + 8 = (11)	**e** 7 + 9 = (16)	**f** 9 + 6 = (15)
g 8 + 5 = (13)	**h** 2 + 9 = (11)	**i** 7 + 4 = (11)
j 7 + 8 = (15)	**k** 9 + 4 = (13)	**l** 4 + 8 = (12)
m 6 + 5 = (11)	**n** 8 + 4 = (12)	**o** 9 + 7 = (16)
p 8 + 9 = (17)	**q** 6 + 7 = (13)	**r** 5 + 9 = (14)
s 7 + 7 = (14)	**t** 9 + 8 = (17)	**u** 8 + 6 = (14)

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 problems (with carrying) using the make-a-ten method.

Week 6

Lesson 26: Addition word problems (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve addition problems (with carrying) using the make-a-ten method; solve addition problems (with carrying) in context.
Lesson Vocabulary: Make-a-ten, add, and, more.
Resources: Bottle tops, ten frames, addition (with carrying) cards, number cards (11 to 18) (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	7 + 9 = __	16	**6**	2 + 9 = __	11
2	4 + 7 = __	11	**7**	6 + 8 = __	14
3	9 + 3 = __	12	**8**	5 + 9 = __	14
4	3 + 8 = __	11	**9**	9 + 4 = __	13
5	8 + 5 = __	13	**10**	8 + 9 = __	17

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

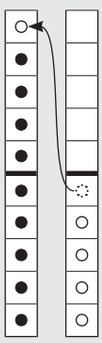
In this lesson learners will practise addition with carrying, using word problems to create a context. Make sure that you allow learners to discuss their solution methods so that they can share ideas and further develop their own understanding.

Today we are learning to solve addition problems (with carrying) using the make-a-ten method in context.

Activity 1: Learners work in pairs

- Make sure that each pair of learners has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write the following word problem on the board. *(addition change)*
  There were 9 children in the playground.
  5 children came and joined them.
  How many children are there altogether now?

- Read the problem.
- Ask: **What is the story about?** (Children)
- Ask: **What numbers do you see in the story?** (9 and 5)
- Underline these numbers.
- Ask: **What is the question?** (How many children are there altogether?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Let learners represent the story with bottle tops (put 9 in one ten frame and 5 in the other ten frame).
- Show 9 and 5 bottle tops in the large ten frames to the class.
- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Add, because more children came in so the answer must be bigger.)
- Write the number sentence 9 + 5 = __ on the board. Read the number sentence together several times.
- Let learners write the number sentence in their classwork books.
- Give learners time to solve the problem in pairs, using their ten frames and bottle tops.
- Ask: **What can you tell me about how you moved your bottle tops on your ten frames?** (We can make-a-ten by taking one bottle top from the top of the 5 and putting it on the 9 to make it a full ten frame. This means we have 10 and 4 which is 14.)
- Ask a learner to come up to the board and to place bottle tops on the large ten frames to show their solution to the problem.



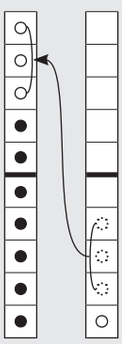
- Ask: **What is the answer to the word problem?** (14 children)
- Let learners complete the number sentence and write the answer in their classwork books. (9 + 5 = 14)
- *Learners must write the final answer with the unit 14* ***children****.*

Activity 2: Learners work in pairs

- Make sure that each pair of learners has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write the following word problem on the board. *(addition compare).*
  I have 7 pencils.

Sipho has 4 more pencils than I have.
How many pencils does he have?

- Read the problem.
- Ask: **What is the story about?** (Pencils)
- Ask: **What numbers do you see in the story?** (7 and 4)
- Underline these numbers.
- Ask: **What is the question?** (How many pencils does Sipho have?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Let learners represent the story with bottle tops (pute 7 in one ten frame and 4 in the other ten frame).
- Show 7 and 4 bottle tops in the large ten frames to the class.
- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Add, because Sipho has more pencils than I have, so the answer must be bigger.)
- Write the number sentence 7 + 4 = __ on the board. Read the number sentence together several times.
- Let learners write the number sentence in their classwork books.
- Give learners time to solve the problem in pairs, using their ten frames and bottle tops.
- Ask: **What can you tell me about how you moved your bottle tops on your ten frames?** (We can make-a-ten by taking 3 bottle tops from the top of the 4 and putting them on the 7 to make it a full ten frame card. This means we have 10 and 1 which is 11.)
- Ask a learner to come up to the board and to place bottle tops on the large ten frames to show their solution to the problem.



- Ask: **What is the answer to the word problem?** (11 pencils)
- Let learners complete the number sentence and write the answer in their classwork books. (7 + 4 = 11)
- *Learners must write the final answer with the unit 11* ***pencils****.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Read the rules of the game (in the box below) carefully so that you can explain to the learners how to play the game.

Addition card game: Rules of the game

1. Learners play with addition cards in pairs.
2. Give each pair of learners a set of addition cards and a set of number cards (11 to 18).
3. One learner takes one number card and places it number-side up on top of the pile between the two learners.
4. Learners shuffle all the addition cards, with the number sentence side showing.
5. Learners must then each try to find as many number sentences that match the number card as quickly as possible.
6. The learners can check that they have selected the correct number sentences once they have found all the matching number sentence cards.
7. The winner of the round is the learner with the most cards.
8. Play another round of the game, by changing the number card on top of the pile.
9. Make sure all of the number sentence cards are shuffled and laid out between the learners again before beginning the second round.

1. Solve the word problems .

a. There were 8 children in the garden. 4 more children arrived. How many children are there altogether now? (Addition change)
(8 + 4 = 12, 12 children)

b. There were 5 bees in the garden. 9 more bees flew in. How many bees are there altogether now? (Addition change)
(5 + 9 = 14, 14 bees)

c. I have 6 sweets. Sipho has 7 more sweets than I have. How many sweets does he have? (Addition compare)
(6 + 7 = 13, 13 more sweets)

2. Play the addition-with-carrying card game. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

1. Solve the word problem .
I have 8 sweets. Sipho has 5 more sweets than I have. How many sweets does he have? (Addition compare)
(8 + 5 = 13, 13 more sweets)

2. Match the number sentences to the correct answer by drawing a line.

4 + 8 =	12
7 + 5 =	
6 + 7 =	
4 + 9 =	13
6 + 6 =	
5 + 8 =	

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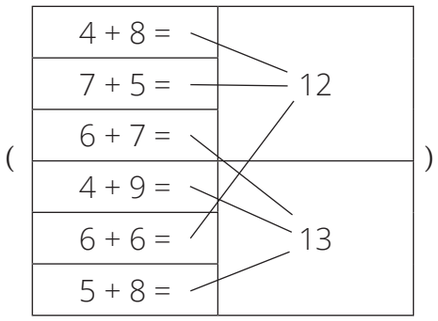


5 REFLECTION AND SUMMARY OF LESSON (5 MINUTES)

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

Today we have learnt to solve addition problems (with carrying) using the make-a-ten method in context.

Lesson 27: Addition word problems (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve addition problems (with carrying) in context.
Lesson Vocabulary: Make-a-ten, add, and, more.
Resources: Bottle tops, ten frames, addition (with carrying) cards, number cards (11 to 18) (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	9 + 7 = __	16	**6**	9 + 2 = __	11
2	7 + 6 = __	13	**7**	8 + 8 = __	16
3	6 + 5 = __	11	**8**	7 + 5 = __	12
4	8 + 3 = __	11	**9**	4 + 9 = __	13
5	5 + 8 = __	13	**10**	9 + 9 = __	18

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

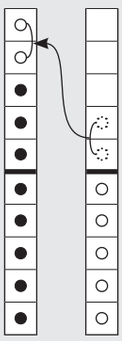
This lesson continues to develop addition with carrying, using word problems to create context. See the lesson content from Lesson 26.

Today we are learning to solve addition problems (with carrying) in context.

Activity 1: Whole class activity

- Make sure that every learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write the following word problem on the board. *(Addition combine)*
  Nosisi has 8 green marbles
  and 7 blue marbles.
  How many marbles does she have?
- Read the problem.
- Ask: **What is the story about?** (Marbles)
- Ask: **What numbers do you see in the story?** (8 and 7)
- Underline these numbers.
- Ask: **What is the question?** (How many marbles does Nosisi have?)

- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Let learners represent the story using bottle tops.
- Let some learners present their representation using bottle tops to the class.
- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Add, because we are being told about all the marbles Nosisi has.)
- Write the number sentence 8 + 7 = __ on the board. Read the number sentence together several times.
- Let learners write the number sentence in their classwork book.
- Give learners time to solve the problem in pairs, using their ten frames and bottle tops.
- Ask: **What can you tell me about how you moved your bottle tops on your ten frames?** (We can make-a-ten by taking 2 bottle tops from the top of the 7 and putting them on the 8 to make it a full ten frame card. This means we have 10 and 5 which is 15.)
- Ask a learner to come up to the board, and to place bottle tops on the large ten frames to show their solution to the problem.

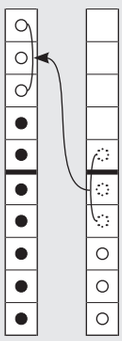


- Ask: **What is the answer to the word problem?** (15 marbles)
- Let learners complete the number sentence and write the answer in their classwork books. (8 + 7 = 15)
- *Learners must write the final answer with the unit 15* ***marbles****.*

Activity 2: Learners work in groups

- Make sure that every learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write the following word problem on the board. *(Addition compare)*
  My brother is 7 years old
  and my sister is 6 years older than him.
  How old is my sister?
- Read the problem.
- Ask: **What is the story about?** (Years old/ age)
- Ask: **What numbers do you see in the story?** (7 and 6)

- Underline these numbers.
- Ask: **What is the question?** (How old is my sister?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let the groups of learners read the problem until they read it fluently.
- Let learners represent the story using bottle tops.
- Let some groups present their representation using bottle tops to the class.
- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Add, because my sister is older than my brother so the number must get bigger.)
- Write the number sentence 7 + 6 = __ on the board. Read the number sentence together several times.
- Let learners write the number sentence in their classwork books.
- Give learners time to solve the problem in their groups, using their ten frames and bottle tops.
- Ask: **What can you tell me about how you moved your bottle tops on your ten frames?** (We can make-a-ten by taking 3 bottle tops from the top of the 6 and putting them on the 7 to make it a full ten frame card. This means we have 10 and 3 which is 13.)
- Ask a learner to come up to the board and to place bottle tops on the large ten frames to show their solution to the problem.



- Ask: **What is the answer to the word problem?** (13 years old)
- Let learners complete the number sentence and write the answer in their classwork books. (7 + 6 = 13)
- *Learners must write the final answer with the unit 13* ***years old****.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Read the rules of the game (in the box below) carefully so that you can explain to the learners how to play the game.

Addition card game: Rules of the game

1 Learners play with addition cards in pairs.

2 Give each pair of learners a set of addition cards and a set of number cards (11 to 18).

3 Make sure the addition cards are shuffled.

4 One learner gets the addition cards and the other learner gets the number cards.

5 The learner with the addition cards selects one number sentence to show the other learner.

6 The learner with the number cards quickly finds the answer to the number sentence in the set of number cards and holds it up.

7 The learner with the addition cards checks the answer on the back of the number sentence card.

8 Continue doing this until all of the addition cards have been used.

9 Play another round of the game by reshuffling the addition cards and swapping which learner holds the addition cards and which learner holds the number cards.

1. Solve the word problems .

a. Nosisi has 5 red marbles and 8 blue marbles. How many marbles does she have? (*Addition combine*)
(5 + 8 = 13, 13 marbles)

b. My friend is 6 years old and his sister is 9 years older than him. How old is his sister? (*Addition compare*)
(6 + 9 = 15, 15 years old)

c. I have 7 sweets. Sipho has 5 more sweets than I have. How many sweets does he have? (*Addition compare*)
(7 + 5 = 12, 12 more sweets)

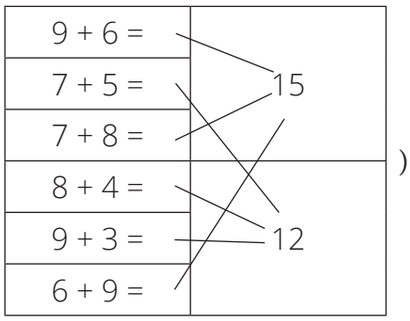
2. Play the addition-with-carrying card game. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Solve the word problem.
Nosisi has 9 blue marbles and 4 green marbles. How many marbles does she have?
(Addition combine)
(9 + 4 = 13, 13 marbles)

2 Match the number sentences to the correct answer by drawing a line.

9 + 6 =	15
7 + 5 =	
7 + 8 =	
8 + 4 =	12
9 + 3 =	
6 + 9 =	

(

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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 problems (with carrying) in context.

Lesson 28: Addition stories

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Create stories for addition with carrying, to assist in developing understanding of word problems.
Lesson Vocabulary: Make-a-ten, add, and, more.
Resources: Bottle tops, ten frames, addition (with carrying) cards, number cards (11 to 18) (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	9 + 6 = __	15	**6**	9 + 7 = __	16
2	8 + 4 = __	12	**7**	8 + 6 = __	14
3	7 + 5 = __	12	**8**	9 + 5 = __	14
4	7 + 7 = __	14	**9**	6 + 6 = __	12
5	4 + 9 = __	13	**10**	9 + 8 = __	17

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will create stories for addition with carrying. This helps them to work with numbers in a context, making maths more relevant to them. Learners need to be able to identify the key information in addition stories (word problems) so that they are able to solve the problems. Make sure you encourage learners to listen carefully to the addition stories and help them to identify the relevant information.

Today we are learning to work with addition stories that involve carrying.

Activity 1: Learners work in pairs

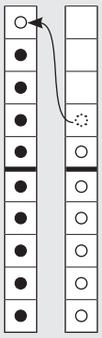
- Make sure that each learner in the pair has some bottle tops.
- Ask one learner in the pair to put out 7 bottle tops.
- Ask the other learner in the pair to put out 9 bottle tops.
- Ask the learners to make up a story about their bottle tops.

- For example, the problem could be as follows:
  I have 9 sweets and
  my friend brings me 7 more sweets.
  How many sweets do I have altogether?
- Ask one pair of learners to share their story with the class.
- Write the story on the board so that learners can see the problem in three lines.
- Provide opportunities for other pairs of learners to share their stories.
- Repeat the steps above, but this time give the learners two different numbers. Ensure that addition of the two numbers will involve carrying (for example 8 and 5).

Activity 2: Whole class activity

- Make sure that every learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Select one of the problems suggested in Activity 1. Write it on the board. E.g.
  I have 9 sweets and
  my friend brings me 7 more sweets.
  How many sweets do I have altogether?
- Read the problem.
- Ask: **What is the story about?** (Sweets)
- Ask: **What numbers do you see in the story?** (9 and 7)
- Underline these numbers.
- Ask: **What is the question?** (How many sweets do I have altogether?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Let learners represent the story using bottle tops.
- Let some learners present their representation using bottle tops to the class.
- Ask: **Do you think we need to add or subtract to find the answer to this problem?** (Add, because my friend brought me more sweets so the number must get bigger.)
- Write the number sentence 9 + 7 = __ on the board. Read the number sentence together several times.
- Let learners write the number sentence in their classwork books.
- Give learners time to solve the problem in pairs, using their ten frames and bottle tops.
- Ask: **What can you tell me about how you moved your bottle tops on your ten frames?** (We can make-a-ten by taking one bottle top from the top of the 7 and putting it on the 9 to make it a full ten frame card. This means we have 10 and 6 which is 16.)

- Ask a learner to come up to the board, and to place bottle tops on the large ten frames to show their solution to the problem.



- Ask: **What is the answer to the word problem?** (16 sweets)
- Let learners complete the number sentence and write the answer in their classwork books. (9 + 7 = 16)
- *Learners must write the final answer with the unit 16* ***sweets****.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Read the rules of the game (in the box below) carefully so that you can explain to the learners how to play the game.

Addition card game: Rules of the game

1 Learners play with addition cards in pairs.

2 Give each pair of learners a set of addition cards and a set of number cards (11 to 18).

3 Learners begin by laying out the number cards across the top of their desk withthe numbers showing.

4 Learners then shuffle all the addition cards and pile them up between them.

5 Each learner must pick up one number sentence card and put it on the table underneath the number card that shows the correct answer to the number sentence.

6 Continue doing this until all of the cards in the centre have been used.

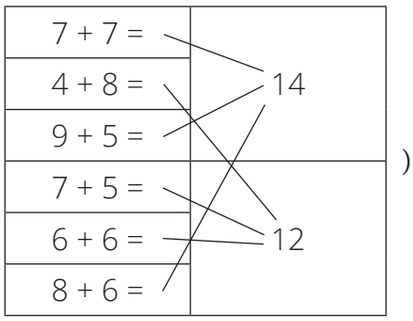
7 Play another round of the game to continue practising addition with carrying.

Play the addition-with-carrying card game. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

Match the number sentences to the correct answer by drawing a line.

7 + 7 =	14
4 + 8 =	
9 + 5 =	
7 + 5 =	12
6 + 6 =	
8 + 6 =	

(

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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 problems (with carrying) in context.

Lesson 29: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).		
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: Make sure all learners have bottle tops and ten frames when they do this test.

You should first write and then read each number sentence several times. Identify the numbers and the questions with the whole class and then each learner should work on solving the problems independently as a test activity.

When you discuss the test, provide learners with opportunities to practise solving addition (with carrying) in context through the use of word problems. Ensure that you allow learners to use bottle tops and ten frames to solve the problems and write a number sentence for each problem. Refer to lessons 26 and 27 for more detail on how to encourage learners to solve problems using the make-a-ten method.

WRITTEN ASSESSMENT (4 × 3 = 12)

Solve the following problems. (4 × 3 = 12)

1 Mufunwa has 3 pencils. Tshilidzi has 8 more pencils than Mufunwa. How many pencils does Tshilidzi have? *(Addition compare)*
(3 + 8 = 11, 11 pencils)

2 Tasneem picks 9 blue flowers and 6 yellow flowers. How many flowers did she pick altogether? *(Addition combine)*
(9 + 6 = 15, 15 flowers)

3 I drew 5 people. I then drew another 7 people. How many people did I draw in total? *(Addition change)*
(5 + 7 = 12, 12 people)

4 Bethuel had 8 chocolates. His mom gave him 8 more chocolates. How many chocolates did Bethuel have in the end? *(Addition change)*
(8 + 8 = 16, 16 chocolates)

Lesson 30: 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 (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).		
Lesson Objective: Solve addition problems up to 20 (with carrying) in context.		
Lesson Vocabulary: Make-a-ten, add, and, more.		
Resources: Bottle tops, ten frames.		
Date:	Week	Day

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

This week learners continued to focus on addition with carrying, but their activities included problems in context. Continue to allow learners to discuss their solution methods as this is particularly important when solving word problems. Learners need to understand the problem that they are solving, so it is necessary for them to talk about what they are doing in order to better understand the context.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Some learners find word problems particularly difficult, as they cannot work out what they are expected to do. The lessons involving word problems are structured to give learners opportunities to identify the numbers and the question in the word problems, in order to make sense of the word problems and to recognise patterns in these types of problems.

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 (with carrying) in context.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

NOTE: Make sure all learners have bottle tops and ten frames. Provide learners with opportunities to practise solving addition (with carrying) in context, through the use of word problems. Ensure that you allow learners to use bottle tops and ten frames to solve the problems and to write a number sentence for each problem. Refer to lessons 26 and 27 for more detail on how to encourage learners to solve problems using the make-a-ten method.

You should first write and then read each number sentence several times. Identifying the numbers and the question in the word problem must be done with the whole class and then each learner should work on the problem individually.

Solve the word problems.

1. Ndivhuho has 5 sweets. Thompho has 8 sweets. How many sweets do they have altogether? *(Addition combine)*
   (5 + 8 = 13, 13 sweets)
2. Belinda sees 7 butterflies. Then she sees 4 more. How many butterflies are there altogether? *(Addition change)*
   (7 + 4 = 11, 11 butterflies)
3. I baked 9 cupcakes. Then I baked another 9 cupcakes. How many cupcakes did I bake in total? *(Addition change)*
   (9 + 9 = 18, 18 cupcakes)
4. I have 6 flowers. Zanele has 8 more flowers than I do. How many flowers does Zanele have? *(Addition compare)*
   (6 + 8 = 14, 14 flowers)

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 problems (with carrying) in context.

Week 7

Unit 3 Introduction

This unit initially focuses on subtraction with borrowing, before consolidating learners' understanding of the concepts covered in Units 2 and 3. Learners will build on the knowledge they have gained in Units 1 and 2, and begin to develop effective strategies for solving subtraction with borrowing problems. Learners will be exposed to problems in context, as well as reinforce their knowledge through the use of subtraction-with-borrowing cards. Towards the end of the unit, the learners will be given opportunities to work with a combination of both addition with carrying and subtraction with borrowing problems within lessons. Learners will also be expected to make choices about which operation to use to solve the problems.

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

- **Conceptual understanding**: Learners will develop their conceptual understanding of subtraction with borrowing as they solve a variety of problems using bottle tops and ten frames (e.g. Lesson 31 Activities 1 and 2).
- **Procedural fluency**: Learners will develop their procedural fluency through the repeated solving of similar types of problems. This helps them to develop their confidence in the use of specific procedures (e.g. Lesson 32 Activity 1).
- **Strategies**: Learners will use the subtracting from ten method for subtraction with borrowing. Learners develop their ability to solve problems more quickly through the use of this strategy (e.g. Lesson 32 Activity 1).
- **Reasoning**: Learners are expected to verbalise their understanding and methods of solution. This is particularly clear when learners need to find the missing number in given number sentences. In these instances, learners need to justify which operation they will use to find the missing number, with the understanding that this may be the inverse operation to that of the original number sentence (e.g. Lesson 43 Activity 2).

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

- **Practising procedures**: Learners become confident with the procedures used to solve addition with carrying and subtraction with borrowing problems, as these are used repeatedly throughout the term's work.
- **Purposeful assessment**: The assessment at the end of this unit consolidates all the concepts covered during the term. This is essential as the learners will need to demonstrate their own understanding of the concepts, and their ability to apply their knowledge and skills appropriately to problems.
- **Justifying answers**: Learners need to be able to justify their choice of operation in their attempts to identify the missing number in given number sentences. Learners need to understand that at times an inverse operation may be used to find the number, and they must be able to provide reasons to show their understanding of this.

- **Addressing learners' errors**: In this unit it is important to allow numerous opportunities for conversation and discussion. It is through these opportunities that it will become possible to identify and address learners' errors.
- **Connecting representations**: Learning is made easier through the use of a variety of representations when addressing concepts. In this unit learners solve problems through the use of bottle tops and ten frames, as well as the use of number bond tables. This helps learners to make connections between solution methods and extends their understanding of the concepts and strategies.

Unit 2 overview

Day	LP	Lesson Objective	Lesson Resources	Date Completed
Mon	31	Solve subtraction problems (with borrowing) using the subtracting from ten method (☐ - 9).	Bottle tops, ten frames.	
Tue	32	Solve subtraction problems (with borrowing) using the subtracting from ten method (☐ - 8, ☐ - 7, ☐ - 6).	Bottle tops, ten frames.	
Wed	33	Solve subtraction problems (with borrowing) using the subtracting from ten method.	Bottle tops, ten frames, number cards (11 to 18) and (6 to 9) (see Printable Resources).	
Thur	34	Solve subtraction problems (with borrowing) using the subtracting from ten method.	Bottle tops, ten frames, subtraction (with borrowing) cards (see Printable Resources).	
Fri	35	Consolidation of work done this week.	Learner Activity Book.	
Mon	36	Assessment	Assessment activity in teacher's resources.	
Tue	37	Solve subtraction problems (with borrowing) using the subtracting from ten method.	Subtraction (with borrowing) cards (see Printable Resources), large subtraction cards (teacher), large number cards (2 to 9) (teacher).	
Wed	38	Solve subtraction problems (with borrowing) using the subtracting from ten method.	Subtraction (with borrowing) cards (see Printable Resources), large subtraction cards (teacher), large number cards (2 to 9) (see Printable Resources).	
Thur	39	Solve subtraction problems (with borrowing) in context.	Bottle tops, ten frames, subtraction (with borrowing) cards (see Printable Resources), number cards (2 to 9) (see Printable Resources).	
Fri	40	Consolidation of work done this week.	Learner Activity Book.	
Mon	41	Solve subtraction problems (with borrowing) in context.	Bottle tops, ten frames, subtraction (with borrowing) cards (see Printable Resources), number cards (2 to 9) (see Printable Resources).	
Tue	42	Assessment	Assessment activity in teacher's resources.	
Wed	43	Identify operations needed to solve number sentences.	Bottle tops, ten frames.	

Thur	44	Solve combine type addition (with carrying) and subtraction (with borrowing) problems in context (combine).	Bottle tops, ten frames.	
Fri	45	Consolidation of work done this week.	Learner Activity Book.	
Mon	46	Solve change type addition (with carrying) and subtraction (with borrowing) problems in context (change).	Bottle tops, ten frames.	
Tue	47	Solve compare type addition (with carrying) and subtraction (with borrowing) problems in context (compare).	Bottle tops, ten frames, addition (with carrying) cards AND subtraction (with borrowing) cards (See Printable Resources), number cards (11 to 18 and 2 to 9) (See Printable Resources).	
Wed	48	Create stories for addition with carrying and subtraction with borrowing to assist in developing understanding of word problems.	Bottle tops, ten frames, addition (with carrying) cards AND subtraction (with borrowing) cards (See Printable Resources), number cards (11 to 18 and 2 to 9) (See Printable Resources).	
Thur	49	Assessment	Assessment activity in teacher's resources.	
Fri	50	Consolidation of work done this week.	Learner Activity Book.	

Assessment for learning

Use the templates provided at the front of this guide to think deeply about at least one of the lessons in this unit.

Reflection

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

What will you change next time? Why?

Lesson 31: Subtracting 9

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve subtraction problems (with borrowing) using the subtracting from ten method (☐ – 9) with numbers up to 20.
Lesson Vocabulary: Subtract, take away, less.
Resources: Bottle tops, ten frames.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	How many more to make 10?	Answer		How many more to make 10?	Answer
1	9 + __ = 10	1	**6**	2 + __ = 10	8
2	6 + __ = 10	4	**7**	3 + __ = 10	7
3	7 + __ = 10	3	**8**	1 + __ = 10	9
4	10 + __ = 10	0	**9**	4 + __ = 10	6
5	5 + __ = 10	5	**10**	8 + __ = 10	2

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

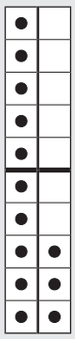
In this lesson learners will learn how to use the subtracting from ten method in solving subtraction problems with borrowing. In the subtracting from ten method, learners use ten frames and bottle tops to help them solve problems without counting. This will help them to become able to solve problems mentally. It is important for learners to realise that the subtracting from ten method is quicker than counting.

Today, we are learning to solve subtraction problems (with borrowing) using the subtracting from ten method (☐ – 9).

Activity 1: Learners work in pairs

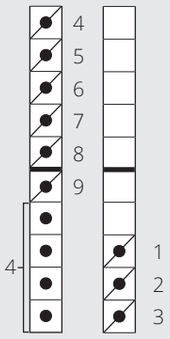
- Make sure that each pair of learners has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write the following word problem on the board.
  There are 13 chocolate bars on the shelf.
  If 9 chocolate bars are sold,
  how many chocolate bars are left?

- Read the problem aloud.
- Ask: **What is the story about?** (Chocolate bars)
- Ask: **What numbers do you see in the story?** (13 and 9)
- Underline these numbers.
- Ask: **What is the question?** (How many chocolate bars are left?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Ask: **How many chocolate bars were there in the beginning?** (13)
- Give the pairs of learners an opportunity to sort their bottle tops on their ten frames.
- Call a learner to the board to put 13 bottle tops on the two large ten frames.

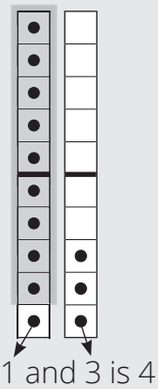


- Walk around and check that each pair of learners has the same layout of bottle tops on their ten frames as seen on the chalkboard.
- NOTE: Some learners may try to sort their bottle tops in the same way as they did for addition. They may arrange their bottle tops as '13 and 9' bottle tops, but it is very important to remind these learners of the story. Learners need to arrange their bottle tops according to the story.
- Remind learners of the story: **From the 13 chocolate bars, 9 bars are sold**.
- Ask: **What do we do with these 13 bottle tops?** Learners may say:
  - I add 9 bottle tops to join them.
  - I take away 9 bottle tops from 13.
- Discuss with the class why this is a subtraction problem and not an addition problem. (When 9 of the chocolate bars are sold, they disappear and the remaining number of chocolate bars must be less than 13. This means that we must subtract/take away 9 bottle tops.)
- Write the number sentence 13 – 9 = __ on the board.
- Ask: **How do you take away 9 bottle tops from your 13 bottle tops?** (Let the learners move their bottle tops on their 10 frames.)

- Learners may respond by saying the following:
  - I take away 9 from 13 by counting backward in 1s. 4 bottle tops are left.



  - I cannot take away 9 from 3, so I take way 9 from 10. I have 1bottle top left. 1 and 3 is 4.

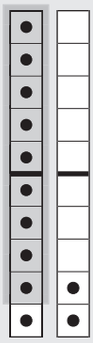


- Let those learners who answered explain how they moved the bottle tops or counted.
- Give the learners time to attempt the solution methods suggested.
- Confirm with the whole class that the answer 4 is correct.
- Ask: **Which way do you think is quicker and easier?** (Both methods are correct. The point of activity is to let learners realise that counting is not the only way to find the answer and that there is another way that is quicker and easier).
- Ask: **What is the answer to the word problem?** (4 chocolate bars)
- Write the number sentence 13 – 9 = 4 on the board, after the learners have recorded the number sentence with its answer in their classwork books.
- *Learners must write the final answer with the unit 4* ***chocolate bars****.*

Activity 2: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 12 – 9 = on the board and let learners copy it into their classwork books.
- Give the learners time to work on the problem by manipulating bottle tops on their ten frames.
- Discuss the different solution methods used by the learners.
- Give the learners time to attempt the different solution methods used.

- Encourage learners to attempt the subtracting from ten method for subtraction by removing 9 bottle tops from the 10 (the full ten frame). This leaves 1 bottle top and the 2 bottle tops from the second ten frame. Then 1 and 2 make 3.



- NOTE: All learners are expected to manage the subtracting from ten method by the end of Activity 2.
- Write the answer to the number sentence (12 – 9 = 3) on the board, **after** the learners have recorded the number sentence with its answer in their classwork books.
- Repeat the above steps with the following problems:
  - 15 – 9 = __
  - 17 – 9 = __
  - 18 – 9 = __
- Let the learners record all the number sentences with their answers in their classwork books.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: It is important for learners to be given the opportunity to use their ten frames and bottle tops as they solve the problems in the classwork activity. Move around the classroom and observe how learners are solving the problems, so that you can assist where necessary. Also, allow some conversation between learners if they would like to discuss their solution methods. A large part of this learning process is the sharing of ideas between learners and the exposure to new methods through their communication.

Keep saying: ***Make the first number in your ten frames using bottle tops and then subtract the second number.***

Subtract using ten frames and bottle tops.

a 18 – 9 = ☐ (9)
b 14 – 9 = ☐ (5)
c 11 – 9 = ☐ (2)
d 17 – 9 = ☐ (8)
e 13 – 9 = ☐ (4)
f 15 – 9 = ☐ (6)
g 12 – 9 = ☐ (3)
h 16 – 9 = ☐ (7)

4 HOMEWORK ACTIVITY (5 MINUTES)

NOTE: Ensure that learners take home their ten frames and bottle tops so that they can use these to solve the homework problems.

Subtract using ten frames and bottle tops.

a 15 – 9 = ☐ (6)
b 18 – 9 = ☐ (9)
c 11 – 9 = ☐ (2)
d 13 – 9 = ☐ (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 learnt to solve subtraction problems (with borrowing) using the subtracting from ten method (☐ – 9).

Lesson 32: Subtracting 7 and 8

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve subtraction problems (with borrowing) using the subtracting from ten method (☐ – 8, ☐ – 7, ☐ – 6) with numbers up to 20.
Lesson Vocabulary: Subtract, take away, less.
Resources: Bottle tops, ten frames.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	10 – 6 = __	4	**6**	10 – 3 = __	7
2	10 – 8 = __	2	**7**	10 – 1 = __	9
3	10 – 5 = __	5	**8**	10 – 4 = __	6
4	10 – 7 = __	3	**9**	10 – 0 = __	10
5	10 – 9 = __	1	**10**	10 – 2 = __	8

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

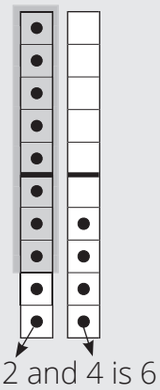
This lesson continues on from Lesson 31, with the only difference being that learners will now subtract from ten using ☐ – 8, ☐ – 7 and ☐ – 6. See the notes on lesson content from Lesson 31.

Today we are learning to solve subtraction problems (with borrowing) using the subtracting from ten method (☐ – 8, ☐ – 7, ☐ – 6).

Activity 1: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 14 – 8 = on the board.
- Discuss whether or not the subtracting from ten method is applicable to solve this problem.
- Give the learners time to work on the problem by manipulating bottle tops on their ten frames.

- Encourage learners to attempt the subtracting from ten method by removing 8 bottle tops from the 10 (the full ten frame). This leaves 2 bottle tops, which together with the 4 bottle tops on the second ten frame, make 6.

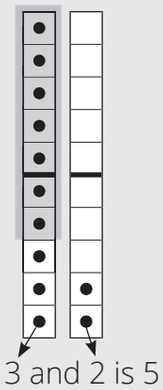


- Ask: **What do you notice about how we used our ten frames?** (Discuss with the learners that when subtracting ☐ – 8, eight bottle tops are moved from the full ten frame, whereas when subtracting ☐ – 9, nine bottle tops are removed from the full ten frame.)
- Write the answer to the number sentence (14 – 8 = 6) on the board, **after** the learners have recorded the number sentence with its answer in their classwork books.
- Repeat the above steps with the following problems:
  - 17 – 8 = __
  - 15 – 8 = __
  - 12 – 8 = __
- Let the learners record all the number sentences with their answers in their classwork books.

Activity 2: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 12 – 7 = __ on the board.
- Discuss whether or not the subtracting from ten method is applicable to solve this problem.
- Give the learners time to work on the problem by manipulating bottle tops on their ten frames.

- Encourage learners to attempt the subtracting from ten method by removing 7 bottle tops from the 10 (the full ten frame). This leaves 3 bottle tops, which together with the 2 bottle tops on the second ten frame, make 5.

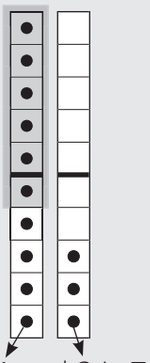


- Ask: **What do you notice about how we used our ten frames?** (Discuss with the learners that when subtracting ☐ – 7, seven bottle tops are moved from the full ten frame, whereas when subtracting ☐ – 9, nine bottle tops are removed from the full ten frame, and for ☐ – 8, eight bottle tops are removed.)
- Write the number sentence 12 – 7 = 5 on the board, after the learners have recorded the number sentence with its answer in their classwork books.
- Repeat the above steps with the following problems:
  - 13 – 7 = __
  - 15 – 7 = __
  - 11 – 7 = __
- Let the learners record all the number sentences with their answers in their classwork books.

Activity 3: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 13 – 6 = on the board.
- Discuss whether or not the subtracting from ten method is applicable to solve this problem.
- Give the learners time to work on the problem by manipulating bottle tops on their ten frames.

- Encourage learners to attempt the subtracting from ten method by removing 6 bottle tops from the 10 (the full ten frame). This leaves 4 bottle tops, which together with the 3 bottle tops on the second ten frame, make 7.



- Ask: **What do you notice about how we used our ten frames?** (Discuss with the learners that when subtracting ☐ – 6, six bottle tops are moved from the full ten frame, whereas when subtracting ☐ – 9, nine bottle tops are removed, for ☐ – 8, eight bottle tops are removed and for ☐ – 7, seven bottle tops are removed.)
- Write the number sentence 13 – 6 = 7 on the board, after the learners have recorded the number sentence with its answer in their classwork books.
- Repeat the above steps with the following problems:
  - 12 – 6 = __
  - 14 – 6 = __
  - 16 – 6 = __
- Let the learners record all the number sentences with their answers in their classwork books.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: It is important for learners to be given the opportunity to use their ten frames and bottle tops as they solve the problems in the classwork activity. Move around the classroom and observe how learners are solving the problems, so that you can assist where necessary. Also, allow some conversation between learners if they would like to discuss their solution methods. A large part of this learning process is the sharing of ideas between learners and the exposure to new methods through their communication.

Keep saying: Make the first number in your ten frames using bottle tops and then subtract the second number.

NOTE: All learners must finish up until at least g.

Subtract using ten frames and bottle tops.

a 16 – 8 = ☐ (8)
b 15 – 6 = ☐ (9)
c 14 – 7 = ☐ (7)
d 12 – 7 = ☐ (5)

e 11 – 6 = ☐ (5)
f 13 – 8 = ☐ (5)
g 15 – 7 = ☐ (8)
h 12 – 8 = ☐ (4)
i 13 – 6 = ☐ (7)
j 16 – 7 = ☐ (9)
k 17 – 8 = ☐ (9)
l 15 – 7 = ☐ (8)
m 14 – 6 = ☐ (8)

4 HOMEWORK ACTIVITY (5 MINUTES)

NOTE: Ensure that learners take home their ten frames and bottle tops so that they can use these to solve the homework problems.

Subtract using ten frames and bottle tops.

a 12 – 8 = ☐ (4)
b 15 – 7 = ☐ (8)
c 14 – 6 = ☐ (8)
d 13 – 8 = ☐ (5)
e 16 – 7 = ☐ (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 learnt to solve subtraction problems (with borrowing) using the subtracting from ten method (☐ – 8, ☐ – 7, ☐ – 6).

Lesson 33: Subtraction with borrowing (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve subtraction problems (with borrowing) using the subtracting from ten method.
Lesson Vocabulary: Subtract, take away, less.
Resources: Bottle tops, ten frames, number cards (11 to 18) and (6 to 9) (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	11 – 6 = __	5	**6**	15 – 7 = __	8
2	14 – 8 = __	6	**7**	18 – 9 = __	9
3	17 – 9 = __	8	**8**	13 – 6 = __	7
4	12 – 6 = __	6	**9**	11 – 8 = __	3
5	16 – 7 = __	9	**10**	12 – 9 = __	3

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

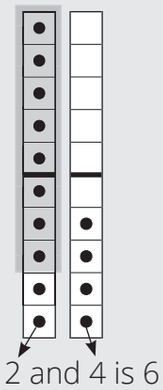
This lesson continues on from Lessons 31 and 32, with learners continuing to solve subtraction problems (with borrowing) using the subtracting from ten method. In this lesson, the learners will focus on problems in which the subtrahend (the smaller number) is less than or equal to 5.

Today, we are learning to solve subtraction problems (with borrowing) using the subtracting from ten method.

Activity 1: Learners work in groups

- Make sure that each learner has two ten frames and some bottle tops.
- Seat learners in groups to promote discussion and sharing of ideas.
- Write 14 – 8 = __ on the board.
- Give the groups time to work on the problem by manipulating bottle tops on their ten frames.

- Encourage learners to attempt the subtracting from ten method by removing 8 bottle tops from the 10 (the full ten frame). This leaves 2 bottle tops, which, together with the 4 bottle tops on the second ten frame, make 6.



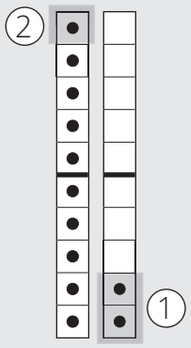
- Ask a learner to come to the board to write the answer to the number sentence (14 – 8 = 6).
- Give each group of learners a set of number cards from 11 to 18, and a set of number cards from 6 to 9.
- Each pile of cards must be shuffled.
- Each learner takes a turn to select one card from each pile to create a problem.
- Remind learners that they will subtract the smaller number from the bigger number.
- Encourage learners to follow the same steps that were used when solving the problem 14 – 8.
- Once the learners have solved the problem, they must return the number cards to the bottom of their respective piles.
- Learners should continue to select cards, creating new problems, until it is time to begin the next activity.

Activity 2: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 12 – 3 = __ on the board.
- Give the learners time to work on the problem (trial and error) by manipulating bottle tops on their ten frames.
- Discuss the different solution methods used by the learners.
- Give the learners time to attempt the different solution methods used.
- Ask some learners to come to the board to present their solution methods to the class.
- Use bottle tops on your large ten frames to demonstrate the subtracting from ten method used when the subtrahend (smaller number) is less than 5.
  - Since we cannot take away 3 from the 2 ones, we break down 3 into 2 and 1.
  - Then we take away 2 from the 2 ones see (1) below.
  - Finally, we take away the remaining 1 from the 10 see (2) below.

- The answer we get is 9 (see below – there are 9 bottle tops remaining).

- Confirm with the whole class that the answer is 9 and write the number sentence with the answer on the board.



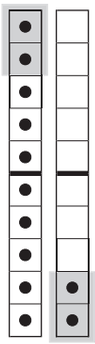
NOTE: This is introduced as one of the different methods. However, subtracting from 10 is the principal method used for subtraction with borrowing. Leaners must master the method in Activity 1.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: You should stress that learners must make the first number in the ten frames using bottle tops and **then** subtract the second number.

		Answer
a	11 – 2 = (9)	
b	12 – 5 = (7)	
c	13 – 4 = (9)	
d	14 – 5 = (9)	

e

	Answer
12 – 4 = (8)	

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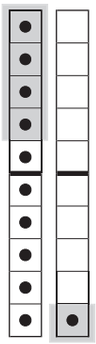
	Answer
11 – 5 = (6)	

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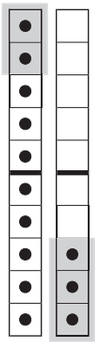
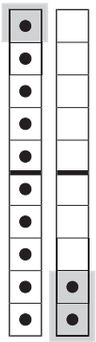
13 – 5 = (8)	

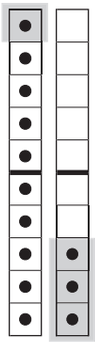
h

12 – 3 = (9)	

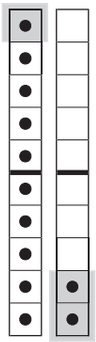
4 HOMEWORK ACTIVITY (5 MINUTES)

Subtract using ten frames and bottle tops.

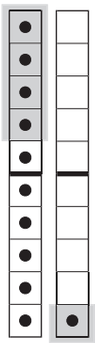
a

	Answer
13 – 4 = (9)	

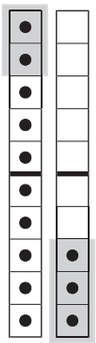
b

	Answer
12 – 3 = (9)	

c

11 – 5 = (6)	

d

13 – 5 = (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 learnt to solve subtraction problems (with borrowing) using the subtracting from ten method.

Lesson 34: Subtraction with borrowing (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve subtraction problems (with borrowing) using the subtracting from ten method with numbers up to 20.
Lesson Vocabulary: Subtract, take away, less.
Resources: Bottle tops, ten frames, subtraction (with borrowing) cards (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	15 – 7 = __	8	**6**	13 – 8 = __	5
2	17 – 9 = __	8	**7**	18 – 9 = __	9
3	11 – 8 = __	3	**8**	15 – 6 = __	9
4	16 – 8 = __	8	**9**	16 – 7 = __	9
5	12 – 7 = __	5	**10**	14 – 9 = __	5

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

This lesson gives learners the opportunity to consolidate what they have learnt in previous lessons with regards to using the subtracting from ten method with subtraction problems. Learners will also revise the use of the subtracting from ten method when the subtrahend is equal to or less than 5. See the notes on lesson content from Lesson 31.

Today we are learning to solve subtraction problems (with borrowing) using the subtracting from ten method.

Activity 1: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write 13 – 7 = __ on the board and let learners copy it into their classwork books.
- Give the learners time to work on the problem using the subtracting from ten-method, by manipulating bottle tops on their ten frames. Learners should then write the answer to 13 – 7 =. (6)
- Use bottle tops on your large ten frames to demonstrate the subtracting from ten method.

- Confirm the answer with the whole class by writing the answer to the number sentence on the board. (6)
- Repeat the steps above using the following different problems.
  - 15 – 9 = __
  - 11 – 4 = __
  - 14 – 8 = __
  - 12 – 3 = __
- Let the learners record all the number sentences above, along with their answers, in their classwork books.

Activity 2: Whole class activity

- Hand out a set of subtraction-with-borrowing cards to each learner.
- Say: **Lay out your cards with the number sentences facing up.**
- Give the learners time to play with the cards (in pairs):
  - **a** One learner points to a number sentence card and calls out the answer.
  - **b** The learner then checks the answer by looking at the back of the card.
  - **c** If the learner gets the correct answer, then he/she can keep the card.
  - **d** The other learner (of the pair) then has a turn to select a card and call out the answer.
  - **e** The learner with the most cards at the end is the winner.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Read the rules of the game (in the box below) carefully so that you can explain to the learners how to play the game.

Subtraction card game: Rules of the game

1. Learners play with subtraction cards in pairs.
2. Give each pair of learners a set of subtraction cards and a set of number cards (2 to 9).
3. Learners begin by laying out the number cards across the top of their desk with the numbers showing.
4. Learners then shuffle all the subtraction cards and pile them up between them.
5. Each learner must pick up one number sentence card and put it on the table underneath the number card that shows the correct answer to the number sentence.
6. Continue doing this until all of the cards in the centre have been used.
7. Play another round of the game to continue practising subtraction with borrowing.

Play the subtraction-with-borrowing card game. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

Subtract:

a 11 – 6 = (5)
b 14 – 5 = (9)
c 12 – 6 = (6)
d 17 – 9 = (8)
e 13 – 8 = (5)
f 15 – 7 = (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 learnt to solve subtraction problems (with borrowing) using the subtracting from ten method.

Lesson 35: Consolidation

Teacher's notes		
This lesson allows for consolidation of the previous days' lesson content.		
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).		
Lesson Objective: Solve subtraction problems (with borrowing) using the subtracting from ten method with numbers up to 20.		
Lesson Vocabulary: Subtract, take away, less.		
Resources: Bottle tops, ten frames.		
Date:	Week	Day

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

This week learners focused on subtraction with borrowing. Learners were given a number of opportunities to practise the subtracting from ten method, and to discuss their methods in class. This is an important part of the learning process, as it helps them to consolidate the strategy that they have been practising.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The progression of learning in this unit of work has been designed to carefully prepare learners for subtraction with borrowing as typically this can be quite confusing. The use of the subtracting from ten method will have prepared learners to solve problems more efficiently, by using mental calculations rather than counting.

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 subtraction problems (with borrowing) using the subtracting from ten method.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

NOTE: It is important for learners to be given the opportunity to use their ten frames and bottle tops as they solve the problems in the classwork activity. Move around the classroom and observe how learners are solving the problems, so that you can assist where necessary. Also, allow some conversation between learners if they would like to discuss their solution methods. A large part of this learning process is the sharing of ideas between learners and the exposure to new methods through their communication.

Keep saying: ***Make the first number in your ten frames using bottle tops and then subtract the second number.***

If some learners do not need to use their ten frames and bottle tops, let them solve the problems mentally and then correct the answer with bottle tops on ten frames.

Subtract:

a 11 – 2 = (9)	**b** 15 – 7 = (8)	**c** 11 – 7 = (4)
d 18 – 9 = (9)	**e** 13 – 7 = (6)	**f** 12 – 3 = (9)
g 12 – 7 = (5)	**h** 16 – 7 = (9)	**i** 16 – 9 = (7)
j 17 – 9 = (8)	**k** 15 – 9 = (6)	**l** 13 – 8 = (5)
m 13 – 4 = (9)	**n** 17 – 8 = (9)	**o** 15 – 6 = (9)
p 16 – 8 = (8)	**q** 11 – 5 = (6)	**r** 14 – 7 = (7)
s 14 – 9 = (5)	**t** 12 – 6 = (6)	**u** 11 – 8 = (3)

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 subtraction problems (with borrowing) using the subtracting from ten method.

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: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).		
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 (21)

Subtract. (21)

a	15 – 8 = (7)	**b**	12 – 4 = (8)	**c**	17 – 9 = (8)
d	11 – 9 = (2)	**e**	15 – 6 = (9)	**f**	13 – 5 = (8)
g	13 – 6 = (7)	**h**	14 – 6 = (8)	**i**	15 – 9 = (6)
j	12 – 9 = (3)	**k**	16 – 9 = (7)	**l**	11 – 3 = (8)
m	16 – 7 = (9)	**n**	13 – 9 = (4)	**o**	14 – 5 = (9)
p	14 – 8 = (6)	**q**	11 – 6 = (5)	**r**	12 – 5 = (7)
s	18 – 9 = (9)	**t**	17 – 8 = (9)	**u**	16 – 8 = (8)

Lesson 37: Subtraction with borrowing (3)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve subtraction problems (with borrowing) using the subtracting from ten method with numbers up to 20.
Lesson Vocabulary: Subtract, take away, less.
Resources: Subtraction (with borrowing) cards (see *Printable Resources*), large subtraction cards (teacher), large number cards (2 to 9) (teacher).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	12 – 3 = __	9	**6**	15 – 8 = __	7
2	17 – 9 = __	8	**7**	13 – 7 = __	6
3	14 – 6 = __	8	**8**	11 – 3 = __	8
4	11 – 6 = __	5	**9**	16 – 9 = __	7
5	18 – 9 = __	9	**10**	14 – 7 = __	7

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners will be practising subtracting with borrowing. They will use their pre-prepared subtraction cards that have number sentences on one side, and the answers on the other side. It is important that these cards are prepared in advance, so that the maths lesson is not wasted by learners cutting up cards. Make sure that learners have opportunities to play with the cards so that they can experience subtraction with borrowing in a fun way.

Today we are learning to solve subtraction problems (with carrying) using the subtracting from ten method.

Activity 1: Whole class activity

- Paste all the subtraction cards on the board as laid out below.

11 – 2 =							
11 – 3 =	12 – 3 =						
11 – 4 =	12 – 4 =	13 – 4 =					
11 – 5 =	12 – 5 =	13 – 5 =	14 – 5 =				
11 – 6 =	12 – 6 =	13 – 6 =	14 – 6 =	15 – 6 =			
11 – 7 =	12 – 7 =	13 – 7 =	14 – 7 =	15 – 7 =	16 – 7 =		
11 – 8 =	12 – 8 =	13 – 8 =	14 – 8 =	15 – 8 =	16 – 8 =	17 – 8 =	
11 – 9 =	12 – 9 =	13 – 9 =	14 – 9 =	15 – 9 =	16 – 9 =	17 – 9 =	18 – 9 =

- Draw a block around the 12- column to highlight this column for the learners.

11 – 2 =							
11 – 3 =	12 – 3 =						
11 – 4 =	12 – 4 =	13 – 4 =					
11 – 5 =	12 – 5 =	13 – 5 =	14 – 5 =				
11 – 6 =	12 – 6 =	13 – 6 =	14 – 6 =	15 – 6 =			
11 – 7 =	12 – 7 =	13 – 7 =	14 – 7 =	15 – 7 =	16 – 7 =		
11 – 8 =	12 – 8 =	13 – 8 =	14 – 8 =	15 – 8 =	16 – 8 =	17 – 8 =	
11 – 9 =	12 – 9 =	13 – 9 =	14 – 9 =	15 – 9 =	16 – 9 =	17 – 9 =	18 – 9 =

- Give learners time to observe the 12- column.
- Ask: **What do you notice about the order of these number sentences?** (Give learners time to discuss in pairs).
- Encourage learners to notice:
  - The numbers on the left hand side of the number sentences are all 12.
  - The numbers on the right hand side increase by 1 from 3.
  - The answers decrease by 1 from 9.
- Ask the class to check if the other columns are in the same order as the 12-column.
- Paste the number cards 2 to 9 on the board. Ensure that there is space below these number cards so that learners can sort the subtraction cards underneath them.
- Ask: **Which number sentences have the answer 7?** (Give some learners a chance to come to the board and select the number sentences that have the answer 7.)
- *Note that the answer 7 is intentionally selected, as it is easier to see the pattern in the middle of the arrangement of subtraction cards. If you start with another number as the answer, it may not be as easy for the learners to see the pattern.*
- When learners show you the card they have selected, make sure you turn over the card to check the answer with the whole class.

- After all the number sentences have been moved to underneath the 7 number card, ask: **What do you notice about the order of these number sentences?** (While the numbers on the left hand side are increasing by 1, the numbers on the right hand side are also increasing by 1, so that the answer to each card remains 7.)

7
11 – 4 =
12 – 5 =
13 – 6 =
14 – 7 =
15 – 8 =
16 – 9 =

- Ask: **What do you notice about the rest of the cards?** (The blank spaces go down diagonally; the answers to the other number sentences go down as you go down a column).

11 – 2 =							
11 – 3 =	12 – 3 =						
	12 – 4 =	13 – 4 =					
11 – 5 =		13 – 5 =	14 – 5 =				
11 – 6 =	12 – 6 =		14 – 6 =	15 – 6 =			
11 – 7 =	12 – 7 =	13 – 7 =		15 – 7 =	16 – 7 =		
11 – 8 =	12 – 8 =	13 – 8 =	14 – 8 =		16 – 8 =	17 – 8 =	
11 – 9 =	12 – 9 =	13 – 9 =	14 – 9 =	15 – 9 =		17 – 9 =	18 – 9 =

Activity 2: Learners work in pairs

- Make sure that each pair of learners has a set of subtraction (with borrowing) cards.
- Ask learners to shuffle all their cards.
- Show a large number card (any number between 2 and 9) to the class.
- Say: **In your pairs, see who can find the number sentences that match this number the fastest.**
- Give learners time to compete in pairs as they find number sentences that have the same answer as the number on the number card. Encourage learners to find as many matching number sentences as possible.
- After 1 minute (or less), stop the learners and let the pairs check to make sure that all the selected number sentences have the same answer as the number given.
- Repeat the steps above several times with different numbers.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Read the rules of the game (in the box below) carefully so that you can explain to the learners how to play the game.

Subtraction card game: Rules of the game

1. Learners play with subtraction cards in pairs.
2. Give each pair of learners a set of subtraction cards.
3. Learners shuffle all the subtraction cards and pile them up between them.
4. Each learner must pick up one card and put it on the table.
5. The learner who gets the card with the smaller number as its answer, wins and keeps the cards.
6. Continue doing this until all of the cards in the centre have been used.
7. The learner with the most cards is the winner of the round.
8. Play another round of the game, but this time change the rule so that the learner who gets the bigger number wins.

Play the subtraction-with-borrowing card game. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

Match the number sentences to the correct answer by drawing a line.

11 – 6 =	5
14 – 9 =	
13 – 6 =	
14 – 7 =	7
13 – 8 =	
16 – 9 =	

(| |) |
|---|---|
| 11 – 6 = | 5 |
| 14 – 9 = | |
| 13 – 6 = | |
| 14 – 7 = | 7 |
| 13 – 8 = | |
| 16 – 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 learnt to solve subtraction problems (with borrowing) using the subtracting from ten method.

Lesson 38: Subtraction with borrowing (4)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve subtraction problems (with borrowing) using the subtracting from ten method.
Lesson Vocabulary: Subtract, take away, less.
Resources: Subtraction (with borrowing) cards (see *Printable Resources*), large subtraction cards (teacher), large number cards (2 to 9) (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	15 – 8 = __	7	**6**	17 – 8 = __	9
2	13 – 7 = __	6	**7**	12 – 7 = __	5
3	11 – 6 = __	5	**8**	14 – 6 = __	8
4	16 – 8 = __	8	**9**	18 – 9 = __	9
5	12 – 9 = __	3	**10**	13 – 5 = __	8

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners continue to practise subtracting with borrowing. They will use their pre-prepared subtraction cards that have number sentences on one side and the answers on the other side. Make sure that learners have opportunities to play with the cards so that they can experience subtraction with borrowing in a fun way.

Today we are learning to solve subtraction problems (with borrowing) using the subtracting from ten method.

Activity 1: Learners work in pairs

- Learners play with subtraction (with borrowing) cards in pairs.
- Give each pair of learners a set of subtraction cards and a set of number cards (2 to 9).
- Learners take one number card and place it facing number side up on top of the pile between the two learners.
- Learners shuffle all the subtraction cards and lay them out between them, with the number sentence side showing.
- Learners must then each try to find as many number sentences that match the number card as quickly as possible.

- The learners can check that they have selected the correct number sentences once they have found all the matching number sentence cards.
- The winner of the round is the learner with the most cards.
- Play another round of the game by changing the number card on top of the pile. Make sure all the number sentence cards are returned to the pile, shuffled and laid out between the learners again before beginning the second round.

Activity 2: Learners work in pairs

- Hand out a set of subtraction (with borrowing) cards to each learner.
- Ask learners to sort the cards in any way they choose.
- Allow learners to discuss in their pairs the way they chose to sort their cards.
- Ask some learners to come to the front of the class and to tell the rest of the class what they noticed about their cards.
- Ask learners to sort their cards again, this time in a different way.
- Allow learners to discuss in their pairs the way they chose to sort their cards.
- Ask some learners to come to the front of the class and to tell the rest of the class what they noticed about their cards.
- Note that there is no right or wrong answer for this activity. The intention of the activity is to get learners to observe the cards and to identify certain trends such as:
  - **a** There are groups of number sentences that start with the same number
  - **b** The biggest number that is subtracted is 9.
  - **c** The smallest number that is subtracted is 2.
  - **d** The largest answer is a 9.
  - **e** Etc.
- Ask learners to sort all the number sentence cards into groups according to the first number of the number sentence (i.e. 11-, 12-, 13-, 14-, 15-, 16-, 17-, 18-)
- Then ask learners to sequence the number sentences in each group from those with the largest to the smallest answer (i.e. so that the card in the 11- group with the largest number as the answer is first).

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Read the rules ofthe game (in the box below) carefully so that you can explain to the learners how to play the game.

Subtraction card game: Rules of the game

1. Learners play with subtraction cards in pairs.
2. Give each pair of learners a set of subtraction cards and a set of number cards (2 to 9).
3. Make sure the subtraction cards are shuffled.
4. One learner gets the subtraction cards and the other learner gets the number cards.
5. The learner with the subtraction cards selects one number sentence to show the other learner.
6. The learner with the number cards quickly finds the answer to the number sentence in the number cards pile and holds it up.
7. The learner with the subtraction cards checks the answer on the back of the number sentence card.
8. Continue doing this until all of the subtraction cards have been used.
9. Play another round of the game by reshuffling the subtraction cards and swapping which learner holds the subtraction cards and which learner holds the number cards.

Play the subtraction-with-borrowing card game. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

Match the number sentences to the correct answer by drawing a line.

12 – 6 =	4
11 – 7 =	
13 – 9 =	
14 – 8 =	6
12 – 8 =	
15 – 9 =	

(| |)

12 – 6 =	
11 – 7 =	4
13 – 9 =	
14 – 8 =	
12 – 8 =	6
15 – 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 learnt to solve subtraction problems (with borrowing) using the subtracting from ten method.

Lesson 39: Subtraction word problems

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve subtraction problems (with borrowing) in context with numbers up to 20.
Lesson Vocabulary: Subtract, take away, less.
Resources: Bottle tops, ten frames, subtraction (with borrowing) cards (see *Printable Resources*), number cards (2 to 9) (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	12 – 8 = __	4	**6**	13 – 4 = __	9
2	16 – 7 = __	9	**7**	15 – 7 = __	8
3	14 – 6 = __	8	**8**	18 – 9 = __	9
4	11 – 2 = __	9	**9**	12 – 5 = __	7
5	17 – 9 = __	8	**10**	11 – 5 = __	8

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

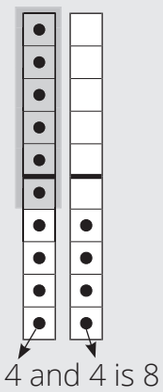
In this lesson learners will practise subtraction with borrowing using word problems to create context. Make sure that you allow learners to discuss their solution methods so that they can share ideas, and further develop their own understanding.

Today we are learning to solve subtraction problems (with borrowing) in context.

Activity 1: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write the following word problem on the board. *(Subtraction change).*
  There were 14 apples on the table.
  Themba ate 6 of them.
  How many apples are there now?
- Read the problem.
- Ask: **What is the story about?** (Apples)
- Ask: **What numbers do you see in the story?** (14 and 6)
- Underline these numbers.
- Ask: **What is the question?** (How many apples are left?)

- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Ask: **How many apples were there in the beginning?** (14 apples)
- Let learners make 14 with their bottle tops on their ten frames as 1 ten and 4 ones.
- Call a learner to the board to put 14 bottle tops in the two large ten frames.
- Let learners represent the story to show what happens when 6 apples are eaten.
- Ask: **Are we adding or subtracting?** (Subtracting, because when Themba ate 6 apples, 6 apples disappear.)
- Let learners write the number sentence (14 – 6 = __).
- Write the number sentence on the board for correction.
- Read the number sentence together several times.
- Give learners time to solve the problem using their ten frames and their bottle tops.
- Ask: **What can you tell me about how you moved your bottle tops on your ten frames?** (We can use the subtracting from ten method and take 6 bottle tops away from the 10 (the full ten frame), which leaves 4 bottle tops remaining. These 4 bottle tops, together with the 4 bottle tops on the second ten frame, makes 8.)
- Ask a learner to come up to the board to show their solution to the problem on the large ten frames.



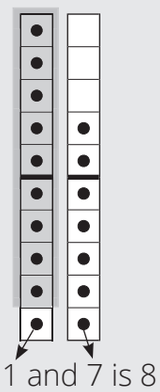
- Ask: **What is the answer to the word problem?** (8 apples)
- Write the answer to the number sentence (14 – 6 = 8) on the board, **after** the learners have recorded the number sentence with its answer in their classwork books.
- *Learners must write the final answer with the unit 8* ***apples****.*

Activity 2: Learners work in pairs

- Make sure that each pair of learners has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write the following word problem on the board. *(subtraction compare)*
  There are 17 cows
  and 9 goats.
  Which are there more of – cows or goats?

How many more are there?

- Read the problem.
- Ask: **What is the story about?** (Cows and goats)
- Ask: **What numbers do you see in the story?** (17 and 9)
- Underline these numbers.
- Ask: **What is the question?** (Which animal is there more of? How many more are there? There are two questions.)
- Underline the question with a wavy line.
- Ask: **Which animal is there more of?** (Cows)
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Give learners time represent the story in pairs, using their ten frames and their bottle tops.
- Ask: **Are we adding or subtracting to solve the problem?** (Subtracting, because we are comparing the number of cows and goats. The answer cannot be bigger than the number of cows, 17.)
- Let learners write the number sentence in their classwork book (17 – 9 = __).
- Write the number sentence for correction. Read the number sentence together several times.
- Ask: **What can you tell me about how you moved your bottle tops on your ten frames?** (We can use the subtracting from ten method and take 9 bottle tops from the 10 (the full ten frame), which leaves 1 left over. The 1 bottle top, together with the 7 bottle tops on the second ten frame, makes 8.)
- Ask a learner to come up to the board, and to place bottle tops on the large ten frames to show their solution to the problem.



- Ask: **What is the answer to the word problem?** (There are 8 more cows than goats.)
- Write the answer to the number sentence (17 – 9 = 8) on the board, **after** the learners have recorded the number sentence with its answer in their classwork books.
- *Learners must write the final answer with the unit **8 cows**.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Read the rules of the game (in the box below) carefully so that you can explain to the learners how to play the game.

Subtraction card game: Rules of the game

1. Learners play with cards in pairs.
2. Give each pair of learners set of subtraction-with-borrowing cards and a set of number cards (2 to 9).
3. Make sure the subtraction-with-borrowing cards are shuffled.
4. One learner gets the subtraction-with-borrowing cards and the other learner gets the number cards.
5. The learner with the subtraction-with-borrowing cards selects one number sentence to show the other learner.
6. The learner with the number cards quickly finds the answer to the number sentence in the number cards pile and holds it up.
7. The learner with the subtraction-with-borrowing cards checks the answer on the back of the number sentence card.
8. Continue doing this until all of the subtraction-with-borrowing cards have been used.
9. Play another round of the game, by reshuffling the subtraction-with-borrowing cards and swapping which learner holds the subtraction-with-borrowing cards and which learner holds the number cards.

1 Solve the word problems.

- **a** There were 16 oranges on the table. Themba ate 9 of them. How many oranges are there now? *(Subtraction change)*
  (16 – 9 = 7, 7 oranges)
- **b** There are 15 sheep and 7 pigs. Which are there more of – sheep or pigs? How many more are there? *(Subtraction compare)*
  (15 – 7 = 8, 8 more sheep)
- **c** There are 11 cows and 4 horses. Which are there more of – cows or horses? How many more are there? *(Subtraction compare)*
  (11 – 4 = 7, 7 more cows)

2 Play the subtraction-with-borrowing card game. Your teacher will explain the rules.

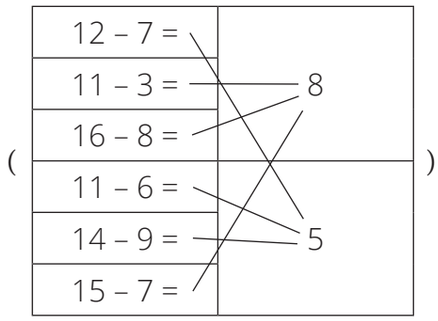
4 HOMEWORK ACTIVITY (5 MINUTES)

1 Solve the word problem .
There were 13 bananas on the table. Themba ate 6 of them. How many bananas are there now? (Subtraction change)
(13 – 6 = 7, 7 bananas)

2 Match the number sentence to the correct answer by drawing a line.

12 – 7 =	
11 – 3 =	8
16 – 8 =	
11 – 6 =	
14 – 9 =	5
15 – 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 learnt to solve subtraction problems (with borrowing) in context.

Lesson 40: 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 (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve subtraction problems (with borrowing) in context with numbers up to 20.
Lesson Vocabulary: Subtract, take away, less.
Resources: Bottle tops, ten frames, subtraction (with borrowing) cards (see *Printable Resources*)..
Date: Week Day

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

This week learners continued to focus on subtraction with borrowing, but the learners were also introduced to solving subtraction problems (with borrowing) in context. It is important to allow learners to discuss their solution methods as this is particularly important when solving word problems. Learners need to understand the problem that they are solving, so it is necessary for them to talk about what they are doing in order to better understand the context.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Some learners find word problems particularly difficult, as they cannot work out what they are expected to do. The lessons involving word problems are structured to give learners opportunities to identify strategies for making sense of the word problems, and to recognise patterns in these types of problems.

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 subtraction problems (with borrowing) in context.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

NOTE: Read the rules of the game (in the box below) carefully so that you can explain to the learners how to play the game.

Give learners opportunities to play with the subtraction (with borrowing) cards. This is a good way to practise what they have learnt in an interesting and engaging way. It is also necessary to reinforce their understanding of solving subtraction problems in context through the use of word problems.

Subtraction cards: Rules of the games

GAME 1

1 Learners play with subtraction-with-borrowing cards in pairs.

2 Give each pair of learners a set of subtraction cards and a set of number cards (2 to 9).

3 Learners take one number card and place it facing number side up on top of the pile between the two learners.

4 Learners shuffle all the subtraction cards and lay them out between them, with the number sentence side showing.

5 Learners must then each try to find as many number sentences matching the number card as quickly as possible.

6 The learners can check that they have selected the correct number sentences once they have found all the matching number sentence cards.

7 The winner of the round is the learner with the most cards.

8 Play another round of the game by changing the number card on top of the pile.

9 Make sure all the number sentence cards are returned to the pile, shuffled and laid out between the learners again before beginning the second round.

GAME 2

1 Learners play with subtraction cards in pairs.

2 Give each pair of learners a set of subtraction cards and a set of number cards (2 to 9).

3 Learners begin by laying out the number cards across the top of their desk with the numbers showing.

4 Learners then shuffle all the subtraction cards and pile them up between them.

5 Each learner must pick up one subtraction card and put it on the table underneath the number card that shows the correct answer to the number sentence.

6 Continue doing this until all of the cards in the centre have been used.

7 Play another round of the game to continue practising subtraction with borrowing.

1 Solve the word problems.

a Nzumbululo has 17 sweets. Ndivhuho has 8 sweets less than Nzumbululo. How many sweets does Ndivhuho have? *(Subtraction change)*
17 – 8 = 9, 9 sweets)

b Ms Zama has 15 cups at home. She takes 8 cups to her classroom. How many cups does she have left at home? *(Subtraction change)*
(15 – 8 = 7, 7 cups)

2 Play the subtraction-with-borrowing card games. Your teacher will explain the rules.

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 subtraction problems (with borrowing) in context.

Week 9

Lesson 41: Subtraction word problems

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve subtraction problems (with borrowing) in context with numbers up to 20.
Lesson Vocabulary: Subtract, take away, less.
Resources: Bottle tops, ten frames, subtraction (with borrowing) cards (see *Printable Resources*), number cards (2 to 9) (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	15 – 8 = __	7	**6**	17 – 9 = __	8
2	18 – 9 = __	9	**7**	11 – 6 = __	5
3	12 – 3 = __	9	**8**	12 – 8 = __	4
4	14 – 6 = __	8	**9**	13 – 5 = __	8
5	11 – 9 = __	2	**10**	16 – 8 = __	8

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

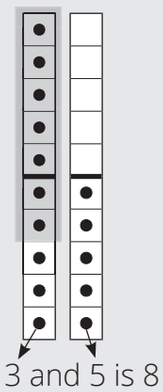
This lesson continues to develop subtraction with borrowing, using word problems to create context. See the lesson content from Lesson 39.

Today we are learning to solve subtraction problems (with borrowing) in context.

Activity 1: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write the following word problem on the board. *(subtraction combine)*
  There are 15 trees in the farm yard.
  7 of them are orange trees and the rest are banana trees.
  How many banana trees are there?
- Read the problem.
- Ask: **What is the story about?** (Trees)

- Ask: **What numbers do you see in the story?** (15 and 7)
- Underline these numbers.
- Ask: **What is the question?** (How many banana trees are there?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Let learners represent the story with bottle tops.
- Ask: **Are we adding or subtracting to solve the problem?** (Subtracting, because 15 is the total number of trees. The answer cannot be bigger than 15.)
- Let learners write the number sentence in their classwork books. (15 – 7 = __)
- Write the number sentence on the board for correction. Read the number sentence together several times.
- Give learners time to solve the problem, using their ten frames and their bottle tops.
- Ask: **What can you tell me about how you moved your bottle tops on your ten frames?** (We can use the subtracting from ten method and take 7 bottle tops from the 10 (the full ten frame), which leaves 3 left over. These 3 bottle tops, together with the 5 bottle tops on the second ten frame, makes 8.)
- Ask a learner to come up to the board to place bottle tops on the large ten frames to show their solution to the problem.

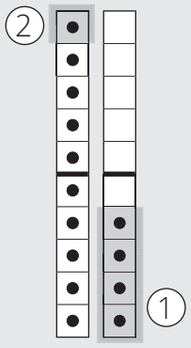


- Ask: **What is the answer to the word problem?** (There are 8 banana trees.)
- Write the answer to the number sentence (15 – 7 = 8) on the board, **after** the learners have recorded the number sentence with its answer in their classwork books.
- *Learners must write the final answer with the unit 8* ***banana trees****.*

Activity 2: Learners work in pairs

- Make sure that each pair of learners has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write the following word problem on the board. (*Subtraction compare)*
  Ms Nkosi sold 14 packets of apples yesterday.
  Today she sold 5 packets less than yesterday.
  How many packets of apples did she sell today?

- Read the problem.
- Ask: **What is the story about?** (Packets of apples)
- Ask: **What numbers do you see in the story?** (14 and 5)
- Underline these numbers.
- Ask: **What is the question?** (How many packets of apples did Ms Nkosi sell today?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Let learners represent the story with bottle tops.
- Ask: **Are we adding or subtracting to solve the problem?** (Subtracting, because the number of packets Ms Nkosi sold today is less than yesterday's number, 14.)
- Let learners write the number sentence in their classwork book (14 – 5 = __).
- Write the number sentence on the board for the correction. Read the number sentence together several times.
- Give learners time to solve the problem using their ten frames and bottle tops.
- Ask: **What can you tell me about how you moved your bottle tops on your ten frames?**
  - Since we cannot take 5 away from 4, we break down 5 into 4 and 1.
  - Then we take away 4 from the 4 ones (see ① below).
  - Next, we take away the remaining 1 from the full 10 (see ② below).
  - We get the answer 9 (see below – there are 9 bottle tops remaining).
- Ask a learner to come up to the board to place bottle tops on the large ten frames to show their solution to the problem.



- Ask: **What is the answer to the word problem?** (Ms Nkosi sold 9 packets of apples today.)
- Write the answer to the number sentence (14 – 5 = 9) on the board, **after** the learners have recorded the number sentence with its answer in their classwork books.
- *Learners must write the final answer with the unit 9* ***packets of apples****.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Read the rules of the game (in the box below) carefully so that you can explain to the learners how to play the game.

Subtraction card game: Rules of the game

1. Learners play with subtraction (with borrowing) cards in pairs.
2. Give each pair of learners a set of subtraction cards.
3. Learners shuffle all the subtraction cards and pile them up between them.
4. Each learner must pick up one card and put it on the table.
5. The learner who gets the card with the smaller number as its answer, wins and keeps the cards.
6. Continue doing this until all of the cards in the centre have been used.
7. The learner with the most cards is the winner of the round.
8. Play another round of the game, but this time change the rule so that the learner who gets the bigger number wins.

1 Solve the word problems .

- **a** There are 13 butterflies in the garden. 8 of them are orange and the rest are blue. How many blue butterflies are there? *(Subtraction combine)*
  13 – 8 = 5, 5 blue butterflies)
- **b** There are 17 bugs in the garden. 9 of them are bees and the rest are caterpillars. How many caterpillars are there? *(Subtraction combine)*
  (17 – 9 = 8, 8 caterpillars)
- **c** Ms Nkosi sold 12 bananas yesterday. Today she sold 5 bananas less than yesterday. How many bananas did she sell today? *(Subtraction compare)*
  (12 – 5 = 7, 7 bananas)

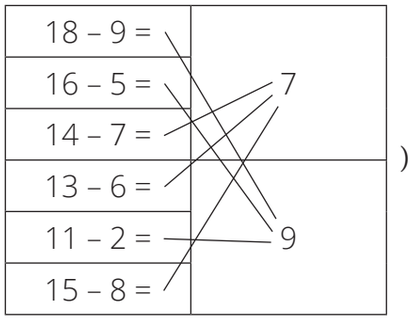
2 Play the subtraction-with-borrowing card game. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Solve the word problem .
Ms Nkosi sold 16 apples yesterday. Today she sold 8 apples less than yesterday. How many apples did she sell today? *(Subtraction compare)*
(16 – 8 = 8, 8 apples)

2 Match the number sentence to the correct answer by drawing a line.

18 – 9 =	7
16 – 5 =	
14 – 7 =	
13 – 6 =	9
11 – 2 =	
15 – 8 =	

(

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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 subtraction problems (with borrowing) in context.

Lesson 42: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction(context free).		
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.

This week you will need to take some time to do the *oral and practical assessment* (see rubric or checklist below). The oral and practical activities should be done individually/in groups over the course of the week.

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: Make sure all learners have bottle tops and ten frames when they do this test.

You should first write and then read each number sentence several times. Identify the numbers and the questions with the whole class and then each learner should work on solving the problems independently as a test activity.

When you discuss the test, provide learners with opportunities to practise solving subtraction (with borrowing) in context through the use of word problems. Ensure that you allow learners to use bottle tops and ten frames to solve the problems and write a number sentence for each problem. Refer to lessons 26, 27, 39 and 41 for more detail on how to encourage learners to solve problems using the subtracting from ten method.

WRITTEN ASSESSMENT (5 × 3 = 15)

Solve the following problems. (5 × 3 = 15)

1 Yesterday Rialivhuwa saw 11 birds in the school yard. Today Rialivhuwa saw 4 less birds. How many birds did Rialivhuwa see in the school yard today? *(Subtraction compare)*
(11 – 4 = 7, 7 birds)

2 Alzira collected 18 pieces of litter. 9 pieces of litter were made of paper and the rest were made from plastic. How many pieces of litter were made of plastic? *(Subtraction combine)*
(18 – 9 = 9, 9 pieces)

3 Nomsa had 14 pencils. She lost 6 pencils. How many pencils does Nomsa have now? *(Subtraction change)*
(14 – 6 = 8, 8 pencils)

4 Lindiwe had 13 pieces of paper. She drew pictures on 7 pieces of paper. How many blank pieces of paper does Lindiwe have left? *(Subtraction change)*
(13 – 7 = 6, 6 pieces of paper)

5 Xolani had 16 marbles. He lost 9 of his marbles. How many marbles does Xolani have left? *(Subtraction change)*
(16 – 9 = 7, 7 marbles)

ORAL AND PRACTICAL

CAPS: Numbers, operations and relationships: Using ten frames to add and subtract **Activity: Observe learners to assess their ability to display numbers using ten frames and to add and subtract numbers using ten frames up to 20.**				Mark: 7
	Level 1	Level 2-3	Level 4-5	Level 6-7
Criterion	Can use a ten frame to display numbers (0 to 10) systematically, but counts bottle tops in ones as places them in the ten frame.	Can use ten frames to display numbers (0 to 20) systematically without counting. Knows and recognises a full ten frame as ten ones without counting.	Able to use ten frames to display the numbers in a given word problem.	Able to add and subtract numbers using ten frames.

Mark ✓/7	Criteria – Checklist: (1 mark for each criterion achieved)	Achieved – ✓	Not yet – ✘	Almost – ★
1	Can use a ten frame to display numbers but places bottle tops arbitrarily on the ten frame.			
1	Can use a ten frame to display numbers (0 to 10) systematically, but counts bottle tops in ones as places them in the ten frame.			
1	Can use ten frames to display numbers (0 to 20) systematically, but counts bottle tops in ones as places them in the ten frame (does not yet recognise that a full ten frame is ten).			
1	Can use ten frames to display numbers (0 to 20) systematically without counting. Knows and recognises a full ten frame as ten ones without counting.			
1	Able to use ten frames to display the numbers in a given word problem			
1	Able to add numbers using ten frames.			
1	Able to add and subtract numbers using ten frames.			

Lesson 43: Practicing addition and subtraction number sentences

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Identify operations needed to solve number sentences.
Lesson Vocabulary: Make-a-ten, subtract, take away, less, add, and, more.
Resources: Bottle tops, ten frames.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	13 – 9 = __	4	**6**	11 – 4 = __	7
2	16 – 7 = __	9	**7**	15 – 7 = __	8
3	14 – 6 = __	8	**8**	17 – 8 = __	9
4	12 – 3 = __	9	**9**	11 – 6 = __	5
5	18 – 9 = __	9	**10**	12 – 5 = __	7

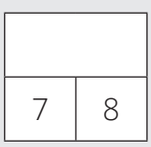
2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In today's lesson, learners are using what they have learnt about addition with carrying and subtraction with borrowing in order to solve number sentences quickly. It is important for learners to be able to identify which operation is needed in order to complete the number sentence, as they will be exposed to number sentences which have missing numbers in different places. Learners need to be able to recognise what they need to do in order to fill in the missing number.

Today we are learning to identify operations needed to solve number sentences.

Activity 1: Whole class activity

- Make sure each learner has two ten frames and some bottle tops.
- Draw a number bond table with 7 and 8 on the board.



- Let learners draw the same number bond table in their classwork books.

- Ask: **How can we make a number sentence for this number bond table?**
- Let learners write the number sentence in their classwork books. (7 + 8 = ☐)
- Let learners discuss which operation they use and what it looks like.
- Write the number sentence on the board for correction.
- Ask: **What number is written in the box?** (15)
- Give learners time to solve the problem using their ten frames and their bottle tops. (Put 7 and 8 in two ten frames separately and then add them.)
- Encourage learners to solve the problems as quickly as possible. (Encourage learners to think about the make-a-ten method as a faster way to solve the problem.)
- Ask a learner to come up to the board to fill in the missing number in the number sentence. (7 + 8 = 15)
- Ask another learner to come and write the missing number from the number sentence into the number bond table.
- Let learners fill in the missing numbers in their classwork books.
- Repeat the steps above with a variety of addition (with carrying) problems.

8 + 3 = ☐	4 + 9 = ☐	7 + 5 = ☐
(8 + 3 = 11)	(4 + 9 = 13)	(7 + 5 = 12)

Activity 2: Whole class activity

- Write the following number sentence on the board, with the number bond table (shown below) next to it:

15	
7	

7 + ☐ = 15

- Let learners write the number sentence and draw the number bond table in their classwork books.
- Ask: **What do you think you need to do in order to find the missing number?** (Learners may say they need to count on from 7 to get to 15; some learners may say that they could take 7 away from 15 in order to find the missing number.)
- Encourage learners to move away from the counting on method by using the number bond table to help them solve the problem more efficiently.
- Help learners to see that the number bond table uses **subtraction** as the operation to find the missing number.
- Let learners write the subtraction in their classwork book (15 – 7 =)

- Say: **Solve this problem (using your ten frames and bottle tops) and fill in the missing numbers in the number bond table and the number sentence.**
- Ask a learner to come up to the board to fill in the answer in the number bond table.
- Ask the learner to complete the number sentence

15	
7	**8**

7 + **8** = 15

- Then write the following number sentence on the board, with the number bond table (shown below) next to it:

15	
	8

☐ + 8 = 15

- Ask: **How do you write the number sentence for this number bond table?** (Discuss why the number sentence can be written ☐ + 8 = 15)
- Ask: **What do you think you need to do in order to find the missing number?** (Help learners to see that they can solve the problem by working out 15 – 8.)
- Say: **Solve this problem (using your ten frames and bottle tops) and fill in the missing numbers in the number bond table and the number sentence.**
- Ask a learner to come up to the board to write the answer in the number bond table.
- Ask the learner to complete the number sentence. (7 + 8 = 15)

15	
7	8

7 + 8 = 15

- Repeat the steps above with the following number sentences and number bond tables:

☐ + 9 = 12 (12 – 9 = 3)

3 + ☐ = 12 (12 – 3 = 9)

8 + ☐ = 14 (14 – 8 = 6)

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Find the missing numbers.

Write the number sentence that you used to solve the problem on the line provided.

a $6 + \square = 14$

14	
6	(8)

(14 – 6 = 8)

b $\square + 7 = 13$

13	
(6)	7

(13 – 7 = 6)

c $12 - \square = 4$

12	
(8)	4

(12 – 4 = 8)

d $11 - \square = 8$

11	
8	(3)

(11 – 8 = 3)

e $\square + 8 = 17$

17	
(9)	8

(17 – 8 = 9)

f $13 - \square = 8$

13	
8	(5)

(13 – 8 = 5)

4 HOMEWORK ACTIVITY (5 MINUTES)

Find the missing numbers.

Write the number sentence that you used to solve the problem on the line provided.

a $3 + \square = 12$

12	
3	(9)

(12 – 3 = 9)

b $\square + 6 = 11$

11	
(5)	6

(11 – 6 = 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 learnt to identify operations needed to solve number sentences.

Lesson 44: Addition and subtraction word problems (1)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve combine type addition (with carrying) and subtraction (with borrowing) problems in context (combine) with numbers up to 20.
Lesson Vocabulary: Make-a-ten, subtract, take away, less, subtract, take away, less.
Resources: Bottle tops, ten frames.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	5 + 9 = __	14	**6**	16 – 9 = __	7
2	6 + 7 = __	13	**7**	12 – 7 = __	5
3	8 + 6 = __	14	**8**	14 – 6 = __	8
4	4 + 8 = __	12	**9**	15 – 9 = __	6
5	7 + 9 = __	16	**10**	17 – 8 = __	9

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners will consolidate their understanding of addition with carrying and subtraction with borrowing, using word problems to create context. It is important to allow learners to discuss their solution methods so that they can share ideas and further develop their own understanding.

Today we are learning to solve combine type addition (with carrying) and subtraction (with borrowing) problems in context.

Activity 1: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.
- Write the following word problem on the board. *(subtraction combine)*
  There are 17 bikes.
  9 of them are blue and the rest are red.
  How many red bikes are there?
- Read the problem.
- Ask: **What is the story about?** (Bikes)

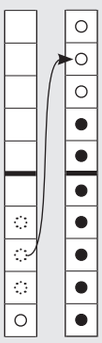
- Ask: **What numbers do you see in the story?** (17 and 9)
- Underline these numbers.
- Ask: **What is the question?** (How many red bikes are there?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, following after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Ask: **How can you solve this problem?** (We can use bottle tops on our ten frames, we can take 9 away from 17.)
- Ask: **Are we adding or subtracting to solve the problem?**
  - Subtracting.
  - The total number of bikes is 17.
  - The number of red bikes must be less than 17.
- Let learners write the number sentence in their classwork books. (17 – 9 = __)
- Write the number sentence on the board for correction. Read the number sentence together several times.
- Give learners time to solve the problem using their ten frames and bottle tops.
- Ask: **What can you tell me about how you moved your bottle tops on your ten frames?** (We used the subtracting from ten method and took 9 bottle tops from the 10 (the full ten frame), which left 1 on the ten frame. This 1 bottle top, together with the 7 bottle tops on the second ten frame, equals 8.)
- Ask a learner to come up to the board to place bottle tops on the large ten frames to show their solution to the problem.

- Write the answer on the board after learners complete the number sentence in their classwork books
  (17 – 9 = 8).
- Ask: **What is the answer to the word problem?** (There are 8 red bikes.)
- *Learners must write the final answer with the unit 8* ***red bikes****.*

Activity 2: Whole class activity

- Make sure that each learner has two ten frames and some bottle tops.
- Place two large ten frames on the board.

- Write the following word problem on the board. *(addition combine)*
  There are 4 red apples and
  and 7 green apples.
  How many apples are there all together?
- Read the problem.
- Ask: **What is the story about?** (Apples)
- Ask: **What numbers do you see in the story?** (4 and 7)
- Underline these numbers.
- Ask: **What is the question?** (How many apples are there altogether?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Ask: **How can you solve this problem?** (We can combine the red apples and the green apples.)
- Ask: **Are we adding or subtracting to solve the problem?**
  - Adding.
  - We are finding out the total number of apples.
- Let learners write the number sentence in their classwork books. (4 + 7 = __)
- Write the number sentence on the board for correction. Read the number sentence together several times.
- Give learners time to solve the problem using their ten frames and bottle tops.
- Ask: **What can you tell me about how you moved your bottle tops on your ten frames?** (We broke the 4 up into 3 and 1. We then took the 3 ones and put them at the top of the 7. This way we could make-a-ten, leaving only 1 one on the other ten frame card. We then saw that 1 + 10 = 11.)
- Ask a learner to come up to the board, and to place bottle tops on the large ten frames to show their solution to the problem.



- Write the answer on the board after learners complete the number sentence in their classwork books.
  (4 + 7 = 11)
- Ask: **What is the answer to the word problem?** (There are 11 apples altogether.)
- *Learners must write the final answer with the unit 11* ***apples****.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learners can use their ten frames and bottle tops, but they are expected to do calculations mentally at this stage.

1 Solve the word problems .

a There are 7 cows on the farm. There are 8 sheep on the farm. How many animals are on the farm? *(Addition combine*)
(7 + 8 = 15, 15 animals)

b There are 4 horses on the farm. There are 7 sheep on the farm. How many animals are on the farm? *(Addition combine)*
(4 + 7 = 11, 11 animals)

c There are 11 animals on the farm. 9 of them are sheep and the rest are cows. How many cows are there? *(Subtraction combine)*
(11 – 9 = 2, 2 cows)

2 Add or subtract without using bottle tops.

a 9 + 2 = (11)	**b** 6 + 7 = (13)	**c** 7 + 7 = (14)
d 16 – 9 = (7)	**e** 13 – 8 = (5)	**f** 12 – 3 = (9)
g 15 – 7 = (8)	**h** 11 – 7 = (4)	**i** 17 – 9 = (8)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Solve the word problem.
There are 14 animals on the farm. 8 of them are pigs and the rest are horses. How many horses are there? *(Subtraction combine)*
(14 – 8 = 6, 6 horses)

2 Add or subtract without using bottle tops.

a 7 + 8 = (15)	**b** 11 – 9 = (2)	**c** 12 – 7 = (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 learnt to solve combine type addition (with carrying) and subtraction (with borrowing) problems in context.

Lesson 45: 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 (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).		
Lesson Objective: Solve addition (with carrying) and subtraction (with borrowing) problems in context with numbers up to 20.		
Lesson Vocabulary: Subtract, take away, less.		
Resources: Bottle tops, ten frames.		
Date:	Week	Day

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

This week learners have focused on becoming more comfortable with identifying which operation needs to be used to solve a problem. It is important that learners are given the opportunity to think for themselves, rather than being told which operation to use each time. Learners need much practice in this, as the ability to determine the appropriate action becomes a necessary skill in later years at school. Learners are becoming increasingly aware that they can use inverse operations to solve problems involving missing numbers.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The use of the number bond table is essential as it helps learners to recognise how they can use inverse operations to solve problems. It is very important that learners discover this information for themselves rather than simply being told what to do. It is necessary for learners to conceptually understand that (for example) $2 + \square = 11$ is the same as $11 - 2 = \square$. If learners learn this information off by heart, they are likely to forget it. However, if learners discover this information through the use of number bond tables then they are far more likely to know what to do in future problems similar to these.

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 (with carrying) and subtraction (with borrowing) problems in context.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

Find the missing numbers.

Write the number sentence that you used to solve the problem on the line provided.

a $3 + \square = 14$

(14 – 3 = 9)

b $\square + 5 = 12$

(12 – 5 = 7)

c $17 - \square = 8$

(17 – 8 = 9)

d $\square - 7 = 4$

(7 + 4 = 11)

e $\square + 8 = 15$

(15 – 8 = 7)

f $\square - 5 = 8$

(5 + 8 =13)

g $12 - \square = 6$

(12 – 6 = 6)

h $\square - 5 = 6$

(5 + 6 = 11)

i $14 - \square = 8$

(14 – 8 = 6)

j $\square + 4 = 12$

(12 – 4 = 8)

k $\square + 9 = 15$

(15 – 9 = 6)

l $9 + \square = 16$

(16 – 9 = 7)

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 (with carrying) and subtraction (with borrowing) problems in context.

Week 10

Lesson 46: Addition and subtraction word problems (2)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve change type addition (with carrying) and subtraction (with borrowing) problems in context (change) with numbers up to 20.
Lesson Vocabulary: Subtract, take away, less.
Resources: Bottle tops, ten frames.
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	9 + 9 = __	18	**6**	12 – 4 = __	8
2	5 + 6 = __	11	**7**	17 – 9 = __	8
3	7 + 8 = __	15	**8**	11 – 7 = __	4
4	6 + 7 = __	13	**9**	14 – 5 = __	9
5	8 + 8 = __	16	**10**	13 – 8 = __	5

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

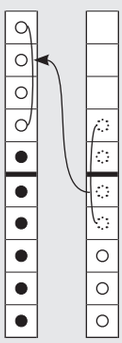
In this lesson learners will consolidate their understanding of addition with carrying and subtraction with borrowing, using word problems to create context. It is important to allow learners to discuss their solution methods so that they can share ideas, and further develop their own understanding.

This is the last week of Term 3. Learners are expected to do addition with carrying and subtraction with borrowing mentally (without using ten frames with bottle tops). However, they can use ten frames and bottle tops to check their answers and make corrections if necessary.

Today we are learning to solve change type addition (with carrying) and subtraction (with borrowing) problems in context.

Activity 1: Whole class activity

- Place two large ten frames on the board.
- Write the following word problem on the board. *(Addition change)*
  There are 6 children.
  7 more children arrive.
  How many children are there now?
- Read the problem.
- Ask: **What is the story about?** (Children)
- Ask: **What numbers do you see in the story?** (6 and 7)
- Underline these numbers.
- Ask: **What is the question?** (How many children are there?)
- Underline the question with a wavy line.
- When the learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let the learners read the problem until they read it fluently.
- Ask: **How can you solve this problem?** (We can add 6 and 7, because the number of children increased after 7 more children arrived.)
- Let learners write the number sentence with its answer in their classwork books. (6 + 7 = 13)
- Ask a learner to come up to the board, and to place bottle tops on the large ten frames to show their solution to the problem.

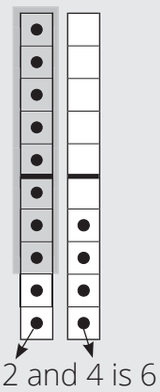


- Write the number sentence on the board for correction. (6 + 7 = 13)
- Ask: **What is the answer to the word problem?** (There are 13 children.)
- *Learners must write the answer with the unit 13* ***children****.*

Activity 2: Learners work in pairs

- Place two large ten frames on the board.
- Write the following word problem on the board. *(subtraction change).*
  There were 14 birds on the tree.
  8 of them flew away.
  How many birds are there now?
- Read the problem.
- Ask: **What is the story about?** (Birds)

- Ask: **What numbers do you see in the story?** (14 and 8)
- Underline these numbers.
- Ask: **What is the question?** (How many birds are there now?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Ask: **How can you solve this problem?** (We can take away 8 from 14, because 8 birds flew away/disappeared.)
- Let learners write the number sentence with its answer in their classwork books. (14 – 8 = 6)
- Ask a learner to come up to the boa to place bottle tops on the large ten frames to show their solution to the problem.



- Write the number sentence on the board for correction. (14 – 8 = 6)
- Ask: **What is the answer to the word problem?** (There are 6 birds.)
- *Learners must write the answer with the unit 6* ***birds****.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Learners can use their ten frames and bottle tops, but they are expected to do calculation mentally at this stage.

1 Solve the word problems .

a There are 16 pigs. 7 pigs go play in the mud. How many pigs are left? *(Subtraction change)*
(16 – 7 – 9, 9 pigs)

b There are 14 horses. 8 horses go to the field. How many horses are left? *(Subtraction change)*
(14 – 8 = 6, 6 horses)

c There are 2 cows in the field. 9 more cows arrive. How many cows in the field? *(Addition change)*
(2 + 9 = 11, 11 cows)

2 Add or subtract without using bottle tops.

a 13 – 9 = (4)

b 15 – 8 = (7)

c 11 – 9 = (2)

d 16 – 7 = (9)

e 12 – 4 = (8)

f 18 – 9 = (9)

g 7 + 6 = (13)

h 9 + 8 = (17)

i 4 + 7 = (11)

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Solve the word problem .
There are 5 birds on the branch. 8 more birds land on the branch. How many birds on the branch now? *(Addition change)*
(5 + 8 = 13, 13 birds)

2 Add or subtract without using bottle tops.

a 17 – 9 = (8)

b 6 + 9 = (15)

c 14 – 7 = (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 learnt to solve change type addition (with carrying) and subtraction (with borrowing) problems in context.

Lesson 47: Addition and subtraction word problems (3)

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve compare type addition (with carrying) and subtraction (with borrowing) problems in context (compare) with numbers up to 20.
Lesson Vocabulary: Make-a-ten, add, and, more, subtract, take away, less.
Resources: Bottle tops, ten frames, addition (with carrying) cards AND subtraction (with borrowing) cards (See *Printable Resources*), number cards (11 to 18 and 2 to 9) (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	4 + 7 = __	11	**6**	16 – 8 = __	8
2	16 – 7 = __	9	**7**	2 + 9 = __	11
3	3 + 9 = __	12	**8**	17 – 9 = __	8
4	14 – 8 = __	6	**9**	5 + 9 = __	14
5	6 + 7 = __	13	**10**	13 – 8 = __	5

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

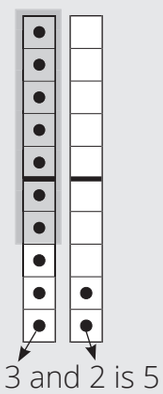
In this lesson learners will consolidate their understanding of addition with carrying and subtraction with borrowing, using word problems to create context. It is important to allow learners to discuss their solution methods so that they can share ideas, and further develop their own understanding.

This is the last week of Term 3. Learners are expected to do addition with carrying and subtraction with borrowing mentally (without using ten frames with bottle tops). However, they can use ten frames and bottle tops to check their answers and make corrections if necessary.

Today we are learning to solve compare type addition (with carrying) and subtraction (with borrowing) problems in context.

Activity 1: Learners work in pairs

- Place two large ten frames on the board.
- Write the following word problem on the board. *(Subtraction compare)*
  There are 7 boys
  and 12 girls.
  Are there less boys or girls?
  How many less?
- Read the problem.
- Ask: **What is the story about?** (Girls and boys)
- Ask: **What numbers do you see in the story?** (7 and 12)
- Underline these numbers.
- Ask: **What is the question?** (Are there less boys or girls? How many less?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Ask: **How can you solve this problem?** (We can take away 7 from 12, because we are comparing the numbers of boys and girls.)
- Let learners work out the answer and then write the number sentence with its answer in their classwork books (12 – 7 = 5).
- Ask a learner to come up to the board to place bottle tops on the large ten frames to show their solution to the problem.

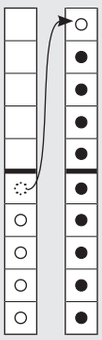


- Write the number sentence on the board for correction. (12 – 7 = 5)
- Ask: **What is the answer to the word problem?** (There are 5 less boys than girls.)
- *Learners must write the answer with the unit 5* ***boys****.*

Activity 2: Learners work in pairs

- Place two large ten frames on the board.
- Write the following word problem on the board. *(addition compare).*
  There are 9 cows.
  There are 5 more sheep than cows.
  How many sheep are there?

- Read the problem.
- Ask: **What is the story about?** (Farm animals)
- Ask: **What numbers do you see in the story?** (9 and 5)
- Underline these numbers.
- Ask: **What is the question?** (How many sheep are there?)
- Underline the question with a wavy line.
- When learners understand the story, let them read the word problem, repeating after you sentence by sentence.
- Let learners read the problem until they read it fluently.
- Ask: **How can you solve this problem?** (We can add 5 to 9, because the number of sheep must be bigger than the number of cows, which is 9.)
- Let learners work out the answer and then write the number sentence with its answer in their classwork books (9 + 5 = 14).
- Ask a learner to come up to the board to place bottle tops on the large ten frames to show their solution to the problem.



- Write the number sentence on the board for correction. (9 + 5 = 14)
- Ask: **What is the answer to the word problem?** (There are 14 sheep.)
- *Learners must write the answer with the unit 14* ***sheep****.*

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Read the rules of the games (in the boxes below) carefully so that you can explain to the learners how to play the games.

Subtraction card game: Rules of the game

1. Learners play with subtraction cards in pairs.
2. Give each pair of learners a set of subtraction cards. Learners shuffle all the subtraction cards and pile them up between them.
3. Each learner must pick up one card and put it on the table.
4. The learner who gets the card with the smaller number as its answer, wins and keeps the cards.
5. Continue doing this until all of the cards in the centre have been used.
6. The learner with the most cards is the winner of the round.
7. Play another round of the game, but this time change the rule so that the learner who gets the bigger number wins.

Addition card game: Rules of the game

1. Learners play with addition-with-carrying cards in pairs.
2. Give each pair of learners a set of addition-with-carrying cards and a set of number cards (11 to 18).
3. Learners begin by laying out the number cards across the top of their desk with the numbers showing.
4. Learners then shuffle all the addition-with-carrying cards and pile them up between them.
5. Each learner must pick up one card and put it on the table underneath the number card that shows the correct answer to the number sentence.
6. Continue doing this until all of the cards in the centre have been used.
7. Play another round of the game to continue practising addition with carrying.

1 Solve the word problems .

a There are 13 boys and 9 girls. Are there less boys or girls? How many less?
(Subtraction compare)
(13 – 9 = 4, 4 less girls)

b There are 14 dogs and 5 cats. Are there less dogs or cats? How many less?
(Subtraction compare)
(14 – 5 = 9, 9 less cats)

c There are 7 pigs. There are 8 more sheep than pigs. How many sheep are there?
(Addition compare)
(7 + 8 = 15, 15 sheep)

2 Play the subtraction-with-borrowing and addition-with-carrying card games. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Solve the word problem.
There are 5 dogs. There are 8 more cats than dogs. How many cats are there?
(Addition compare)
(5 + 8 = 13, 13 cats)

2 Add or subtract without using bottle tops.

a 7 + 6 = (13) **b** 16 – 9 = (7) **c** 13 – 5 = (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 learnt to solve compare type addition (with carrying) and subtraction (with borrowing) problems in context.

Lesson 48: Addition and subtraction stories

Teacher's notes
This lesson is one of the fully planned lessons to be used to cover the Term 3 curriculum.
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Create stories for addition with carrying and subtraction with borrowing to assist in developing understanding of word problems.
Lesson Vocabulary: Make-a-ten, add, and, more, subtract, take away, less.
Resources: Bottle tops, ten frames, addition (with carrying) cards AND subtraction (with borrowing) cards (See *Printable Resources*), number cards (11 to 18 and 2 to 9) (see *Printable Resources*).
Date: Week Day

1 MENTAL MATHS (10 MINUTES)

	What is?	Answer		What is?	Answer
1	6 + 7 = __	13	**6**	17 – 8 = __	9
2	18 – 9 = __	9	**7**	4 + 9 = __	13
3	5 + 9 = __	14	**8**	12 – 6 = __	6
4	16 – 8 = __	8	**9**	8 + 7 = __	15
5	9 + 7 = __	16	**10**	11 – 8 = __	3

2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson, learners will create stories for addition with carrying and subtraction with borrowing. This helps them to work with numbers in context, making maths more relevant to the learners. Learners need to be able to identify the key information in addition and subtraction stories (word problems) so that they are able to solve the problems. Make sure you encourage learners to listen to the stories carefully, and help them to identify the relevant information.

This is the last week of Term 3. Learners are expected to do addition with carrying and subtraction with borrowing mentally (without using ten frames with bottle tops). However, they can use ten frames and bottle tops to check their answers and make corrections if necessary.

Today we are learning to work with addition (with carrying) and subtraction (with borrowing) stories.

Activity 1: Learners work in pairs

- Write a number sentence on the board. (9 + 6 =)
- Let learners write 9 + 6 = in their classwork books.
- Ask the learners to make up an addition story about the number sentence.
- For example, the problem could be as follows:
  I have 9 pencils and
  my friend brings me 6 more pencils.
  How many pencils do I have altogether?
- Ask one learner to share their story with the class.
- Write the story on the board so that learners can see the problem in three lines.
- Provide opportunities for other learners to share their stories.
- Repeat the steps above, but this time ask the learners to make up a story for 14 – 8 =.

Activity 2: Whole class activity

- Place two large ten frames on the board.
- Select one of the addition problems suggested in Activity 1. E.g.
  I have 9 pencils and
  my friend brings me 6 more pencils.
  How many pencils do I have altogether?
- Read the problem.
- Ask: **What is the story about?** (Pencils)
- Ask: **What numbers do you see in the story?** (9 and 6)
- Underline these numbers.
- Ask: **What is the question?** (How many pencils do I have altogether?)
- Underline the question with a wavy line.
- Let learners solve the problem and write the number sentence in their classwork books.
- Ask learners to discuss their solution methods with the learners sitting near them.
- Ask a learner to write the number sentence on the board. (9 + 6 = 15)
- Ask: **What is the answer to the word problem?** (I have 15 pencils altogether.)
- *Learners must write the answer with the unit, 15* ***pencils****.*
- Repeat the steps above using one of the subtraction stories suggested in Activity 1.

3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

NOTE: Read the rules of the games (in the boxes below) carefully so that you can explain to the learners how to play the games.

Subtraction card game: Rules of the game

1. Learners play with subtraction-with-borrowing cards in pairs.
2. Give each pair of learners a set of subtraction-with-borrowing cards and a set of number cards (2 – 9).
3. Learners take one number card and place it facing number side up on top of the pile between the two learners.
4. Learners shuffle all the subtraction-with-borrowing cards and lay them out between them, with the number sentence side showing.
5. Learners must then each try to find as many number sentences matching the number card as quickly as possible.
6. The learners can check that they have selected the correct number sentences once they have found all the matching number sentence cards.
7. The winner of the round is the learner with the most cards.
8. Play another round of the game, by changing the number card on top of the pile.
9. Make sure all the number sentence cards are returned to the pile, shuffled and laid out between the learners again before beginning the second round.

Addition card game: Rules of the game

1. Learners play with addition-with-carrying cards in pairs.
2. Give each pair of learners a set of addition-with-carrying cards and a set of number cards (11 to 18).
3. Make sure the addition-with-carrying cards are shuffled.
4. One learner gets the addition-with-carrying cards and the other learner gets the number cards.
5. The learner with the addition-with-carrying cards selects one number sentence to show the other learner.
6. The learner with the number cards quickly finds the answer to the number sentence in the number cards pile and holds it up.
7. The learner with the addition-with-carrying cards checks the answer on the back of the number sentence card.
8. Continue doing this until all of the addition-with-carrying cards have been used.
9. Play another round of the game, by reshuffling the addition-with-carrying cards and swapping which learner holds the addition-with-carrying cards and which learner holds the number cards.

1 Solve the word problems .

a There are 17 apples. 9 get eaten. How many apples are left? *(Subtraction change)*
(17 – 9 = 8, 8 apples)

b There are 6 red flowers and 7 yellow flowers. How many flowers altogether? *(Addition combine)*
(6 + 7 = 13, 13 flowers)

c There are 15 balloons. 8 float away. How many balloons are left? *(Subtraction change)*
(15 – 8 = 7, 7 balloons)

2 Play the subtraction-with-borrowing and addition-with-carrying card games. Your teacher will explain the rules.

4 HOMEWORK ACTIVITY (5 MINUTES)

1 Solve the word problem.
There are 7 pink balloons and 4 blue balloons. How many balloons altogether? *(Addition combine)*
(7 + 4 = 11, 11 balloons)

2 Add or subtract without using bottle tops.

a 7 + 9 = (16) **b** 16 – 8 = (8) **c** 12 – 6 = (6)

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 work with addition (with carrying) and subtraction (with borrowing) stories.

Lesson 49: Assessment

Teacher's notes		
This lesson should be used for assessment of the content covered in this unit to date.		
CAPS topics: 1.6 Problem-solving techniques; 1.7 Addition and subtraction; 1.12 Techniques (methods or strategies); 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: You should provide learners with opportunities to practise solving subtraction (with borrowing) in context through the use of word problems. Ensure that you allow learners opportunities to discuss their solution methods, and to share ideas. Refer to lessons 26, 27, 39 and 41 for more detail on how to encourage learners to solve problems using the make-a-ten method when you go over this test with the class.

Learners should be allowed to use bottle tops when they solve these problems if necessary but encourage them to try to do the calculations without using bottle tops.

WRITTEN ASSESSMENT (21)

1 Solve the following problems. $(3 \times 3 = 9)$

a Bongi ate 7 grapes for lunch. Laranya ate 8 grapes. How many grapes did the girls eat altogether? *(Addition combine)*
(7 + 8 = 15, 15 grapes)

b Nolisiwe baked 12 cakes. She gave 6 to her family. How many cakes does Nolisiwe have now? *(Subtraction change)*
(12 – 6 = 6, 6 cakes)

c Sipho scored 14 goals for his team. Michael scored 9 goals. How many more goals did Sipho score than Michael? *(Subtraction combine)*
(14 – 9 = 5, 5 more goals)

2 Find the missing numbers. (6 × 2 = 12)
Write the number sentence that you used to solve the problem on the line provided.

a 9 + ☐ = 14

14	
9	(5)

(14 – 9 = 5)

b ☐ + 6 = 11

11	
(5)	6

(11 – 6 = 5)

c 17 – ☐ = 8

17	
8	(9)

(17 – 8 = 9)

d ☐ – 7 = 5

(12)	
7	5

(7 + 5 = 12)

e ☐ + 6 = 15

15	
(9)	6

(15 – 6 = 9)

f ☐ – 5 = 8

(13)	
5	8

(5 + 8 =13)

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 (in context); 1.12 Techniques (methods or strategies); 1.13 Addition and subtraction (context free).
Lesson Objective: Solve compare type addition (with carrying) and subtraction (with borrowing) problems in context with numbers up to 20.
Lesson Vocabulary: Make-a-ten, add, and, more, subtract, take away, less.
Resources: Bottle tops, ten frames, addition (with carrying) cards (see *Printable Resources*), subtraction (with borrowing) cards (See *Printable Resources*), number cards (11 to 18 and 2 to 9) (see *Printable Resources*).
Date: Week Day

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

This week learners have consolidated their understanding of addition with carrying and subtraction with borrowing. They have practised solving both addition and subtraction word problems, and have used addition-with-carrying and subtraction-with-borrowing cards to reinforce their knowledge.

2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

It is important to work through both addition and subtraction problems in lessons so that learners become comfortable with having to select which operation is required to solve a problem. If only one operation is used at a time in every lesson, learners do not need to think about how to solve the problem. They then solve problems by 'following a recipe', as they know the specific focus for each day. It is essential for learners to be able to understand problems and stories well enough so that they can determine for themselves which operations are needed to solve them.

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

Today we are going over what we learned this week. We are learning about addition (with carrying) and subtraction (with borrowing) problems in context.

4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

NOTE: Read the rules of the games (in the boxes below) carefully so that you can explain to the learners how to play the games. Provide learners with opportunities to practise solving addition (with carrying) and subtraction (with borrowing) in context through the use of word problems. Ensure that you give learners opportunities to discuss their solution methods, and to share ideas. Refer to lessons 26, 27, 39 and 41 for more detail on how to encourage learners to solve problems using the make-a-ten/subtracting from ten method.

Addition-with-carrying: Rules of the game

1 Give each pair of learners a set of addition-with-carrying cards.

2 Learners shuffle all the addition-with-carrying cards and pile them up between them.

3 Each learner must pick up one card and put it on the table.

4 The learner who gets the card with the smaller number as its answer, wins and keeps the cards.

5 Continue doing this until all of the cards in the centre have been used.

6 The learner with the most cards is the winner of the round.

7 Play another round of the game, but this time change the rule so that the learner who gets the bigger number wins.

Subtraction-with-borrowing: Rules of the game.

1 Give each pair of learners a set of subtraction-with-borrowing cards and a set of number cards (2 to 9).

2 Learners begin by laying out the number cards across the top of their desks, showing the numbers.

3 Learners then shuffle all the subtraction-with-borrowing cards and pile them up between them.

4 Each learner must pick up one card and put it on the table underneath the number card that shows the correct answer to the number sentence.

5 Continue doing this until all of the cards in the centre have been used.

6 Play another round of the game to continue practising subtraction with borrowing.

11 Nyakazi read 9 books. Khaya also read 9 books. How many books did they read altogether?
(9 + 9 = 18, 18 books)

2 Lungelo's dog had 11 puppies. His parents gave 6 puppies away. How many puppies remain?
(11 – 6 = 5, 5 puppies)

3 Find the missing numbers.
Write the number sentence that you used to solve the problem on the line provided.

a 8 + ☐ = 16

16	
8	(8)

(16 – 8 = 8)

b ☐ + 7 = 13

13	
(6)	7

(13 – 7 = 6)

c 11 – ☐ = 8

11	
8	(3)

(11 – 8 = 3)

4 Play the addition-with-carrying card and subtraction-with-borrowing card games. Your teacher will explain the rules.

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 compare type addition (with carrying) and subtraction (with borrowing) problems in context.