

**MATHEMATICS**

**Grade 3**

**TERM 1 2019**

**Lesson**

**Plans**



# Acknowledgement:

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



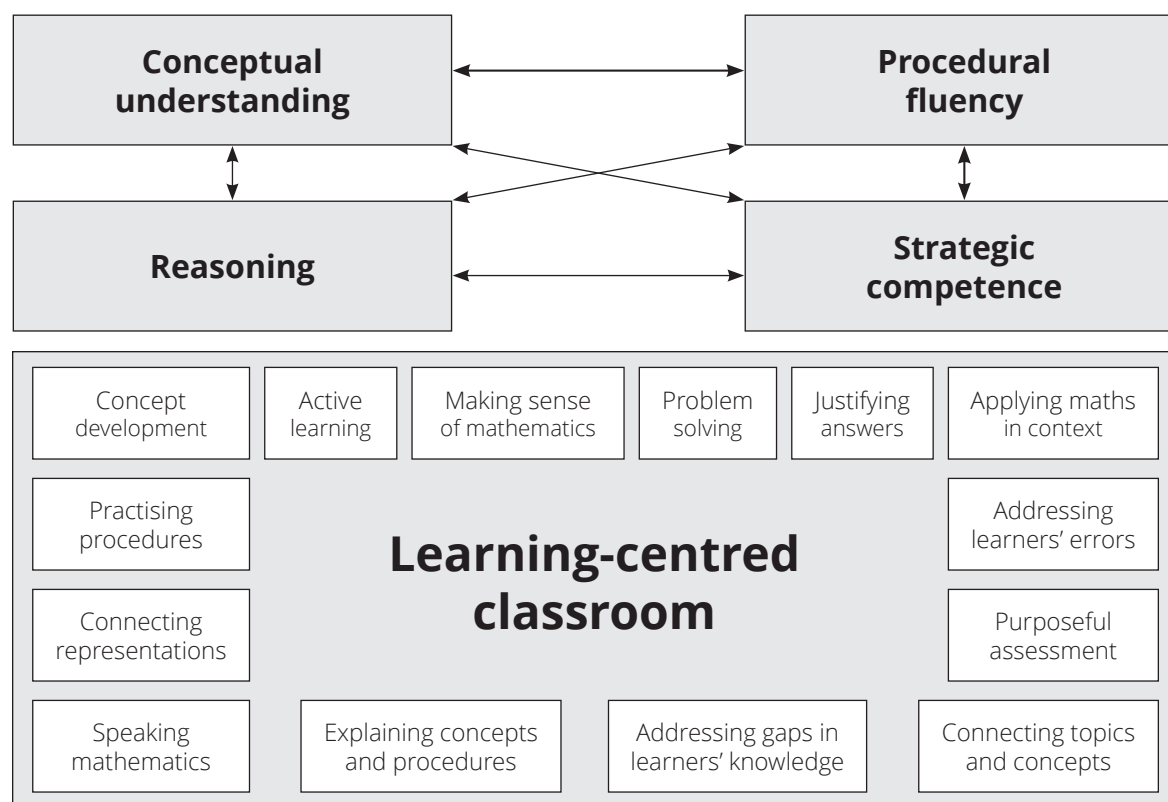
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# Teaching mathematics for Understanding (TMU)

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



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

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

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

# Glossary of important terms used in the TMU lesson plans

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

## Calculation

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### **ADDITION WITH CARRYING**

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

### **SUBTRACTION WITH BORROWING**

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

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

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

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

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

### **COLUMN METHOD**

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



**NUMBER BONDS**

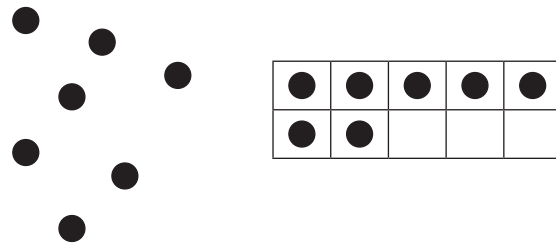
A calculation technique that consists of building up (composition) and breaking down (decomposition). For instance, 4 can be broken down into 1 and 3, 2 and 2 and 3 and 1. These are the number bonds of 4. The number bonds of 10 are the most important since they are used in all calculation strategies.

**EXPANDED NOTATION**

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

**SUBITISING**

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



**JUMPING STRATEGIES ON A NUMBER LINE**

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



**Representations**

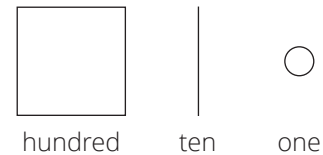
**CPA APPROACH**

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

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

**SIMPLIFIED PICTORIALS**

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



**PLACE VALUE TABLE (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). On the right is the sample of a number 37 shown in the place value table.

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

**ARRAY DIAGRAM (GR 2, 3)**

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

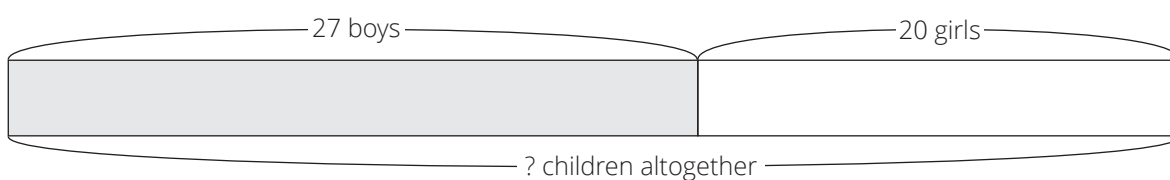


**MULTIPLICATION TABLE (GR 2, 3)**

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

### BAR DIAGRAM

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



## Resources

### MANIPULATIVES

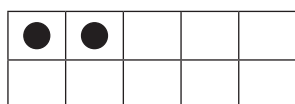
These are concrete apparatus such as counters, printed tens, printed hundreds, box and ball shapes, etc. that can be manipulated by learners.

### COUNTERS

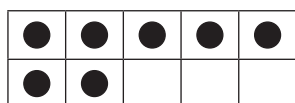
These are any (loose) concrete objects that learners can manipulate when counting. In the TMU bottle tops are recommended since they are freely available but other counters can also be used such as interlocking cubes (e.g. Unifix cubes). Teachers are expected to use concrete counters such as bottle tops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

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

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

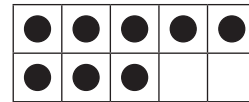
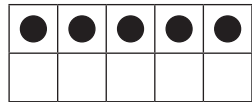


This is the number 7 represented on a double-decker ten frame (visual of 5 plus 2):



**TEN FRAME CARDS (GR 1)**

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



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

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



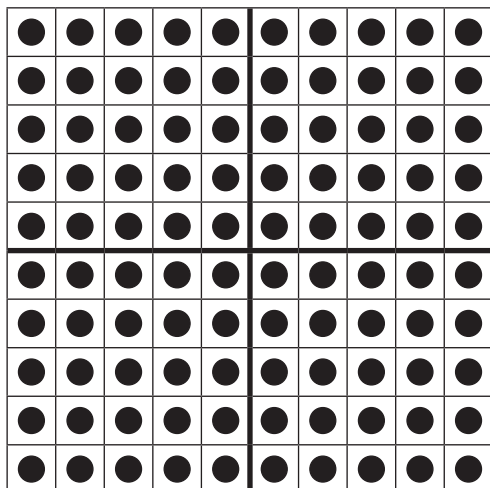
**PRINTED TEN**

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



**PRINTED HUNDRED (GR 3)**

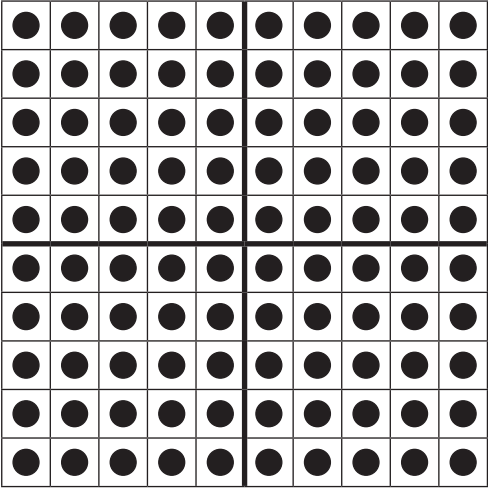

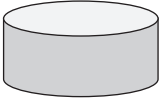
Printed version of a group of 100 ones. You should call them 'hundred(s)' in the lesson.



**BASE TEN KITS (ALL)**

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

Glossary of important terms used in the TMU lesson plans

100	10	1
hundred	ten	one
		

# About the Lesson Plans and Resources

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

The other documents in the toolkit are:

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

## A ABOUT THE LESSON PLANS

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

### 1 CURRICULUM ALIGNMENT

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

### 2 DBE WORKBOOKS

Pilot implementation schools have been given permission **not** to use the DBE workbooks. You will use your CAPS and lesson plan aligned Learner Activity Books (LAB) instead. The LAB has been designed to include activities from the DBE workbook wherever possible. Bilingual LAB material is provided in English and the LoLT of the school in accordance with the Foundation Phase language policy.

### 3 BROAD OVERVIEW OF THE CONTENT OF THE LESSON PLANS

Each lesson plan provides a set of steps to guide you in delivering the lesson. In addition, it contains learner activities that will help learners develop the concepts and skills set for the lesson. There are mental maths activities, whole class activities led by the teacher, classwork and homework activities. The answers for the classwork and homework are included in the lesson plans. The classwork and homework activities form the content of the LAB which is provided in a bilingual workbook format.

#### **4 ASSESSMENT**

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

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

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

A set of orientation activities on eight different topics aligned with the CAPS baseline assessment requirements is provided for the start of the first term. You should use all or a selection of these activities in the first week of term before the formal teaching of the numbered lesson plans begins. The formal curriculum for Term 1 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. If your school's timetable has different period lengths, you will have to adjust the amount of work done in each lesson to accommodate this. However, each school should allow seven hours for Mathematics each week so it should be possible to fit in all the work for the week, even if the lengths of periods are not the same as in the lesson plans.

#### **6 SEQUENCE ADHERENCE AND PACING**

Each of the fully planned lessons and its contents has been carefully sequenced. You should not skip one of these lessons. Should you miss a school day for any reason, rather skip a consolidation lesson nearby to the lesson that you are busy teaching. You might choose to speed up the pace of delivery to catch up a missed lesson by covering the lesson concept content of two consecutive days in one day. To do this, you could cut out or cut back on some of the routine activities like mental mathematics or homework reflection to save time until you are back on track with the expected delivery of the plans.

# Preparing to teach a lesson

The lesson plans provide a detailed lesson design for you to follow. However, to deliver the lessons successfully **you must do the necessary preparation yourself**.

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

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

- a Prepare resources:** The resources needed for each lesson are listed in each lesson plan and in the tracker. It is very important that you check what is required for each lesson ahead of time, so that you have all your resources ready for use every day (e.g. bottle tops, number grids, paper cut-outs, examples of shapes, etc.).
- **Your lessons will not succeed if you have not prepared properly ahead of time.**
  - If you do not have all the necessary resources readily available, see how best you can improvise, e.g. get learners to collect bottle tops or small stones to be used for counting, or make your own flard cards/number grids using pieces of cardboard and a marker pen.
  - Collect empty cool drink cans, cereal boxes, washing powder boxes, plastic bottles etc. for the **shop activity** in the week long in advance, so that you have all the necessary goods to stock your shop.
  - Use newspapers and magazines to cut out pictures that could be used in your teaching. If you have access to the internet, search for and print out pictures that you may need to use as illustrations in your lessons.
- b Prepare for the written classwork and homework activities:** When preparing your lessons, check the lesson activity requirements. In some instances you will need to write information or draw some diagrams on the board that you will use while you do the interactive whole-class-teaching component of the lesson. Also mark the homework activities as often as you can, so that you can give useful feedback to the learners each day, and be aware of any difficulties learners are having as soon as they become apparent.
- c Prepare to teach the concepts and skills associated with the lesson topic:** Think carefully about what it is that you will teach your learners in the lesson. Prepare a short introduction to the topic, so that you can explain it in simple terms to your learners. Make sure you have prepared for the teaching of the concepts before you teach – you need to be able to explain new Mathematics content and skills to the learners. Be sure you have gone through the oral teaching activities provided in the lesson plans. Also make sure that you have thought about how to use the resources in the lesson effectively. This preparation needs to be done in advance, so that you do not waste time during the lesson. Be sure you are familiar with the sequence of activities in the lesson plan. Prepare yourself to assist learners with any questions they might have during the lesson. Also give some thought to how you will accommodate learners with barriers to learning.



- d Lesson pace:** Think about how much time you will spend on each activity. It is important to plan how you will manage the pace of the lesson carefully; otherwise you will not manage to cover all the lesson content. Not all learners work at the same pace. You need to determine the pace – be guided by the average learner and the recommendations in the lesson plans. Be careful not to slow down to the pace of the slowest learners as this will disadvantage the other learners.
- e Organisation of learners:** Think about how you will organise learners when they do the classwork activities. Will they work alone, in pairs or in small groups? How will you organise the pairs or groups if you choose to use them? You need to organise the learners quickly at the beginning of the lesson, so that you do not waste too much time on this.
- f Inclusive education:** Consider the needs of any learners with barriers to learning in your class, and how best you can support them. The DBE has published some excellent materials to support you in working with learners with learning barriers. Two such publications are:
- Directorate Inclusive Education, Department of Basic Education (2011) *Guidelines for Responding to Learner Diversity in the Classroom Through Curriculum and Assessment Policy Statements*. Pretoria. [www.education.gov.za](http://www.education.gov.za), [www.thutong.doe.gov.za/InclusiveEducation](http://www.thutong.doe.gov.za/InclusiveEducation).
  - Directorate Inclusive Education, Department of Basic Education (2010) *Guidelines for Inclusive Teaching and Learning. Education White Paper 6. Special needs education: Building an inclusive education and training system*. Pretoria. [www.education.gov.za](http://www.education.gov.za), [www.thutong.doe.gov.za/InclusiveEducation](http://www.thutong.doe.gov.za/InclusiveEducation).

# Lesson Plan Outline

Each lesson plan has several components. Information about each one is given in the table below. This information tells you how to use each of the components of the lesson plans and how they fit together to create a well-paced and properly scaffolded Mathematics lesson each day. You should read this outline as you prepare each lesson until you are fully familiar with the general lesson plan components, pace and structure.

## Teacher's notes

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

A list of the lesson vocabulary is included in the teacher's notes. This is a list of the important mathematical vocabulary used in the lesson. The vocabulary, with explanations and diagrams, is also provided in the bilingual dictionary that is part of your Toolkit. You should go through the lesson vocabulary each day as you prepare for the lesson. These terms are important as they are the language of Mathematics that each learner needs to learn and understand in order to build a solid foundation and understanding of this subject. It is important to explain these words to your learners and encourage learners to use them as well. If you have learners in your class who are not yet comfortable in the Language of Teaching and Learning (LoLT), try and explain the word in a language they understand. Use gestures, pictures or enlist the help of another learner who is familiar with the home language of the learner who is struggling with a language barrier.

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

### **Mental mathematics (10 minutes)**

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

Mental mathematics is not a concrete activity (as the title suggests). Remember a concrete activity uses actual material to scaffold learning. However, if there are learners who need concrete aids to complete the mental mathematics activities, we suggest that you allow them to use their fingers to count on.

- Observe which learners struggle with mental activities, and make sure you spend time later to help them reach the required level of competence by offering remediation activities using concrete aids.
- The answers to the mental mathematics questions are given in the answer column in the lesson plans.

- You should try and complete all of each day's mental mathematics questions, but if you find that your learners struggle to finish these in ten minutes, do a minimum of five questions.

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

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This is the second component of the lesson. It is the body of the lesson, in which learners are introduced to the new work planned for the day. We recommend that you actively teach your class for 45 minutes – going through the activities interactively with your learners.

- Activities on the content that you will teach with worked examples and suggested explanations are given. These activities have been carefully sequenced and scaffolded so that they support the teaching of the concepts for that day. You should work through each of these with your class.
- It is important to manage the pace of the lesson carefully otherwise you will not manage to cover all the lesson content. Once you have introduced the new concept, work through Activity 1 of the lesson with the whole class (or with learners in groups). Then immediately move on to the next activity, and provide a reasonable time for the learners to complete Activity 2, but do not wait for the last learner to finish before moving on. If there are further activities, continue pacing yourself in this way, so that you work through all of the activities in each lesson. A few activities are marked as *optional* – these need only be done if you have sufficient time.

## **Classwork activity and correction of homework (25 minutes)**

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

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

When you assign the classwork, you could go over one or two of the classwork activities orally with the whole class before allowing the class to complete the activities independently (individually or in groups).

- Learners should do their classwork in their mathematics exercise books.
- Learners should work individually, in pairs and in groups so that they experience working alone as well as with their peers.
- Individual work is so important. Sometimes, in group work, only one or very few learners lead the group, they do all the work and present it to the class for the group. Group work does not guarantee every learner's learning and understanding. Some of the group members may have been left behind without knowing exactly what has been

has done. Learners should first work individually and then discuss what they have done with the rest of the group, based on what they have in their classwork book or worksheets.

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

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

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

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

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

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

## **Reflection (5 minutes)**

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

# Week 1 Revision Lesson Activities

The lesson activities given below are for you to use on the first few days of school when the learners are still settling down and you are not quite ready to start the formal CAPS lesson plans that follow. These revision lesson activities will help you to keep learners occupied in a meaningful way at the beginning of the term and to make observation notes on their mathematical knowledge development. The observation notes that you make will inform your intervention strategies. It will also help you get to know the learners.

Activities are provided relating to eight CAPS topics. You do not need to use all of these activities.

- Choose the ones that you think would be best for your learners to work on in order to revise/recap on work done in the previous year.
- You can do them in the order of your choice.
- For some of the activities you will need to work with your learners interactively. Others learners can do independently or in groups.

Keep a notebook where you write your observations on learners' knowledge.

## CAPS baseline framework

Criteria: Can the learners	Yes	No
Write numbers symbols up to 100		
Write number names up to 100		
Count in 2s, 10s and 5s from any given number		
Build numbers up to 99 using 10s and units		
Decompose numbers up to 99 using tens and units		
Add and subtract numbers to 20 mentally		
Add and subtract numbers to 20		
Start to notice that subtraction is the inverse of addition		
Solve addition and subtraction problems in context (money) up to 99		
Count in groups of 10 up to 100		
Read the number symbols 1 to 100		
Recognise halves and quarters		
Describe if a 3-D object can roll or slide		
Describe the edges of a 3-D object		
Describe the position of a 3-D object		
Name 2-D shapes (triangle, circle, square and rectangle).		

Criteria: Can the learners	Yes	No
Describe 2-D shapes in terms of sides (straight/curved/ number of sides).		
Estimate and measure length using non-standard measures		
Estimate and measure capacity using non-standard measures		
Estimate and measure mass using non-standard measures		
Organise data using a table		
Complete a pictograph		

## Topic 1: Number concept

### CONCEPTS AND SKILLS FOR TODAY

- Decompose numbers up to 99 using tens and units
- Write numbers in symbols and words up to **100**.
- Count in **2s, 5s and 10s** up to **100**.
- Complete number sequences for counting forwards and backwards in **2s, 5s and 10s** up to **200**.
- Extend **2s, 3s, 4s, 5s and 10s** number sequences up to **100**.

### WARM-UP ACTIVITY

Draw a large 100 square on the board (or point to it on the wall if you have one). Call on different learners to come to the front and show you some different numbers.

- Choose pairs of numbers that you can discuss in terms of similarities and differences.
- Show 24. *How many tens?* (2) *How many units?* (7)
- Show 42. *How many tens?* (4) *How many units?* (2) *How are 24 and 42 the same?* (They are written using the same two digits.) *How are they different?* (The tens and the units' digits are different to each other.)
- Show 16. *How many tens?* (1) *How many units?* (6)
- Show 61. *How many tens?* (6) *How many units?* (1) *Which is bigger? 16 or 61?* (61) *Why?* (Because it has 6 tens while 16 only has 1 ten.)
- Show 70. *How many tens?* (7) *How many units?* (0)
- Show 17. *How many tens?* (1) *How many units?* (7) *How are 70 and 17 different?* (They sound the same but they are different numbers.)
- Etc.

### ACTIVITIES

Give learners the following activities to do. They could work with a 100 board (see *Printable Resources*). Circulate and ask learners to give you oral explanations of what they did.

Activity	Can the learners	Observation
<p><b>1</b> Work with a partner. Choose a number between 0 and 100. Ask your partner to write the number symbol and number name. Do the same for lots of numbers between 0 and 100.</p>	<ul style="list-style-type: none"> <li>Write number symbols up to <b>100</b>?</li> <li>Write number names up to <b>100</b>?</li> </ul>	
<p><b>2</b> Find the number 25 on the 100 board. Count up to 80 in 5s and 10s from 25. Start at other numbers that are multiples of 5 or ten and count up in 5s and 10s. Extend this and count as far as 200. Do this going forwards and backwards.</p>	<ul style="list-style-type: none"> <li>Count in <b>2s, 10s</b> and <b>5s</b> from any given number?</li> <li>Complete number sequences for counting forwards and backwards in <b>2s, 5s</b> and <b>10s</b> up to <b>200</b>?</li> </ul>	
<p><b>3</b> Point to a number on the 100 board. Count on in 2s from there. Tell your partner 5 numbers that are in a pattern of 2s (e.g. 60, 62, 64, 66, 68). How do you know they are a pattern of 2s? (The pattern is increasing by 2 each time.)</p>	<ul style="list-style-type: none"> <li>Extend <b>2s, 3s, 4s, 5s</b> and <b>10s</b> number sequences up to <b>100</b>?</li> </ul>	
<p><b>4</b> Point to a number on the 100 board. Count on in 3s from there. Tell your partner 5 numbers that are in a pattern of 3s (e.g. 33, 39, 42, 45, 48). How do you know they are a pattern of 2s? (The pattern is increasing by 2 each time.)</p>		
<p><b>5</b> Point to a number on the 100 board. Count on in 4s from there. . Tell your partner 5 numbers that are in a pattern of 4s (e.g. 80, 84, 88, 92, 96). How do you know they are a pattern of 2s? (The pattern is increasing by 2 each time.)</p>		

## Topic 2: Place value

### CONCEPTS AND SKILLS FOR TODAY

- Decompose 2-digit numbers up to 99 into multiples of 10 and units/ones.
- Ordering numbers up to 99.

### WARM-UP ACTIVITY

Use your own set of flard cards to revise place value in 2-digit numbers with the class. Make your set large enough so that learners at the back of the class can also read them easily.

- Hold up a number, such as 79, using flard cards. Ask different learners questions to revise place value.
- What is the value of this number? (79)*

- *What is the value of the 7 in the number? (70)*
- *What is the value of the 9 in the number? (9)*
- *What is the digit in the tens place in this number? (7)*
- *What is the units digit in the number? (9)*
- *Give me another 2-digit number (ask different learners to volunteer)? (One might say 54. You then discuss the place value and values of the digits in the number with the class.)*
- *Arrange from smallest to biggest: 62, 26, 43, 34. (Use tens and units to help you decide on the order. 26, 34, 43, 62)*
- Etc.

### ACTIVITIES

Give learners the following activities to do. They must work with a set of flard cards (see *Printable Resources*). Circulate and ask learners to give you oral explanations of what they did.

Activity	Can the learners	Observation					
<p><b>1</b> Work with a partner. Choose a number between 0 and 100. Ask your partner to show it to you using flard cards. Say the number first as a whole number and then say it broken into tens and units. Your partner listens, corrects as needed and then does a number too. Example: Twenty-five, 2 tens plus 5 ones.</p> <p>25 → <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>2</td><td>0</td></tr></table> <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>5</td></tr></table> → <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>2</td><td>5</td></tr></table></p> <p>Etc.</p>	2	0	5	2	5	<ul style="list-style-type: none"> <li>• Build numbers up to <b>99</b> using tens and units?</li> </ul>	
2	0						
5							
2	5						
<p><b>2</b> Choose two numbers between 0 and 100. Discuss with your partner – which number is bigger and which is smaller? How do you know?</p> <p>Examples:</p> <p>46 and 49 – 49 is bigger. They have the same number of tens but 9 is bigger than 6.</p> <p>89 and 49 – 89 is bigger. They have the same number of ones but 8 tens makes 80 so 89 is bigger than 49 which only has 4 tens.</p> <p>53 and 28 – 53 is bigger. 53 has 5 tens so it must be bigger than 28 which only has 2 tens.</p> <p>Etc.</p>	<ul style="list-style-type: none"> <li>• Ordering numbers up to 99?</li> </ul>						



## Topic 3: Addition and subtraction

### CONCEPTS AND SKILLS FOR TODAY

- Solve word problems in context (money) involving addition and subtraction up to 99.
- Addition and subtraction up to 99.
- Write addition and subtraction number sentences using +, −, = and □.
- Double and halve numbers up to 99.

### WARM-UP ACTIVITY

Write the two operation symbols (+ and −) on the board and a few 2-digit numbers. Ask two groups of learners to come to the front – a few in each group.

- Ask the class: When we count altogether, then we add (Tell them to stand together and work out how many of them there are altogether.) *When we count altogether, then we add.*
- *So, adding means putting everything together to find the total.*
- *What is the symbol for addition? (+) Show me the addition symbol by writing it in the air.*
- *Let's add 49 and 34: (Ask one learner from the front to show the working on the board. The others in front can help.) (49 + 34 = 83)*
- Learners from the front go and sit at their desks
- *Ask: What do we do when we subtract? (We take away from a given number.)*
- *What is the symbol for subtraction? (−) Show me the symbol for subtraction by writing it in the air.*
- *Let's subtract 51 from 87: (Ask a learner to show their working on the board.) (87 − 51 = 36)*
- Talk about the way in which learners have shown their working and the way in which place value comes into play when you add and subtract. You have to start adding/ subtracting from the units position in the number. The units work together and the tens work together, but sometimes we have to 'carry' or 'borrow' depending on the numbers in the question.

### ACTIVITIES

Give learners the following activities to do. Circulate and ask learners to give you oral explanations of what they did.

Activity	Can the learners	Observation
<p><b>1</b> Work with a partner. Choose any numbers between 0 and 10. Ask your partner to add the numbers. Check their answer. Do this with lots of pairs of numbers.</p> <p>Ask your partner: <b>How did you get the answer?</b> Encourage them to explain how they worked out the answer mentally.</p>	<ul style="list-style-type: none"> <li>• Add numbers to <b>20</b> mentally?</li> </ul>	

Activity	Can the learners	Observation
<p>Write down some of the number sentences for the addition pairs you have done.</p> <p>e.g. <math>8 + 7 = 15</math></p> <p>etc.</p>		
<p><b>1</b> Work with a partner. Choose any numbers between 0 and 20. Be careful what you choose so that the numbers can be subtracted. Ask your partner to subtract the numbers. Check their answer. Do this with lots of pairs of numbers.</p> <p>Write down some of the number sentences for the addition pairs you have done.</p> <p>e.g. <math>15 - 7 = 8</math> etc.</p> <p>Look at some of the number sentences you have written down. Do you find anywhere the same 3 numbers are involved? What do you notice?</p>	<ul style="list-style-type: none"> <li>• Subtract numbers to <b>20</b> mentally?</li> <li>• Start to notice that subtraction is the inverse of addition?</li> </ul>	
<p><b>3</b> Make up a story sum about money for your partner to solve. E.g. I spend R20 on one book. I buy 2 books. What do I spend?</p>	<ul style="list-style-type: none"> <li>• Solve addition and subtraction problems in context (money) up to <b>99</b>?</li> </ul>	

## Topic 4: Repeated addition leading to multiplication

### CONCEPTS AND SKILLS FOR TODAY

- Count in 1s, 2s, 5s and 10s.
- Complete number sequences of counting in 1s, 2s, 5s and 10s up to 200.
- Solve word problems in context involving repeated addition.
- Write repeated addition number sentences using +, = and  $\square$
- Write multiplication number sentences using  $\times$ , = and  $\square$

### WARM-UP ACTIVITY

Write the two operation symbols (+ and  $\times$ ) on the board

- Ask the class: *What do these symbols mean?* (+ means add and  $\times$  means multiply)
- *What is the difference between + and  $\times$ ?* (Discuss the meaning of the signs and what we do when we do each of the operations. Use examples to demonstrate what you are saying.)
- For example: + means add. When we add we combine two numbers at a time and we find the sum of those two numbers. We find how much we have altogether. We can also add more than 2 numbers together, but to do this we add them in pairs (two at a time).

- If we just had a few items, this would mean we count how many we have altogether. But if we are working with bigger numbers, we work with the numbers and the place value to find out how much we have altogether.  $4 + 5 = 9$ ;  $34 + 61 = 95$ ;  $17 + 27 = 44$ ; etc.
- $\times$  means multiply. When we multiply we also find out how much we have altogether. This involves the multiplication of two numbers which can also be written as repeated addition, e.g.  $4 \times 5 = 5 + 5 + 5 + 5 = 20$ . We don't have to write the repeated addition – it's better and quicker, once we know it, to just say  $4 \times 5 = 20$ .
- Motivate your learners ... *In Grade 3 you are going to learn how to add 3-digit numbers and multiply 2-digit numbers. You need to know your basic bonds and multiples really well to do this – start learning them now!*

### ACTIVITIES

Give learners the following activities to do. They could work with a 100 board (see *Printable Resources*). Circulate and ask learners to give you oral explanations of what they did.

Activity	Can the learners	Observation
<p><b>1</b> Work with a partner. Choose a number between 0 and 100. Ask your partner to write the number symbol and number name. Do the same for lots of numbers between 0 and 100.</p>	<ul style="list-style-type: none"> <li>• Read and write the number symbols 1–100?</li> </ul>	
<p><b>2</b> Write this question on the board: <b>There are 3 bags with 10 pumpkins in each bag.</b> How many pumpkins are there all together?</p> <p><b>Discuss the question:</b></p> <p>We can also say there are <b>3</b> groups of <b>10</b> pumpkins. We can write it as an addition number sentence: <math>10 + 10 + 10 = \square</math>. Explain that since we also say that this is <b>3</b> groups of <b>10</b>, we can write it in a number sentence as: <math>3 \times 10 = \square</math>.</p> <p>Learners work with a partner. Make up a story sum that leads to repeated addition. Think about how this can also be written using multiplication.</p> <p>e.g. I have 4 friends. Each friend has ten fingers. Together they have <math>10 + 10 + 10 + 10 = 40</math> fingers. Or, they have <math>4 \times 10 = 40</math> fingers.</p>	<ul style="list-style-type: none"> <li>• Count in groups of <b>10</b> up to <b>100</b>?</li> <li>• Solve word problems in context involving repeated addition.</li> <li>• Solve word problems in context involving repeated addition.</li> <li>• Write repeated addition number sentences using +, = and <math>\square</math></li> <li>• Write multiplication number sentences using <math>\times</math>, = and <math>\square</math></li> </ul>	

## Topic 5: Shapes and fractions

### CONCEPTS AND SKILLS FOR TODAY

- Name 2-D shapes (triangle, circle, square and rectangle).
- Describe 2-D shapes in terms of sides (straight/curved/ number of sides).
- Recognise and use fractions as part of a whole.
- Recognise and use fractions a part of a set.
- Recognise fractions in diagrammatic form.
- Name fractions as one half and one quarter (unitary fractions).

### WARM-UP ACTIVITY

Draw a triangle, circle, square and rectangle on the board, and ask learners to name each shape.

- Call on several individual learners to name the shape – while you do this – try to see if all of the learners are able to identify the shapes.
- Rub off the shapes that you have drawn and call up several learners to come and draw the same shapes – there can be more than one of each shape drawn. Each learner must be able to name the shape they have drawn.
- Ask some of the other learners to tell you what they notice about the different shapes that have been drawn – *How are they the same and how are they different?* (The triangle, square and rectangle all have straight sides. The circle has a curved side. The triangle, square and rectangle have different numbers of sides – count them. Etc.)

### ACTIVITIES

Give learners the following activities to do. They need to work with the picture of the 2-D shapes (see *Printable Resources*). Circulate and ask learners to give you oral explanations of what they did.

Activity	Can the learners	Observation
<p><b>1</b> Give each group of learners a copy of the 2-D shapes picture. Learners must count how many of each shape they can see in the picture.</p> <p>Make this a fun activity where groups compete against each other counting the shapes.</p> <p>Write how many of each you see: Circle, square, triangle, rectangle.</p> <p>Turn to the learner next to you. Describe each of the shapes. Talk about the number of sides they have and what kind of side they are – straight or curved.</p>	<ul style="list-style-type: none"> <li>• Name 2-D shapes (triangle, circle, square and rectangle)?</li> <li>• Describe 2-D shapes in terms of sides (straight/curved/ number of sides)?</li> </ul>	

Activity	Can the learners	Observation
<p><b>1</b> Learners sit in groups. Ask: <b>What does it mean to divide a shape into halves?</b> (you divide it into two parts of equal size).</p> <p><b>2</b> Ask: <b>What does it mean to divide a shape into quarters?</b> (you divide it into four parts of equal size).</p> <p><b>3</b> Draw a circle, square, triangle, rectangle in your maths book. Divide each shape in half. Discuss with your partner how you did it.</p> <p><b>4</b> Draw 6 squares on the board. Ask: <b>How many squares are there? What is a half of 6 squares?</b> Do the same with the circles and rectangles (use different numbers as well to vary the activity more).</p>	<ul style="list-style-type: none"> <li>• Recognise and use fractions as part of a whole?</li> <li>• Recognise and use fractions a part of a set?</li> <li>• Recognise fractions in diagrammatic form?</li> <li>• Name fractions as one half and one quarter (unitary fractions)?</li> </ul>	

## Topic 6: 3-D objects

### CONCEPTS AND SKILLS FOR TODAY

- Recognise 3-D objects: balls (spheres), boxes (prisms) and cylinders.
- Describe 3-D objects.
- Describe the position of the 3-D object.

### WARM-UP ACTIVITY

Collect as many different 3-D objects at home as you can to use in this lesson. You will be able to use them many times in your lessons so it is worth the effort taken in collecting the shapes. Learners will understand and remember the names and properties of the shapes much better if they have seen real examples of these shapes.

- Give each group of learners at least one ball shape (sphere), one cylinder and one box (prism) shape.
- Ask the learners in their groups to hold and feel the edges and vertices (corners) of the shapes so that they can tell you about the properties of the shapes. Practice the vocabulary with the learners and try to see who already knows it and who is struggling.
- *Which shapes have straight edges?* (prisms)
- *Which shapes have round edges?* (sphere and cylinder)
- *Which shapes have pointed corners* (vertices)? (prism) *How many?* (Depends on the prism you gave them.)
- *What is the name of each of your shapes?* (Name them one by one.)
- Etc.

**ACTIVITIES**

Give learners the following activities to do. You need to collect as many different 3-D objects at home to use in this lesson. Circulate and ask learners to give you oral explanations of what they did.

Activity	Can the learners	Observation
<p><b>1</b> For this activity you need a ball, a box and a cylinder (cool drink can). Revise characteristics of shapes with learners by showing them how a box can slide, a cylinder can roll and slide and a ball can roll.</p>	<ul style="list-style-type: none"> <li>Say if a 3-D object can <i>roll</i> or <i>slide</i>?</li> </ul>	
<p><b>2</b> Hold up a box. Ask: <b>What is an edge of a shape?</b> Write <i>curved</i> and <i>straight edge</i> on the board. Ask: <b>Which words can be used to describe a ball/box/cylinder?</b> Discuss.</p>	<ul style="list-style-type: none"> <li>Describe the <i>edges</i> of a 3-D object?</li> </ul>	
<p><b>3</b> Look around the classroom. Do you see any 3-D shapes that we have spoken about? Discuss.</p> <p>Take two boxes (of different sizes.) Put the small box on top of the bog box. Ask: <b>Can you describe the position of the boxes?</b> (the small box is on top of the big box. The big box is under the small box. Etc. Show other displays of shapes (next to, above, below, etc.) and allow learners to describe the different positions using position words.</p>	<ul style="list-style-type: none"> <li>Describe the <i>position</i> of a 3-D object?</li> </ul>	

**Topic 7: Measurement**

**CONCEPTS AND SKILLS FOR TODAY**

- Estimate, measure, compare, order and record length using non-standard measures.
- Estimate, measure, compare, order and record mass using non-standard measures.
- Estimate, measure, compare, order and record capacity using non-standard measures.

**WARM-UP ACTIVITY**

Prepare a collection of some objects for this lesson that you can use to talk about length, mass and capacity to revise the vocabulary. (For example, a large empty bottle; a large full bottle and cup; some books of different thickness and size; etc.) You will first do a quick revision of some of the vocabulary and then allow your learners to do the group work, using the objects that you have used while revising the vocabulary.

Place a few different objects on the tables of each group of the learners. Ask the learners to show you some of the objects according to different criteria that you name. For example:

- *Show me a full bottle. Show me an empty bottle.* (This is the vocabulary of capacity)
- *Show me two books – one should be heavier and one lighter than the other.* (This is the vocabulary of mass)
- *Please can two learners in your group stand up – one shorter and one taller than the other.* (This is the vocabulary of length)
- Etc.

Tell learners that for this lesson you are going to divide them into three groups. The groups will each work on a different measuring concept and then rotate. The topics are length, capacity and mass. While they are working in different groups, you need to move between the groups to support them.

### ACTIVITIES

Tell the learners that they are going to do hands-on activities. You need to recap with learners what to do when they do hands-on activities.

The table describes the three group stations. (Learners rotate in groups so that each group has a chance to do all of the activities.)

Activity	Can the learners	Observation
<p><b>1 Group 1:</b> Give the group an A4 page, and ask them to use a pencil to measure the lengths of the sides of the page. Learners first estimate and then measure. They should record their findings.</p>	<ul style="list-style-type: none"> <li>• Estimate and measure length using non-standard measures?</li> </ul>	
<p><b>2 Group 2:</b> Give the group an empty 2-litre bottle of water and a cup (250 ml). Ask: <b>How many cups do you think will fill the bottle?</b> (Do not use words such as <i>litres</i> and <i>millilitres</i>.) Learners first estimate and then measure. They should record their findings.</p>	<ul style="list-style-type: none"> <li>• Estimate and measure capacity using non-standard measures?</li> </ul>	
<p><b>3 Group 3:</b> Give the group a ruler and a book, and ask them to make a balance scale. (You might have to help.) Give them two objects with a similar mass. Ask them to estimate which object is heavier. Learners place the two objects on the balance scale to check their estimation. They record their findings.</p>	<ul style="list-style-type: none"> <li>• Estimate and measure mass using non-standard measures?</li> </ul>	

## Topic 8: Data Handling

### CONCEPTS AND SKILLS FOR TODAY

- Collect and organise data.
- Complete a table.
- Draw a pictograph.
- Answer questions about data.

### WARM-UP ACTIVITY

Refer to your class calendar (or draw a rough calendar for one month on the board – laid out as it would be in a calendar). Ask which learners have their birthdays in the month you have chosen. Ask each one who does to come to the front and put an x on the date of their birthday.

Draw a chart on the board to show the 12 months of the year. The chart should have 12 columns, one for each month.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

*Which month has the least birthdays? Which month has the most birthdays? etc.*

- Ask all the learners who have a birthday in January to raise their hands.
- Count the number of learners who have a birthday in January and write the number above January on the chart. **Do the same for each month of the year and complete the table.**
- Point to the class wall calendar to show the position of the birthday dates of some of the learners.
- Discuss the birthday data that you have recorded on the board by asking questions. For example:
  - Ask: *What do you notice about the birthdays in our class?* (We have lots of birthdays in April/There are no birthdays in January etc.)
  - *How many more birthdays are there in (November) compared to (June)?* (use the data on the board)
  - *How many less birthdays are there in (February) than in (May)?* (use the data on the board)
  - *In which month are there the most birthdays? In which month are there the least birthdays? How many birthdays are there in March/etc. ?)*



**ACTIVITIES**

Give learners the following activities to do. Circulate and ask learners to give you oral explanations of what they did.

Activity	Can the learners	Observation
<p><b>1</b> Draw the following 2-D shapes on the board in a random display: 10 circles, 6 triangles, 12 squares, 8 rectangles. Ask the learners to make a table to sort the data. After the learners have filled the table, ask them, <b>How did the table help you to organise the data?</b> Discuss their ideas as a class.</p>	<ul style="list-style-type: none"> <li>Organise data using a table?</li> </ul>	
<p><b>2</b> Ask: <b>Do you know what a pictograph is?</b> Explain that a pictograph is a way of representing data (drawing a graph to show what data you have collected). Ask the learners to draw a pictograph to represent the 2-D shape data.</p> <p>Discuss the 'key' of a pictograph. (It is the little icon used to represent the data in the pictograph. They could use a key of one circle = one shape.)</p>	<ul style="list-style-type: none"> <li>Complete a pictograph?</li> </ul>	

# Week 1

## Unit 1 Introduction: Numbers up to 1000

This unit focuses on developing learners' understanding of numbers up to 1 000. Learners need to be able to read and represent these numbers, as well as have a clear understanding of place value in 3-digit numbers. Learners work with multiples of 10 and 100, and they compare and sequence numbers. Learners progress from the use of concrete apparatus when doing calculations and working with numbers to using more abstract drawings of simplified pictorials to represent numbers. This progression is not linear and learners may go forwards and backwards between different forms of representation over the year while they develop a deep conceptual understanding of numbers and operations.

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

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

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

- **Concept development:** Learners need opportunities to construct their understanding of 3-digit numbers, through the use of different representations of these numbers.
- **Active learning:** Learners are encouraged to actively participate in their learning by physically handling resources and by making their own drawings.
- **Addressing gaps in learners' knowledge:** Learners are building on the knowledge that they gained in Grade 2. Questions and tasks in this unit are intended to help learners progress from what they already know to the learning of new knowledge.

## Lesson 1: Numbers up to 999

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.3 Number symbols and number names, 1.5 Place value

Lesson Objective: Understand how to read and represent numbers up to 999 (hundreds)

Lesson Vocabulary: Number symbols, number names, base ten, digit, units, tens, hundreds

Resources: 100 board (see *Printable Resources*), base ten kit (see *Printable Resources*)

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Which is the bigger number?	Answer		Which is the bigger number?	Answer
<b>1</b>	34 or 43	43	<b>6</b>	67 or 76	76
<b>2</b>	27 or 72	72	<b>7</b>	81 or 18	81
<b>3</b>	44 or 55	55	<b>8</b>	69 or 96	96
<b>4</b>	53 or 35	53	<b>9</b>	85 or 58	85
<b>5</b>	24 or 42	42	<b>10</b>	56 or 65	65

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

In this lesson learners will read and represent numbers up to 999. Learners will have an opportunity to compare numbers and to represent numbers using base ten kits. Learners are consolidating their understanding of place value in this lesson as they use the base ten kits. Make sure that the numbers you select do not have a zero as a ten or as a one. This will be covered in the next lesson.

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

#### Activity 1: Whole class activity

- Learners need to refer to the 100 board for this activity.
- Call out names of 2-digit numbers randomly, and ask learners to point to the correct symbols.
- Make sure you include pairs of numbers where the digits have been reversed, e.g. 19 and 91; 57 and 75 and teen and ten numbers that sound similar e.g. 19 and 90; 70 and 17.

### Activity 2: Whole class activity

- Show learners a container filled with counters. (with more than 200 counters in it – e.g. 251 counters)
- Ask learners how they could find out how many counters are in the container.
- If learners suggest that they count the counters, then have a discussion about the fact that there are a large number of counters and that counting them one by one would take a long time.
- Discuss counting in multiples.
- Call up some learners to help you count out the counters by placing them into groups of 10.
- Show learners the base ten kit.
- Ask learners: **Do you think it is easier to count all the individual counters or do you think there is something else we could do to make it easier to count?** (We could use the tens to replace 10 counters because then there is less to count).
- Ask learners to help you replace the groups of 10 counters with printed tens.
- Ask learners: **Can you think of something we could do to make this even easier to count?** (Yes – replace 10 tens with a hundred)
- Ask learners to help you replace 10 tens with a hundred.
- **How can we arrange everything to make it easy to see what we have?** (Put all the hundreds to one side, then put the tens, then put the ones).
- Ask learners: **How many counters were in the container?** (e.g. 251)
- **How do you know that?** (e.g. We have 2 hundreds, 5 tens and 1 one).
- **Write a number symbol 251 on the board and read the name as two hundred and fifty-one.**
- Let learners repeat the name after you several times.

### Activity 3: Learners work in pairs

- Learners work in pairs.
- Learner take turns to give each other 3-digit numbers to represent using the base ten kit.
- One learner will call out a number, and the other learner will represent the number, then they will swap roles.

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

Note: This activity does not involve written work that can be marked as learners need time to practice using the base ten kits. As the teacher, you need to move around the classroom observing learners as they work, and ensuring that their base ten kits are being used correctly. Take time to discuss what the learners are doing, letting them verbalise their actions to show their understanding.

Show these numbers using your base ten kit.

- 1 149 (1 hundred, 4 tens, 9 counters)
- 2 276 (2 hundreds, 7 tens, 6 counters)
- 3 385 (3 hundreds, 8 tens, 5 counters)
- 4 632 (6 hundreds, 3 tens, 2 counters)
- 5 728 (7 hundreds, 2 tens, 8 counters)
- 6 515 (5 hundreds, 1 ten, 5 counters)
- 7 498 (4 hundreds, 9 tens, 8 counters)
- 8 837 (8 hundreds, 3 tens, 7 counters)
- 9 964 (9 hundreds, 6 tens, 4 counters)
- 10 999 (9 hundreds, 9 tens, 9 counters)

#### 4 HOMEWORK ACTIVITY (5 MINUTES)

Note: This activity does not involve written work that can be marked as learners need time to practice using the base ten kits.

Read and show these numbers using your base ten kit.

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

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

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

Today we have learnt to read and represent numbers up to 999.

- It is important to move away from counting individual counters.
- Learners need to be able to represent to counters using the base ten kit.
- This shows an understanding of place value and numeration as the learners can recognise that 10 counters make up one 10, and that 10 tens make up 100.

## Lesson 2: More numbers up to 999

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.3 Number symbols and number names, 1.5 Place value

Lesson Objective: Representing 3-digit numbers where either the tens or ones are zero. (e.g. 206, 350) as part of reading and writing number symbols up to 999.

Lesson Vocabulary: Number symbols, number names, base ten, digit, units, tens, hundreds

Resources: Base ten kit (see *Printable Resources*), place value table (see *Printable Resources*)

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

### 1 MENTAL MATHS (10 MINUTES)

	What is one more than...?	Answer		What is one more than...?	Answer
<b>1</b>	165	166	<b>6</b>	331	332
<b>2</b>	253	254	<b>7</b>	782	783
<b>3</b>	456	457	<b>8</b>	914	915
<b>4</b>	668	669	<b>9</b>	897	898
<b>5</b>	497	498	<b>10</b>	925	926

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

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

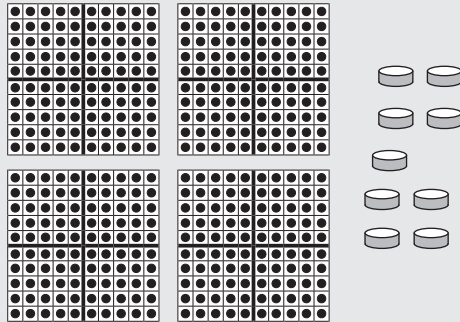
Today we are learning to read and write numbers up to 999.

#### Activity 1: Whole class activity

- Write a number symbol on the board, for example 157.
- Ask a learner to read the number aloud.
- Ask: **What can you tell me about this number?** (It has 1 hundred, 5 tens and 7 ones / it is an odd number / it is bigger than 150 / it is smaller than 160 etc.).
- Repeat with other 3-digit numbers, e.g. 243, 362, 458, 597, 615, 726, 839, 950.

### Activity 2: Whole class activity

- Present the number 409 using base ten kits on the board. The display will look like this:



- Ask learners: **What can you tell me about this number?** (Learners read the number / there are 4 hundreds and 9 ones / we don't have tens /learners may be confused about the zero).
- **Let's show this number using number symbols.**
- Give some time to learners to write it using number symbols.
- Draw a place value table and put the base ten kit onto it.
- **Tell me about the base ten kit that I've put out.** (We have 4 hundreds and 9 ones).
- **How many tens do we have?** (None / Zero).
- Let some learners come to the chalkboard and write their answers.
- **We only have hundreds and ones, so why can't we write the number as 49?** (Because the 4 means 4 hundred not 4 tens).
- **The zero fills in the space in the tens place. It is put where we would write the number of tens in the number symbol 409. We can't leave the zero out because then the number would say 49.**
- Repeat the activity from the beginning with the base ten kit on a place value table with other numbers that have a zero as a ten or a one, e.g. 540, 807, 208, 909.

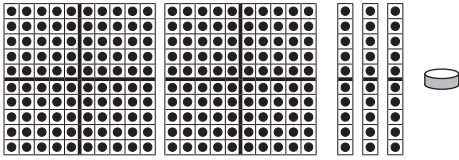
### Activity 3: Learners work in pairs

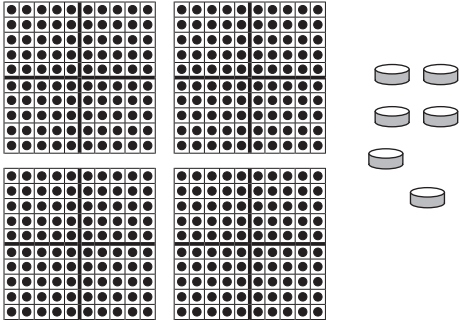
- Learners work in pairs.
- Learners take turns to show a 3-digit number using the base ten kit.
- The other learner needs to write down the number symbol represented by the base ten kit in their classwork book.
- Learners then swap roles and repeat with a different number.

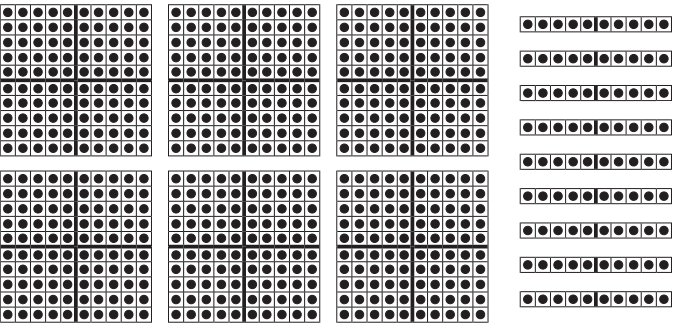
### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

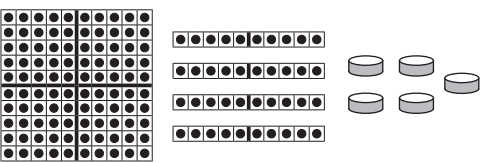
Note: In this activity, learners should work with their base ten kits.

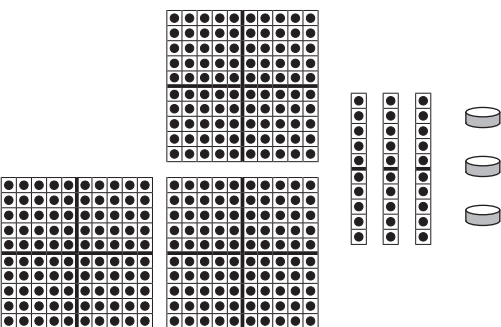
Write the number shown by the base ten kits.

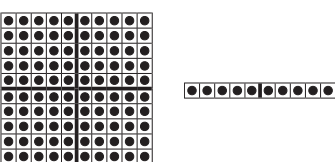
1  \_\_\_\_\_ (231)

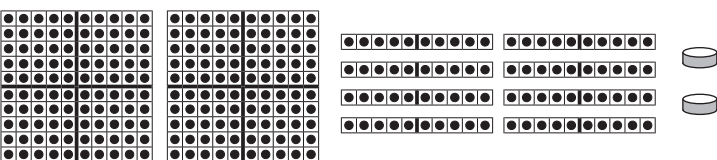
2  \_\_\_\_\_ (406)

3  \_\_\_\_\_ (690)

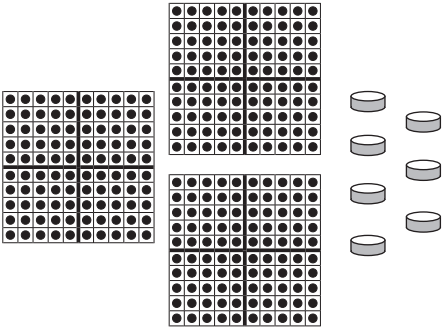
4  \_\_\_\_\_ (145)

5  \_\_\_\_\_ (333)

6  \_\_\_\_\_ (110)

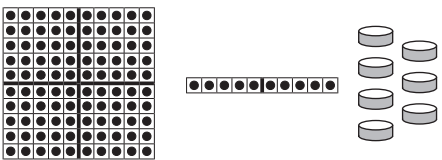
7  \_\_\_\_\_ (282)

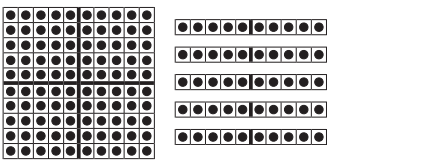


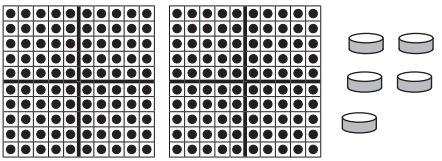
8  \_\_\_\_\_ (307)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Write the number shown by the base ten kits.

1  \_\_\_\_\_ (117)

2  \_\_\_\_\_ (150)

3  \_\_\_\_\_ (205)

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

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

Today we have learnt to read and write number symbols up to 999.

- It is important to move away from counting individual counters.
- Learners need to be able to represent counters using the base ten kit.
- This shows an understanding of place value and numeration as the learners can recognise that 10 counters make up one 10, and that 10 tens make up 100.

## Lesson 3: Expanded notation

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.5 Place value, 1.6 Problem-solving techniques

Lesson Objective: Expanded notation of numbers up to 999.

Lesson Vocabulary: Number symbols, number names, base ten, digit, units, tens

Resources: Base ten kit (see *Printable Resources*), flard cards (see *Printable Resources*), place value table (see *Printable Resources*)

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

### 1 MENTAL MATHS (10 MINUTES)

	What is one less than...?	Answer		What is one less than...?	Answer
<b>1</b>	165	164	<b>6</b>	339	338
<b>2</b>	258	257	<b>7</b>	781	780
<b>3</b>	459	458	<b>8</b>	915	914
<b>4</b>	663	662	<b>9</b>	897	896
<b>5</b>	552	551	<b>10</b>	263	262

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

In this lesson learners will develop their understanding of expanded notation of numbers up to 999. Learners will have an opportunity to compare numbers and to represent numbers using base ten kits. The numbers you select may have a zero as a tens or as a one, helping learners to understand the idea of zero as a place holder. Give learners opportunities to use flard cards so that they can see how a hundreds digit is represented by a hundreds number, and a tens digit is represented by a tens number.

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

#### Activity 1: Learners work in pairs

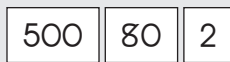
- Make sure that each pair of learners has a base ten kit.
- Call out a number using hundreds, tens and units, such as: **5 hundreds, 4 tens and 3 ones.**
- Give learners time to create the numbers using their base ten kits.
- Ask learners to read and explain to you what they have represented (5 hundreds, 4 tens and 3 ones).
- Repeat with other numbers.

### Activity 2: Learners work in pairs

- Ask learners to show numbers on their place value table using their base ten kits, for example: 582
- Give each pair of learners a set of flard cards
- Ask the learners to show the number 582 using their flard cards.



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



- Do the same with the other numbers, e.g. 105, 690, 283, 819
- Make sure that you use the *ten* numbers together with the *teen* numbers and look out for learners who confuse these. Discuss the differences and how to read the numbers correctly and interpret what their value is, e.g. 50 and 15.

### Activity 3: Learners work in pairs

- Ask learners to use their base ten kits to make different 3-digit numbers.
- Learners then need to discuss what they have done with the person sitting next to them.
- Learners must then write (in their classwork book) the number symbol shown by their base ten kits.

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

1 Use your flard cards to make the number. Write the number.

- a 6 hundreds, 3 tens and 4 ones \_\_\_\_\_ (634)
- b 4 hundreds, 9 tens and 0 ones \_\_\_\_\_ (490)
- c 9 hundreds, 1 ten and 7 ones \_\_\_\_\_ (917)
- d 2 hundreds, 0 tens and 8 ones \_\_\_\_\_ (208)
- e 7 hundreds, 7 tens and 7 ones \_\_\_\_\_ (777)

2 Use your base ten kits to make the number. Fill in the missing numbers.

<b>a</b>	435	has	(4)	hundreds	(3)	tens	(5)	ones
<b>b</b>	569	has	(5)	hundreds	(6)	tens	(9)	ones
<b>c</b>	302	has	(3)	hundreds	(0)	tens	(2)	ones
<b>d</b>	780	has	(7)	hundreds	(8)	tens	(0)	ones
<b>e</b>	941	has	(9)	hundreds	(4)	tens	(1)	one

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Write the number:

- 1** 3 hundreds, 9 tens and 0 ones \_\_\_\_\_ (390)  
**2** 7 hundreds, 1 ten and 8 ones \_\_\_\_\_ (718)  
**3** 5 hundreds, 0 ten and 4 ones \_\_\_\_\_ (504)  
**4** 8 hundreds, 4 tens and 0 ones \_\_\_\_\_ (840)

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

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

Today we have learnt to use the expanded notation of numbers up to 999.

- Learners need to be able to use the base ten kit to develop a good understanding of place value.
- Learners need to use flard cards to show how the digits of a 3-digit number are actually hundreds, tens and ones.

## Lesson 4: Counting forwards and backwards up to 999

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.5 Place value

Lesson Objective: Counting forwards and backwards up to 999 to consolidate reading and writing number symbols up to 999.

Lesson Vocabulary: forwards, backwards, number names, hundreds, tens, ones

Resources: Scrap paper, counters

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

Count forwards and backwards from any number 1 to 100 in 1s and 10s.

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

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

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

#### Activity 1: Learners work in groups

- Ask the learners what they know about 3-digit numbers.
- Ask the learners to count in 1s from: **101 to 110, 376 to 386, 597 to 607**
- Ask the learners to count in 10s from: **870 to 940 and 750 to 830.**
- Repeat with different numbers, asking learners to count backwards this time.
- You could use the numbers: **104, 341 and 495** on the chalkboard.
- Do the same with other numbers.
- **Notice that the pairs of numbers have been chosen to bridge the tens and hundreds places.**
- Remember to include numbers with a zero in the tens and ones places.

#### Activity 2: Whole class activity

- Write the following number symbols and names randomly on the board:  
**161; 314; 765; 937; 849; 509 and 690**

**one hundred and sixty-one; three hundred and fourteen; seven hundred and sixty-five; nine hundred and thirty-seven; eight hundred and forty-nine; five hundred and nine; six hundred and ninety.**

(Prepare flash cards with these number symbols and number names, and use them in this activity if you are able to. This will save time in the lesson.)

- Ask the learners to match the number symbols with the number names.
- Make sure that learners read the numbers correctly – they should read the total values, not just the face values of the digits that they see.
- For example: 457 is four hundred and fifty seven (*total value*). Do not just read the digits, ‘four, five seven’ (reading the face values of the digits). This has no meaning in terms of the actual size of the number.

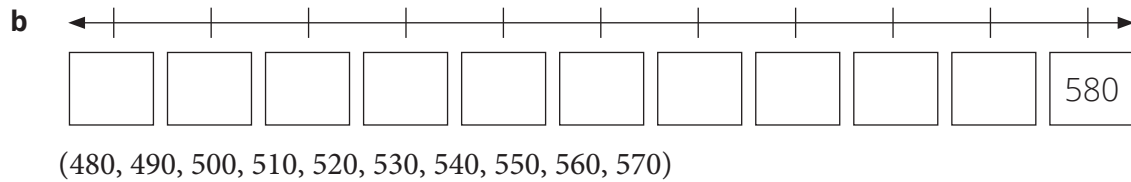
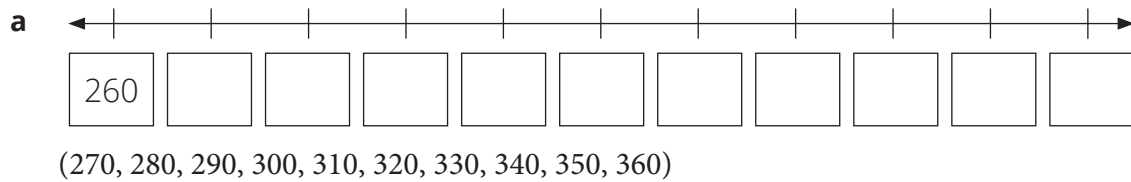
### Activity 3: Learners work in pairs

- Give each pair of learners a piece of scrap paper.
- Ask learners to fold the paper in half, and then half again so that the page has 4 blocks.
- Ask learners to write **count forwards** in one block, **count backwards** in a different block, **count in 1s** in another block and **count in 10s** in the last block.
- Ask learners to take turns to select a starting number up to 999.
- The learner then places a counter on either the **count forwards** block or **count backwards** block.
- The learner then places a counter on either the **count in 1s** block or the **count in 10s** block.
- The other learner must then count forwards or backwards from the selected starting number in either 1s or 10s, as determined by the positioning of the counters on the blocks. (Learners can count 3 numbers from the starting number every time).

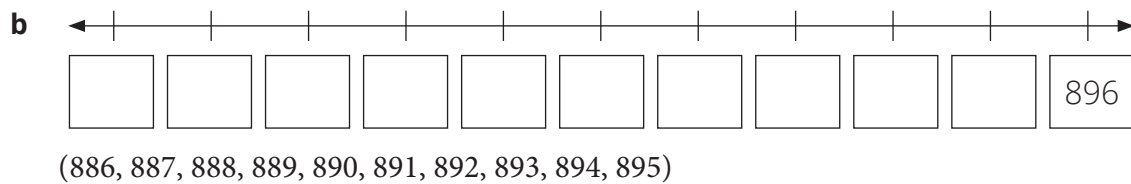
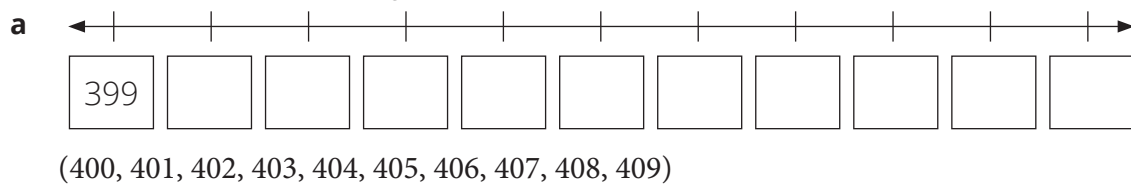
### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

- 1 Write the following as number symbols:
  - a one hundred and eight (108)
  - b three hundred and eighteen (318)
  - c seven hundred and eleven (711)
  - d the number between 478 and 480 (479)
  - e the number that is one more than 699 (700)
  - f the number that is one less than 900 (899)
- 2 Write the following as number names:
  - a 914 (nine hundred and fourteen)
  - b 580 (five hundred and eighty)
  - c 106 (one hundred and six)
  - d 200 (two hundred)

**3** Count in 10s. Fill in the missing numbers on the number line.



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



**4 HOMEWORK ACTIVITY (5 MINUTES)**

**1** Write the following as number names:

- a** 145 (one hundred and forty-five)
- b** 606 (six hundred and six)

**2** Write the following as number symbols:

- a** Three hundred and fifty-four (354)
- b** Nine hundred and twelve (912)
- c** Seven hundred and one (701)

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

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

Today we have learnt to count forwards and backwards using numbers up to 999.

Make sure learners are able to cross over the hundreds as they count.

Learners need to be able to read and write numbers up to 999.

## Lesson 5: Consolidation: Numbers up to 999

### Teacher's notes

This lesson allows for consolidation of the previous days' lesson content

CAPS topics: 1.3 Number symbols and number names, 1.5 Place value, 1.6 Problem-solving techniques

Lesson Objective: Consolidate work covered this week relating to number concept in the range 0–999

Lesson Vocabulary:

Resources: Base ten kit (see *Printable Resources*)

Date:

Week

Day

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

This week's lessons have focused on numbers up to 999. Learners have had to read and write numbers, as well as having to represent numbers by using base ten kits and flard cards. Learners have also had to count forwards and backwards in 1s and 10s.

### 2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Take special care with the numbers that include a zero in the tens or ones column. Allow learners the chance to say them out loud, for example: 'one hundred and seven' (not 'ten seven'). Ensure that you give learners enough practice with these numbers.

### 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 up to 999

### 4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 Write the following as number symbols:

- a seven hundred and thirty-eight (738)
- b one hundred and seventeen (117)
- c the number between 824 and 826 (825)
- d the number that is one more than 329 (330)
- e the number that is one less than 550 (549)

2 Write the following as number names:

- a 372 (three hundred and seventy-two)
- b 920 (nine hundred and twenty)
- c 801 (eight hundred and one)

3 Use your flard cards to make the number. Write the number on the line.

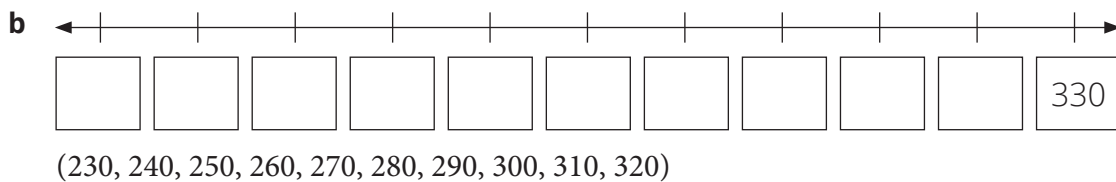
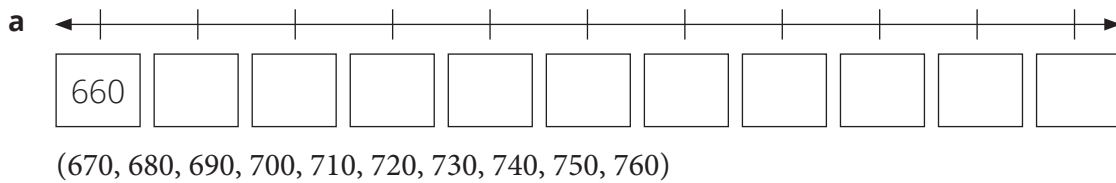
- a 4 hundreds, 2 tens and 6 ones \_\_\_\_\_ (426)
- b 9 hundreds, 0 tens and 3 ones \_\_\_\_\_ (903)



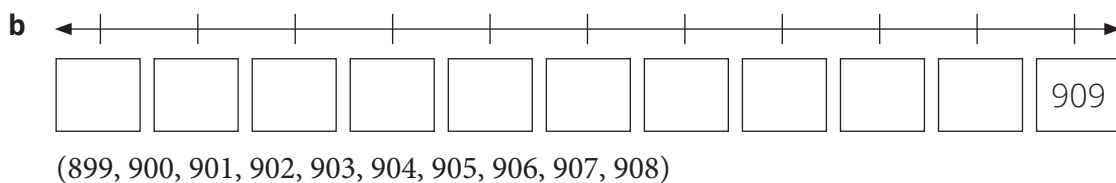
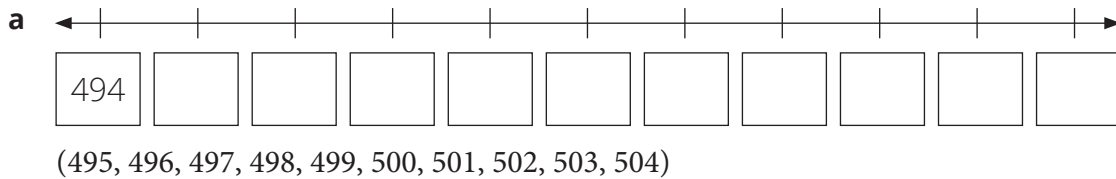
- c 5 hundreds, 9 tens and 8 ones \_\_\_\_\_ (598)  
 d 8 hundreds, 1 ten and 0 ones \_\_\_\_\_ (810)  
 e 3 hundreds, 0 tens and 9 ones \_\_\_\_\_ (309)
- 4 Use your base ten kits to make the number. Fill in the missing numbers.

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

- 5 Count in 10s. Fill in the missing numbers on the number line.



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



### 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 up to 999.

Make sure learners are able to cross over the hundreds as they count.

Learners need to be able to read and write numbers up to 999.

Make sure that learners understand the place value of the digits in 3-digit numbers.

# Week 2

## Lesson 6: Multiples of 10

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.3 Number symbols and number names, 1.5 Place value

Lesson Objective: Representing numbers as multiples of 10.

Lesson Vocabulary: Empty number line, jumps, arrowhead, tens, multiples, multiples of 10.

Resources: 100 board (see *Printable Resources*), scrap paper.

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

### 1 MENTAL MATHS (10 MINUTES)

Count forwards and backward from any multiple of 20 in 20s.

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

This lesson focuses on multiples of ten. The activities consolidate learners' knowledge of multiplication, multiples of 10 and the use of the number line to show skip counting and calculations.

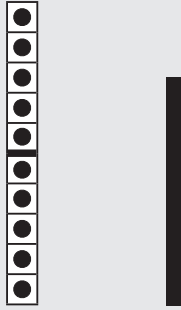
Today we are learning to represent numbers as multiples of 10.

### Activity 1: Whole class activity

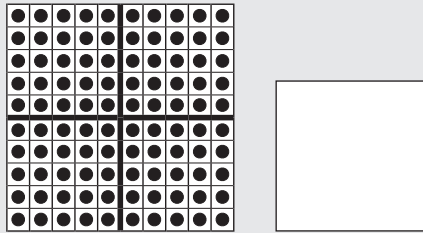
- Tell learners: **Sometimes we may not have our base ten kits with us. What would we do then? Would we just not be able to solve problems like we have been doing today?** (We could do something else? We could always try something else. This is a good mathematical habit.)
- **Today we're going to practice looking at numbers using easy drawings instead of our whole base ten kit.**
- **So let's start by looking at our base ten kit.**
- **If we look at one counter – what could we draw that would be nice and quick?** (Learners may provide a variety of answers, but help them to see that a dot is similar to the look of the counter and is quick and easy to draw.)



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



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



- Ask learners to show you 870 using their drawings (Learners draw 8 squares, seven lines and zero dots).



- **What can you tell me about the hundreds in this number?** (There are 8 squares / there are 8 hundreds)
- **What can you tell me about the tens in this number?** (There are 7 tens / there are 7 lines drawn)
- **What can you tell me about the ones in this number?** (There are no ones)
- **How many more 10s do you need to add to get to 900?** (3 tens)
- **How many 10s must you take away to get to 800?** (7 tens)

### Activity 2: Learners work in pairs

- Ask learners to draw 17 lines. (It is recommended drawing 17 lines as, 5, 5, 5 and 2 lines for subitising purpose).
- **As we learn how to draw tens, what can you tell me about your lines?** (I have 17 lines / I have seventeen 10s).
- **Let's find out how many we have altogether** (170).
- **How did you know it was 170?** (We drew 17 tens/ 10 tens is 100 and 7 tens is 70, so 170 in total.)
- **What could you do to make it easier to count to 170?** (Replace 10 lines with a printed hundred, and then only have 7 lines. Then we say we have 1 hundred and 7 tens).
- **How many 10s are there in the number 350?** Encourage learners to draw lines (35).

- **How did you know there were thirty-five 10s in 350?** (We counted in tens 35 times / we know that there are 3 hundreds in 350, and 10 tens in a hundred, so 3 sets of tens is thirty tens, and 5 extra tens to add on.)
- Repeat with other numbers. (e.g. 490, 600, 910)

### Activity 3: Whole class activity

- Tell the learners: **We are going to use a number line to add in tens.**
- **The number line you will use is called an empty number line. It is called an empty number line because it has no numbers and no markings. We write the numbers on it as we go along.**
- Draw an empty number line on the board.
- Demonstrate that if you want to start at 504, you need to write 504 on the number line.



For an empty number line the jumps don't need to be perfect so feel free to draw free hand. It does not matter if all the jumps are not the same size!

- Ask the learners to help you fill in the numbers on the number line in jumps of 10.
- Draw jumps and write the 10 above the number line and the multiples of 10 below the number line as you take each jump of 10.



- Repeat this demonstration starting at 456, 720, and 218.

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

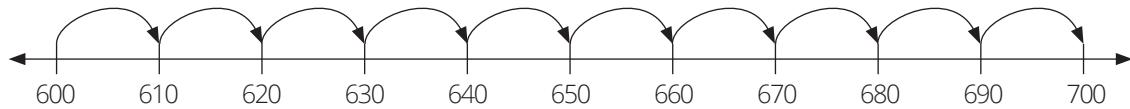
1 Complete these patterns of 10:

- a 670, 680 \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, 730 (690, 700, 710, 720)  
 b 483, 493, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, 543 (503, 513, 523, 533)  
 c 670, 680 \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, 740 (690, 700, 710, 720, 730)  
 d 634, 624, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, 564 (614, 604, 594, 584, 574)

2 Use your numbered counters to complete the following:

There are	(18)	tens in	180
There are	(25)	tens in	250
There are	(32)	tens in	320
There are	14	tens in	(140)
There are	21	tens in	(210)
There are	36	tens in	(360)

- 3 Draw a number line starting at 600 and going to 700. On the number line show how you would count in tens from 600 up to 700.



#### 4 HOMEWORK ACTIVITY (5 MINUTES)

Complete the table:

There are	(15)	tens in	150
There are	(23)	tens in	230
There are	19	tens in	(190)
There are	29	tens in	(290)

#### 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 numbers up to 999.

- Make sure learners are able to tell you how many tens there are in 3-digit numbers (e.g. there are 15 tens in 150.)
- Learners need to be able to read and write numbers up to 999.
- Make sure that learners understand the place value of digits in 3-digit numbers.

## Lesson 7: Assessment – Numbers up to 999

### 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, 1.5 Place value, 1.6 Problem-solving techniques

Resources: Printable assessment in teacher's resources.

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

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

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

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

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

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

Take in the learners' work when they are done.

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

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

### 3 ASSESSMENT (22 MARKS)

#### WRITTEN

1 Use your flard cards to make the number. Write the number on the line (3 marks)

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

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

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

2 Use your drawings. Fill in the missing numbers (9 marks)

a 836 has 

(8)
-----

 hundreds 

(3)
-----

 tens 

(6)
-----

 ones

b 620 has 

(6)
-----

 hundreds 

(2)
-----

 tens 

(0)
-----

 ones

c 409 has 

(4)
-----

 hundreds 

(0)
-----

 tens 

(9)
-----

 ones

3 Write the following as number symbols: (2 marks)

a four hundred and ten (410)

b the number after 559 (560)

4 Write the following as number names: (2 marks)

a 235 (two hundred and thirty-five)

b 999 (nine hundred and ninety-nine)

- 5 Complete these patterns of 10: (2 marks)
- a 260, 270 \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, 320 (280, 290, 300, 310)
- b 620, 610, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, 560 (600, 590, 580, 570)
- 6 Use your numbered counters to complete the following: (4 marks)

There are	(13)	tens in	130
There are	(21)	tens in	210
There are	19	tens in	(190)
There are	27	tens in	(270)

## ORAL

CAPS: Patterns and algebra: Number patterns		Mark: /7
Activity: Observe learners counting – forwards and backwards in 10s, 20s and 100s (to support understanding of place value)		
Mark	Criteria – Checklist: (1 mark for each criterion achieved)	
1	Able to count forwards in 10s in the number range	
1	Able to count backwards in 10s in the number range	
1	Able to count forwards in 20s in the number range	
1	Able to count backwards in 20s in the number range	
1	Able to count forwards in 100s in the number range	
1	Able to count backwards in 100s in the number range	
1	Able to break down a number into hundreds, tens and ones (100s, 10s and ones)	

## Lesson 8: The number 1 000

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### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.3 Number symbols and number names, 1.5 Place value

Lesson Objective: The concept of the number 1 000 – extension of place value.

Lesson Vocabulary: Forwards, backwards, more than, less than, greater than, greatest, less than and equal to, smaller than and smallest, order, compare, 1000.

Resources: Base ten kit (see *Printable Resources*)

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

### 1 MENTAL MATHS (10 MINUTES)

Count forwards and backwards from any multiples of 25 in 25s.

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

In this lesson learners will explore the number 1 000, and learn how to read and write the number name and symbol. They will use full hundreds as concrete aids. The learners will count in 100s to 1 000.

Today we are learning about the number 1000.

#### Activity 1: Whole class activity

- Present 999 using the base ten kits on the chalkboard.
- Ask: **What would happen if you added one more counter?** You add one more counter to the ones. (One more counter would give us 10 counters).
- If learners don't realise on their own that 10 counters should be replaced with a printed ten, then ask: **What can we use instead of 10 counters?** (One ten.)
- **Now what do you notice about tens?** (We have 10 tens, which is 100, so it must be replaced with a printed hundred).
- **We now have 10 full hundreds. Does anyone know what number that gives us?** (Learners may say ten hundreds or one thousand if they have heard this number before).
- We actually say one thousand rather than ten hundreds.

#### Activity 2: Learners work in pairs

- Ask a few learners to write the number symbols 100, 200, 300, 400, 500, 600, 700, 800, 900 on the board. Make sure the numbers are written directly below each other so that the pattern of 1, 2, 3, 4, 5, 6, 7, 8, 9 followed by 00 each time is clearly visible.



- **What do you notice about these numbers?** (They are all hundreds / they all end in zero / the first number goes from 1 to 9 / they all have two zeros).
- Help learners to identify the pattern by writing the first digit in a different colour chalk if you have, otherwise simply underline the first digit.

<u>1</u> 00
<u>2</u> 00
<u>3</u> 00
<u>4</u> 00
<u>5</u> 00
<u>6</u> 00
<u>7</u> 00
<u>8</u> 00
<u>9</u> 00

- **Now let's think about this number one thousand.**
- **You said you thought it would be 10 hundred because it comes after 9 hundred.**
- So if we write the number symbol for 10 hundred in the same way as we wrote the other numbers on the board, it would look like this 1 000.

<u>1</u> 00
<u>2</u> 00
<u>3</u> 00
<u>4</u> 00
<u>5</u> 00
<u>6</u> 00
<u>7</u> 00
<u>8</u> 00
<u>9</u> 00
<u>1</u> 000

- **But even though the number symbol looks like 10 hundred, we don't call it that. We rather say one thousand because we are now talking about a 4-digit number and not a 3-digit number.**
- **So the number symbol for one thousand looks like this:**  
1 000
- **And the number name is written like this:**  
one thousand
- **Ask: How many more from 900 to 1000?** (One hundred.)

**Activity 3: Learners work in pairs**

- Write this table on the board (**only the bold numbers**).
- Ask learners to complete the table by discussing the missing numbers with the person sitting next to them.

<b>100</b>	(200)	(300)	(400)	<b>500</b>	(600)	(700)	(800)	(900)	<b>1000</b>
<b>910</b>	<b>920</b>	(930)	(940)	(950)	(960)	(970)	(980)	(990)	<b>1000</b>
<b>991</b>	(992)	(993)	(994)	(995)	(996)	<b>997</b>	(998)	(999)	(1000)
(100)	(200)	(300)	(400)	(500)	(600)	(700)	(800)	<b>900</b>	<b>1000</b>
<b>1000</b>	(900)	(800)	<b>700</b>	(600)	(500)	(400)	(300)	(200)	(100)

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

1 Complete the following:

1000	1000	1000	1000
one thousand	one thousand	one thousand	

2 Fill in the missing numbers:

901		903	904	905		907	908	909	
911	912	913		915	916	917		919	920
921		923	924	925		927	928	929	
931	932	933		935	936	937		939	940
941		943	944	945		947	948	949	
951	952	953		955	956	957		959	960
961		963	964	965		967	968	969	
971	972	973		975	976	977		979	980
981	982	983	984	985		987	988	989	
991	992	993		995	996	997		999	1000

(902, 906, 910, 914, 918, 922, 926, 930, 934, 938, 942, 946, 950, 954, 958, 962, 966, 970, 974, 978, 986, 990, 994, 998)

3 Complete the following:

- The number that is 10 more than 990 \_\_\_\_ (1000)
- The number that is 1 less than 1000 \_\_\_\_ (999)
- The number that is 100 more than 900 \_\_\_\_ (1000)
- The number that is 300 less than 1000 \_\_\_\_ (700)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Fill in the missing numbers:

<b>100</b>	<b>200</b>	(300)	(400)	(500)	(600)	(700)	(800)	(900)	<b>1000</b>
(910)	(920)	(930)	(940)	(950)	(960)	(970)	(980)	<b>990</b>	<b>1000</b>
(991)	(992)	(993)	<b>994</b>	<b>995</b>	<b>996</b>	(997)	(998)	(999)	(1000)
<b>1000</b>	(900)	(800)	(700)	(600)	(500)	(400)	<b>300</b>	(200)	(100)

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

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

Today we learnt about 1000. We also added and subtracted in 10s and 100s.

## Lesson 9: Numbers up to 1 000

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.3 Number symbols and number names, 1.5 Place value

Lesson Objective: Representing numbers up to 1 000 in various ways.

Lesson Vocabulary: Forwards, backwards, more than, less than, greater than, greatest, less than and equal to, smaller than and smallest, order, compare, 1000.

Resources: Base ten kit (see *Printable Resources*), flard cards (see *Printable Resources*)

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

### 1 MENTAL MATHS (10 MINUTES)

	What is ten more than...?	Answer		What is ten more than...?	Answer
<b>1</b>	551	561	<b>6</b>	737	747
<b>2</b>	843	853	<b>7</b>	371	381
<b>3</b>	777	787	<b>8</b>	440	450
<b>4</b>	963	973	<b>9</b>	923	933
<b>5</b>	248	258	<b>10</b>	854	864

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

In this lesson learners will explore the number 1000, and they will learn how to represent 1000 in different ways. They will use the base ten kits initially, before they move on to using simplified pictorials and expanded notation.

Today we are learning about the number 1000.

#### Activity 1: Learners work in pairs

- Ask learners to work in pairs, making sure that each pair has a base ten kit.
- Ask learners to show you different 3-digit numbers using their base ten kits.
- Make sure that learners discuss the numbers with their partners by asking questions, such as:
  - **What can you tell me about the hundreds in this number?**
  - **What can you tell me about the tens in this number?**
  - **What can you tell me about the ones in this number?**
  - **If I added 10 more to this number, what number would you have then?**
  - **If we took 1 hundred away, what number would we be left with?**

**Activity 2: Learners work in pairs**

- Make sure each pair has a set of flard cards.
- Learners take turns to call out a 3-digit number.
- The other learner has to represent the number by drawing the simple pictures from Activity 2.
- The learner then also has to create the number using the correct flard cards.
- Let learners write the numbers in expanded notation (e.g.  $600 + 30 + 8$ ) in their classwork book.
- The learners then swap roles and repeat with a different number.

**Activity 3: Whole class activity**

- Draw pictorial base ten kit displays of these numbers in your classwork book:
  - 752 (7 squares, 5 lines, 2 dots)
  - 498 (4 squares, 9 lines, 8 dots)
  - 265 (2 squares, 6 lines, 5 dots)
  - 333 (3 squares, 3 lines, 3 dots)
  - 610 (6 squares, 1 line, 0 dots)

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

1 Fill in the missing numbers:

- |   |     |     |                                |          |                                |      |                                |      |
|---|-----|-----|--------------------------------|----------|--------------------------------|------|--------------------------------|------|
| a | 491 | has | <input type="text" value="4"/> | hundreds | <input type="text" value="9"/> | tens | <input type="text" value="1"/> | one  |
| b | 638 | has | <input type="text" value="6"/> | hundreds | <input type="text" value="3"/> | tens | <input type="text" value="8"/> | ones |
| c | 945 | has | <input type="text" value="9"/> | hundreds | <input type="text" value="4"/> | tens | <input type="text" value="5"/> | ones |
| d | 550 | has | <input type="text" value="5"/> | hundreds | <input type="text" value="5"/> | tens | <input type="text" value="0"/> | ones |
| e | 212 | has | <input type="text" value="2"/> | hundreds | <input type="text" value="1"/> | ten  | <input type="text" value="2"/> | ones |

2 Fill in the missing numbers:

- |   |        |                                 |           |                                  |
|---|--------|---------------------------------|-----------|----------------------------------|
| a | 650 is | <input type="text" value="50"/> | less than | <input type="text" value="700"/> |
| b | 780 is | <input type="text" value="20"/> | less than | <input type="text" value="800"/> |
| c | 940 is | <input type="text" value="40"/> | more than | <input type="text" value="900"/> |
| d | 830 is | <input type="text" value="30"/> | more than | <input type="text" value="800"/> |
| e | 370 is | <input type="text" value="30"/> | less than | <input type="text" value="400"/> |

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Fill in the missing numbers:

- |   |        |                                 |           |                                  |
|---|--------|---------------------------------|-----------|----------------------------------|
| a | 310 is | <input type="text" value="10"/> | more than | <input type="text" value="300"/> |
| b | 630 is | <input type="text" value="30"/> | more than | <input type="text" value="600"/> |
| c | 580 is | <input type="text" value="20"/> | less than | <input type="text" value="600"/> |
| d | 260 is | <input type="text" value="40"/> | less than | <input type="text" value="300"/> |
| e | 880 is | <input type="text" value="20"/> | less than | <input type="text" value="900"/> |

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

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

Today we learnt about 1000. We also added and subtracted in 10s and hundreds.

## Lesson 10: Consolidation: Numbers up to 1000

### Teacher's notes

This lesson allows for consolidation of the previous days' lesson content

CAPS topics: 1.3 Number symbols and number names, 1.5 Place value

Lesson Objective: Revision of numbers up to 1000.

Lesson Vocabulary: forwards, backwards, less, more, biggest, smallest, pattern

Resources: Base ten kit (see *Printable Resources*)

Date:

Week

Day

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

This week we have explored numbers up to 1 000 and place value. We have ordered and compared numbers using a variety of activities. Furthermore we have practised counting in 10s forwards and backwards up to 1000.



### 2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Learners may have experienced difficulties with place value and/or counting in 10s. If a learner is struggling with place value, revisit the concept of place value using 2 digit numbers. Be sure to work with the learner to correct any misconceptions around place value. If learners are struggling with counting in 10s use the 100 number board and counters. Let the learners place counters on multiples of 10. Discuss the patterns with the learners.

### 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 place value and counting in 10s up to 1000.

### 4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 If there are 10 sticks  in one bundle , how many sticks in:

- a 3 bundles \_\_\_\_\_ (30)
- b 7 bundles \_\_\_\_\_ (70)
- c 12 bundles \_\_\_\_\_ (120)
- d 9 bundles \_\_\_\_\_ (90)
- e 15 bundles \_\_\_\_\_ (150)
- f 8 bundles \_\_\_\_\_ (80)
- g 26 bundles \_\_\_\_\_ (260)
- h 35 bundles \_\_\_\_\_ (350)

2 Fill in the blanks.

- a 70, 80, 90, (100), (110), 120, (130), (140), (150), 160

**b** 350, 340, 330, (320), (310), (300), (290), (280), (270), 260.

**c** (860), (870), (880), (890), (900), 910, (920), (930), 940, (950).

**3** Fill in the missing numbers.

901		903	904		906	907		909	910
	912	913		915	916		918	919	
921	922		924	925		927	928		930
931		933	934		936	937		939	940
	942	943		945	946		948	949	
951	952		954	955		957	958		960
961		963	964		966	967		969	970
	972	973		975	976		978	979	
981	982		984	985		987	988		990
991		993	994		996	997		999	1000

**4** Fill in the missing numbers:

- a** 321 has (3) hundreds (2) tens (1) one  
**b** 501 has (5) hundreds (0) tens (1) one  
**c** 789 has (7) hundreds (8) tens (9) ones  
**d** 650 has (6) hundreds (5) tens (0) ones  
**e** 209 has (2) hundreds (0) tens (9) ones  
**f** 920 has (9) hundreds (2) tens (0) ones  
**g** 444 has (4) hundreds (4) tens (4) ones  
**h** 817 has (8) hundreds (1) ten (7) ones

**5** Draw base ten kit pictorials to show the following numbers:

- a** 423 (4 squares, 2 lines, 3 dots)  
**b** 591 (5 squares, 9 lines, 1 dot)  
**c** 605 (6 squares, 0 lines, 5 dots)

## 5 REFLECTION AND SUMMARY OF LESSON

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

Today we learnt about 1000. We also added and subtracted in 10s and hundreds by counting forwards and backwards in 10s and 100s.



# Week 3

## Lesson 11: Sequencing and comparing numbers

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.3 Number symbols and number names, 1.4 Describe, compare and order numbers, 1.5 Place value

Lesson Objective: Sequencing of numbers up to 1 000; Reading, representing and comparing numbers on a number line.

Lesson Vocabulary: Smaller than, greater than, more than, less than, equal, comparing, ordering, biggest, largest, smallest, least, bigger, greatest, number line, forwards, backwards

Resources: n/a

Date:

Week

Day

WEEK 3

### 1 MENTAL MATHS (10 MINUTES)

Count in 10s from any multiples of 10 between 300 and 600.

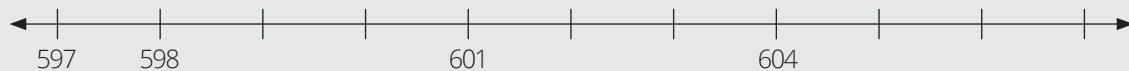
### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson learners will read and sequence numbers up to 1 000. Learners will use number lines to explore and compare numbers. Attention will be paid to the number intervals shown on the number lines.

Today we are learning to sequence and compare numbers up to 1 000.

### Activity 1: Whole class activity

- Draw a number line from 597, 598, ... , 607 on the board, missing out some numbers as follows.

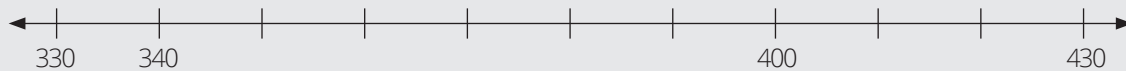


- Let learners copy the number line in their classwork book and work on it individually.
- Ask a learner to come up to the board to fill in the missing numbers.
- Ask learners to tell you about the numbers on the board (Numbers get bigger by 1 / counting forwards)
- Circle the number **601**. Ask the learners to read the number.
- Ask them to give you a number that is smaller than 601 (any number from 597 to 600) and bigger than 601 (any number from 602 to 607).
- Ask: **Are those the only two answers?** (No, 600, 599, 598 and 597 are *smaller than* 601, and 602, 603, 604, 605, 606 and 607 are *greater than* 601.)

- Cover the number line. Write numbers from **597** to **607** randomly on the board. Ask the learners to give you the numbers from the *smallest* to the *greatest*. (Uncover the number line for learners to check their answers.) Then do the same from the greatest to the smallest.
- Repeat with different numbers on the number line.

### Activity 2: Whole class activity

- Draw the following number line on the board. Make sure the number line is calibrated in 10s.



- Let learners copy the same number line in their classwork book.
- **What number will come after 340?** (350)
- **How do you know that the number will be 350?** (Because the number line is going up in tens)
- **Can you see where 360 would be?**
- **How did you know that?** (If you count in tens you can find where 360 would go)
- Follow the same process as above to fill in all the missing numbers.
- Draw another number line on the board. This time increase the numbers in 5s.



- Let learners copy the number line in their classwork book.
- **What number will come after 775?** (780)
- **How do you know that the number will be 780?** (Because the number line is going up in fives)
- **Can you see where 815 would be?**
- **How did you know that?** (If you count in fives from 800, you can find where 815 would go)
- Follow the same process as above to fill in the missing numbers.
- *Do not erase the number line since we use it in the next activity.*

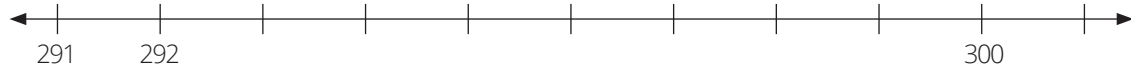
### Activity 3: Whole class activity

- Write 600 and 670 on the chalkboard. Ask: **Which is bigger?**
- Ask learners to point in the direction that the numbers would get bigger on the number line in the previous activity.
- Ask learners to point in the direction that the numbers would get smaller.
- Let learners draw a number line to show 600 and 670.
- Ask: **Which side of the number line did 600 go? Why?** (On the left-hand side because 600 is smaller than 670.)

- Which side of the number line did 670 go? Why? (Towards the right because 670 is greater than 600.)
- Ask a learner to write 610 and 660 on the number line.
- Repeat with different numbers.

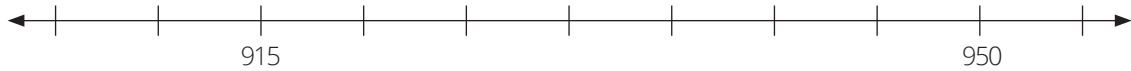
**3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)**

1 Fill in the missing numbers on the number line:



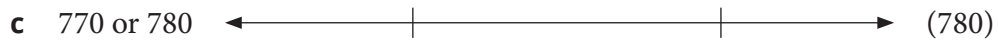
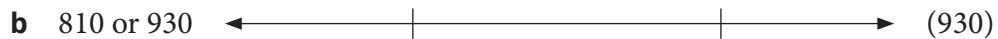
(293, 294, 295, 296, 297, 298, 299, 301)

2 Can you find these numbers on the number line? Write them on the number line.



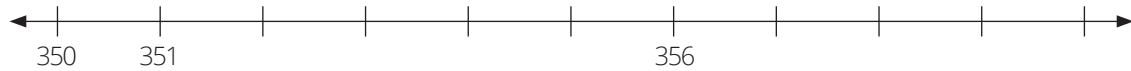
- a 940
- b 905
- c 930
- d 920
- e 945
- f 955
- g 925
- h 935
- i 910

3 Which number is bigger? Show it on the number line.



**4 HOMEWORK ACTIVITY (5 MINUTES)**

1 Fill in the missing numbers on the number line.



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

2 Can you find these numbers on the number line? Write them on the number line.



- a 495
- b 555
- c 565

WEEK 3

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

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

Today we have learnt to sequence and compare numbers up to 1000.

- Make sure that learners have a lot of practice with number lines.
- Allow learners to discuss numbers along the number line, comparing the size of numbers.

## Lesson 12: Comparing, ordering and rounding off numbers

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.4 Describe, compare and order numbers, 1.5 Place value

Lesson Objective: Use techniques when solving problems and explain solutions to problems; rounding off in tens using number lines.

Lesson Vocabulary: Forwards, backwards, rounding off, problem solving, techniques, nearest ten, building up, breaking down, doubling, halving, number line, tens, units.

Resources: Base ten kit (see *Printable Resources*)

Date:

Week

Day

WEEK 3

### 1 MENTAL MATHS (10 MINUTES)

	What is one hundred more than...?	Answer		What is one hundred less than...?	Answer
<b>1</b>	151	251	<b>6</b>	837	737
<b>2</b>	343	443	<b>7</b>	471	371
<b>3</b>	777	877	<b>8</b>	540	440
<b>4</b>	463	563	<b>9</b>	223	123
<b>5</b>	148	248	<b>10</b>	654	554

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

In this lesson learners will compare and order numbers up to 1 000, using the inequality signs ( $>$  and  $<$ ). It is important for learners to realise that when determining the size of a number, they must first look at the hundreds number. If the numbers being compared have the same number of hundreds, then the learners should look at the tens number. Learners will also round off numbers to the nearest ten.

Today we are learning to sequence and compare numbers up to 1 000.

#### Activity 1: Whole class activity

- Write two numbers on the board, for example: 429 and 392
- Ask learners to show the two numbers by drawing simplified pictorials.
- Learners draw:  
429 (4 squares, 2 lines and 9 dots) and 392 (3 squares, 9 lines and 2 dots)
- **Which number is bigger – 392 or 429?** (429)
- **Why do you say so?** (392 has 3 hundreds, and 429 has 4 hundreds. 4 hundreds are more than 3 hundreds)

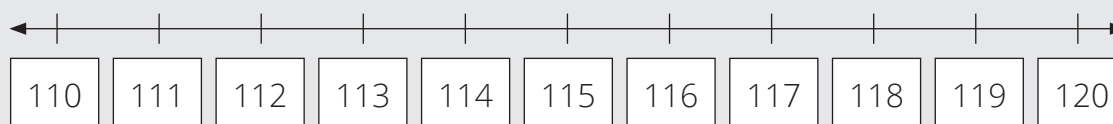
- Let learners show the two numbers using the teacher's base ten kit. *This will help them to see (visualise) the difference in size between the two numbers.*
- **We can show that 429 is bigger than 392 by putting in a greater than sign like this:**  
429 > 392
- **How do we know which way the sign must go?** (The small side of the sign points to the smaller number while the bigger side of the sign points to the bigger number).
- Write two different numbers on the board, 327 and 372.
- Ask learners to show the two numbers by drawing simplified pictorials.
- Learners draw :  
327 (3 hundreds, 2 tens and 7 ones) and 372 (3 hundreds, 7 tens and 2 ones)
- **Which number is smaller?** 327 or 372? (327)
- **Why do you say so?** (327 has 3 hundreds and 372 also has 3 hundreds, they are equal, so we need to compare in tens. 327 has 2 tens and 372 has 7 tens. Hence, 327 is smaller.)
- Let learners show the two numbers using teacher's base ten kit. *This will help them to see (visualise) the difference in size between the two numbers.*
- **We can show that 327 is smaller than 372 by putting in a smaller than sign like this:**  
327 < 372
- **How do we know which way the sign must go?** (The small side of the sign points to the smaller number while the bigger side of the sign points to the bigger number).

### Activity 2: Whole class activity

- Write two numbers on the board, for example: 289 and 302.
- *We don't use base ten kits or simplified pictorials in this activity. Let learners apply the rule to compare the numbers that they used in activity 1.*
- **Which number is bigger – 289 or 302?** (302)
- **Why do you say so?** (If we look at the hundred place, 289 has 2 hundreds and 302 has 3 hundreds. So, 302 is bigger).
- **We can show that 302 is bigger than 289 by putting in a greater than sign like this:**  
289 < 302
- **How do we know which way the sign must go?** (The small side of the sign points to the smaller number while the bigger side of the sign points to the bigger number).
- Repeat with 309 and 352. *Learners have to compare tens this time since the hundreds are the same.*

### Activity 3: Whole class activity

- Draw the number line shown below on the board.



- Ask a learner to come to the board to circle the number 114.

- Ask learners: **Which number is closer to 112, 110 or 120?** (110)
- When we say ‘rounding off’, we have to find the multiple of 10 which is closer to the given numbers.
- **So, if we round off 112, should we round down to 110 or round up to 120?** (Round down to 110).
- **Now look at number 117.** Which is the closest multiple of 10 to 117? (120).
- **So, if we round off 117, should we round down to 110 or round up to 120?** (Round up to 120).
- **What is the closest multiple of 10 for 115?** (110 and 120)
- When we round off 115, we make it 120. This is a rule when we round off.

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

1 Fill in > or <:

- a 459 (<) 549
- b 321 (>) 221
- c 699 (<) 966
- d 211 (>) 112
- e 328 (<) 376
- f 691 (>) 672
- g 187 (>) 178
- h 934 (<) 974
- i 342 (<) 345
- j 983 (>) 981

2 Draw number lines to help you round off the following numbers to the nearest ten:

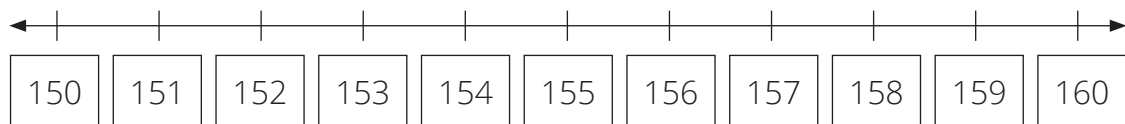
- a 173 \_\_\_\_ (170)
- b 548 \_\_\_\_ (550)
- c 959 \_\_\_\_ (960)
- d 795 \_\_\_\_ (800)
- e 431 \_\_\_\_ (430)

### 4 HOMEWORK ACTIVITY (5 MINUTES)

1 Fill in > or <

- a 618 (<) 816
- b 445 (<) 455
- c 739 (>) 737

2 Look at the number line.



- a 152 rounded off is \_\_\_\_ (150)
- b 157 rounded off is \_\_\_\_ (160)

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

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

Today we have learnt to sequence and compare numbers up to 1 000 and rounding off to the nearest ten.

- Make sure that learners have a lot of practice with place value, so that they can compare numbers.
- Allow learners to use a number line to assist them with rounding off if need be.



## Lesson 13: More numbers up to 1 000

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Operations (addition and subtraction) with numbers up to 1 000 – using various techniques.

Lesson Vocabulary: Forwards, backwards, rounding off, problem solving, techniques, nearest ten, building up, breaking down, doubling, halving, number line, tens, units.

Resources: n/a

Date:

Week

Day

WEEK 3

### 1 MENTAL MATHS (10 MINUTES)

Count forwards and backwards in 10s from any multiples of 10 between 700 and 1 000.

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

In this lesson learners will work with numbers up to 1 000. They will sequence and compare numbers, and further consolidate their understanding of place value.

Today we are learning to work with numbers up to 1 000.

#### Activity 1: Learners work in pairs

- Draw 342 in simplified pictorials on the board.
- Ask learners: **How many hundreds, tens and ones are there?** (The number has 3 hundreds, 4 tens and 2 ones).
- Ask another learner: **What's this number?** (The number is 342).
- Ask learners to work in pairs.
- One learner needs to draw the simplified pictorial symbols in their classwork book.
- The other learner then needs to verbalise what they can tell about the number, and to say the number aloud.
- The learners then swap turns, and continue with different numbers.

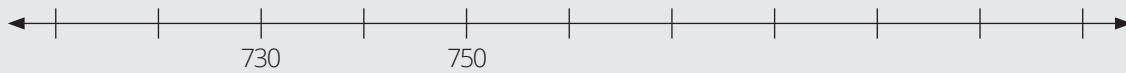
#### Activity 2: Learners work in pairs

- Ask the learners to think about the number 270.
- Ask the learners: **How many tens are there in 270?** Encourage learners to use simplified pictorials in their classwork book to help them if necessary.
- Note that some learners may draw 27 lines as they count in tens to 27, whilst other learners may draw 2 squares and 7 lines.
- Encourage learners to verbalise their strategies, and to explain their thinking.

- Learners who have drawn 2 squares, need to be able to explain that there are 10 tens in a hundred, so 2 hundreds are the same as 20 tens, plus the extra 7 tens, would make 27 tens in total.
- By getting learners to talk about their strategies, they will learn new (and more efficient) strategies and so improve their mathematical understanding.
- Repeat the same process with different numbers.
- Vary the questions by also asking learners: **How much is 52 tens?** (520)

### Activity 3: Whole class activity

- Draw the following number line on the board.



- Let learners copy the number line and fill in the missing numbers.
- Ask learners to point in the direction that the numbers would get bigger.
- Ask learners to point in the direction that the numbers would get smaller.
- Give learners two numbers, for example: 710 and 790.
- Ask a learner to come up to the board, and to fill in the rest of the missing numbers.
- Repeat with different numbers.

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

1 Write the number on the line.

- a 5 hundreds, 3 tens and 2 ones \_\_\_\_\_ (532)
- b 7 hundreds, 5 tens and 6 ones \_\_\_\_\_ (756)
- c 1 hundred, 0 tens and 4 ones \_\_\_\_\_ (104)
- d 4 hundreds, 9 tens and 5 ones \_\_\_\_\_ (495)
- e 6 hundreds, 7 tens and 0 ones \_\_\_\_\_ (670)

2 Complete the following:

There are	(52)	tens in	520
There are	(47)	tens in	470
There are	(61)	tens in	610
There are	84	tens in	(840)
There are	39	tens in	(390)
There are	75	tens in	(750)

3 Fill in the missing numbers on the number line? Write them on the number line.



**4 HOMEWORK ACTIVITY (5 MINUTES)**

Write the number on the line.

- a** 3 hundreds, 0 tens and 2 ones \_\_\_\_\_ (302)  
**b** 9 hundreds, 6 tens and 0 ones \_\_\_\_\_ (960)  
**c** 5 hundreds, 5 tens and 5 ones \_\_\_\_\_ (555)  
**d** 7 hundreds, 2 ten and 0 ones \_\_\_\_\_ (720)

**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 numbers up to 1000.

- Allow learners opportunities to practice the concepts covered.
- Ask learners if they found anything difficult to understand.

## Lesson 14: Assessment – Numbers up to 1 000

### 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, 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 (15 MARKS)

#### WRITTEN

1 Draw number lines to help you round off the following numbers to the nearest ten: (4 marks)

a 761 \_\_\_\_ (760)

b 927 \_\_\_\_ (930)

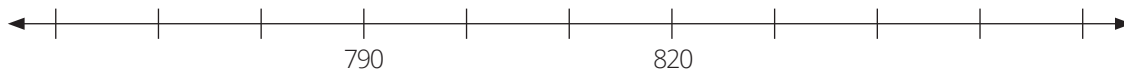
c 484 \_\_\_\_ (480)

d 689 \_\_\_\_ (690)

2 Write these numbers from the smallest to the biggest: (2 marks – 1 partial 1 full)  
145, 457, 45 (45, 145, 457)

3 Write the following numbers from biggest to smallest: (2 marks – 1 partial 1 full)  
130, 310, 301 (310, 301, 130)

4 Fill in the missing numbers on the number line: (2 marks – 1 partial 1 full)



(760, 770, 780, 800, 810, 830, 840, 850, 860)

5 Fill in > or <: (5 marks)

a 751 (>) 571

b 498 (>) 488

c 561 (<) 651

d 204 (<) 240

e 922 (>) 910

## Lesson 15: Consolidation: Numbers up to 1000

### 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, 1.5 Place value, 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Revise numbers up to 1000

Lesson Vocabulary: Forwards, backwards, rounding off, problem solving, techniques, nearest ten, building up, breaking down, doubling, halving, number line, tens, units

Resources: Base ten kit (see *Printable Resources*)

Date:

Week

Day

WEEK 3

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

This week's lessons have focused on getting learners to sequence and compare numbers. Learners need to have a good understanding of place value, and need to be able to work a number line. Learners have also moved on to using simplified pictorial representations rather than their base ten kits.

### 2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Learners may find the number line confusing. Allow them many opportunities to work with the number line, allowing them to discuss their thinking with each other.

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

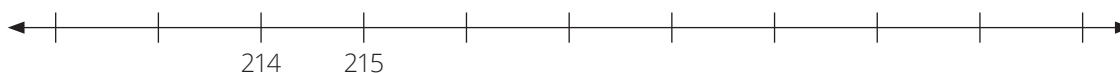
Today we are going over what we learned this week. We are learning more about numbers up to 1000.

### 4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 Write the number:

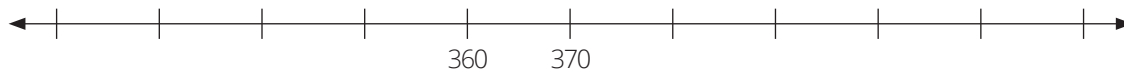
- a 9 hundreds, 1 ten and 7 ones \_\_\_\_\_ (917)
- b 6 hundreds, 8 tens and 2 ones \_\_\_\_\_ (682)
- c 3 hundreds, 3 tens and 0 ones \_\_\_\_\_ (330)
- d 2 hundreds, 0 tens and 3 ones \_\_\_\_\_ (203)
- e 7 hundreds, 2 tens and 9 ones \_\_\_\_\_ (729)

2 Fill in the missing numbers on the number line:



(212, 213, 216, 217, 218, 219, 220, 221, 222)

**3** Can you find these numbers on the number line? Write them on the number line.



- a 340
- b 410
- c 390
- d 320
- e 400
- f 420
- g 350
- h 380
- i 330

**4** Fill in  $>$  or  $<$ :

- a 489 ( $<$ ) 849
- b 325 ( $<$ ) 352
- c 674 ( $>$ ) 664
- d 299 ( $>$ ) 289
- e 851 ( $<$ ) 951

**5** Draw number lines to help you round off the following numbers to the nearest ten:

- a 994 \_\_\_\_ (990)
- b 677 \_\_\_\_ (680)
- c 258 \_\_\_\_ (260)
- d 422 \_\_\_\_ (420)
- e 571 \_\_\_\_ (570)

## **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 up to 1000.

- Learners need a lot of practice with sequencing and comparing numbers.
- Place value can be confusing so learners need opportunities to verbalise their understanding.

# Week 4

## Lesson 16: Addition and subtraction of multiples of 10

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: To add and subtract up to 1 000 using multiples of 10 and 100.

Lesson Vocabulary: add, subtract, take away, multiples of 10 and 100

Resources: Base ten kit (see *Printable Resources*)

Date:

Week

Day

WEEK 4

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	$6 + \square = 10$	4	<b>6</b>	$5 + 6 =$	11
<b>2</b>	$3 + \square = 10$	7	<b>7</b>	$9 + 5 =$	14
<b>3</b>	$2 + \square = 10$	8	<b>8</b>	$4 + 8 =$	12
<b>4</b>	$1 + \square = 10$	9	<b>9</b>	$13 - 6 = \square$	7
<b>5</b>	$5 + \square = 10$	5	<b>10</b>	$16 - 7 = \square$	9

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

This lesson involves addition and subtraction with multiples of 10 and 100. At this stage, learners are expected to use simplified pictorials to represent their calculations, but some learners may still need to use their base ten kits. Encourage learners to begin working out problems mentally.

Today we are learning to add and subtract multiples of 10 and 100.

#### Activity 1: Whole class activity

- Write  $40 + 80 = \underline{\quad}$  on the chalkboard.
- Let learners work on the question individually. Make sure that learners have base ten kits available to them in case they feel they need to use them to solve the problem. Many learners will be comfortable using the simplified pictorials by now, so allow them to use these instead.
- Walk around and check who is using which strategy.
- Let learners discuss the strategies used, and their answers, by comparing their strategies.

- Some learners may apply the knowledge and skills of viewing numbers as multiple of tens plus addition with carrying in which case they would say: 40 is 4 tens and 80 is 8 tens, so  $40 + 80$  could be  $(4 + 8 = 12)$  tens. 12 tens is 120.
- Draw the diagram below on the board and discuss with the learners. Make space between the 5 tens and 3 tens when you draw 8 tens. (5 & □ for subitising) Let learners draw a place value table to help them understand the idea of place value.

H	T	O

- **How many tens do we have altogether?** (We have 4 tens and then another 8 tens; we now have 12 tens altogether).
- Ask the learners: **How many tens make up 100?** (10 tens make 100)
- **How many hundreds and tens do we have?** (If 10 tens make 100 we actually have 1 hundred and 2 extra tens).
- Cross out 10 tens (8 tens below and 2 tens above) and draw 1 hundred. Draw an arrow to show the carrying.

H	T	O
□ ←	##   <del>#####</del>	

- Show the learners the connection between the number sentence and the place value table and their simplified pictorials (or base ten kits).

H	T	O
□ ←	##   <del>#####</del>	
1	2	0

- Repeat with  $400 + 300 =$

H	T	O
□□□□ □□□		
7	0	0

- Write  $130 - 60 = \underline{\quad}$  on the chalkboard.
- Refer to the place value table. Tell the learners that we will be subtracting 60 from 130 using simplified pictorials (if learners need to still use the base ten kits then they may do so).
- Let learners work on the problem individually first. After having worked on addition using a place value table, more learners may start using this place value table strategy.
- Let some learners present their strategies on the chalkboard.



- Some learners may apply their knowledge and skills of viewing numbers as multiples of tens plus subtraction with borrowing in which case it would be: 130 is 13 tens and 60 is 6 tens, so  $130 - 60$  could be  $(13 - 6 = 7)$  tens. 7 tens is 70.
- Draw the diagram below on the board, and discuss with the learners. *The diagrams are drawn step by step, you should draw this on the board and discuss it with the learners.*

H	T	O
□		

- Discuss with the learners that **we are subtracting 60 from 130**.
- **If we look at this diagram, can we take 6 tens away from 130?** (No, because there is 1 hundred and only 3 tens, so there are not enough tens to take away).
- **How many tens did you say make up 100?** (10)
- **Would we have enough tens then?** (Yes, because then we'd have the 3 tens and the 10 tens which is 13 tens altogether).
- **So, what do we need to do to be able to solve the problem?** (We need to exchange the 1 hundred for 10 tens).
- Cross out 1 hundred, and draw 10 tens with an arrow showing borrowing.

H	T	O
☒		

- **How many tens do we have now?** (13)
- **What number does 13 tens mean?** (130).
- Now remove 6 tens (cover them up or erase them), saying: **I am subtracting 60 from 130**.
- **How many is left in each place?** (0 hundreds, 7 tens and 0 ones).
- Ask the learners to find the number of tens – **How many is 7 tens?** (70) Write the answer.

H	T	O
☒		
	<del>     </del>	
0	7	0

- Show the learners the connection between the number sentence and the place value table with a base ten kit.
- Repeat these steps using  $800 - 200 = (600)$ .

H	T	O
□□□□□		
☒		
6	0	0

### Activity 2: Whole class activity

- Note: Ideally learners should be able to solve 2-digit calculations mentally. However, some learners may still struggle with this so you can allow them to use their base ten kits where necessary. This will help learners to further develop their understanding until they are able to calculate without the tangible resources.
- Write  $50 + 90 = \underline{\quad}$  on the board.
- Ask learners to solve the problem.
- Encourage learners to solve the problem mentally, but allow learners to use base ten kits or simplified pictorials if they feel they still need to.
- Let learners discuss the strategies used, and their answers, by comparing their strategies.
- Some learners may apply their knowledge and skills of viewing numbers as multiple of tens plus addition with carrying in which case it would be: 50 is 5 tens and 90 is 9 tens, so  $50 + 90$  could be  $(5 + 9 = 14)$  tens. 14 tens is 140.
- Draw the diagram below on the board, and discuss it with the learners.

H	T	O
□ ←		
1	4	0

- Discuss the diagram with the learners as in Activity 1.
- Repeat with  $140 - 90 = \underline{\quad}$ ;  $200 + 300 = \underline{\quad}$ ;  $600 - 400 = \underline{\quad}$

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

Solve:

1  $20 + 90 = \underline{(110)}$      $(2 + 9 = 11)$  tens.

or

H	T	O
□ ←		
1	1	0

2  $130 - 50 = \underline{(80)}$      $(13 - 5 = 8)$  tens.

or

H	T	O
0	8	0

3  $200 + 600 = (800)$  ( $2 + 6 = 8$ ) hundreds.

or

H	T	O
□□□□□ □□□		
8	0	0

4  $900 - 200 = (700)$  ( $9 - 2 = 7$ ) hundreds.

or

H	T	O
<del>□□□□□</del> □□□□		
7	0	0

5  $60 + 70 = (130)$  ( $6 + 7 = 13$ ) tens.

or

H	T	O
□ ←	###    #####	
1	3	0

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Solve:

1  $40 + 90 = (130)$  ( $4 + 9 = 13$ ) tens.

or

H	T	O
□ ←	≠    #####	
1	3	0

2  $700 - 300 = (400)$  ( $7 - 3 = 4$ ) hundreds.

H	T	O
<del>□□□□□</del> □□		
4	0	0

WEEK 4

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

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

Today we have solved addition and subtraction sums up to 1 000 using multiples of 10 and 100.

- Learners may need assistance with solving problems mentally.
- Make sure learners have a solid understanding of place value.

## Unit 2 Introduction: Addition and subtraction

This unit focuses on developing learners' understanding of addition and subtraction. Particular emphasis is placed on mental maths, as learners are encouraged to try to solve problems mentally. Ideally, learners should be able to solve 2-digit problems mentally, but it is understood that some learners may still be struggle with this. Learners may therefore use resources to help them as they do their calculations, when needed. As a teacher, you should to monitor this, to ensure that learners don't just use resources as a habit and to help them move away from using concrete materials and on a more abstract level with numbers.

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

- **Conceptual understanding:** In this unit the learners develop their conceptual understanding of addition and subtraction.
- **Procedural fluency:** Learners will develop procedural fluency through repeated opportunities to actively engage in the mental calculation of addition and subtraction problems. The progression of learning in the lessons will assist the development of procedural fluency.
- **Strategies:** Learners will learn to 'make-a-ten'. This is an important strategy which will increase learners' procedural fluency, enabling them to calculate with greater efficiency.
- **Reasoning:** Learners are encouraged to explain why they have solved a problem in a particular way. This is important as it will strengthen their own understanding.

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

- **Connecting topics and concepts:** In this unit, there is a connection between the understanding of number and place value with the understanding of addition and subtraction. The more learners know about numbers, the better their understanding of addition and subtraction will be.
- **Addressing learners' errors:** Learners are encouraged to verbalise their strategies, which provides a good opportunity for the teacher to identify misconceptions. Teachers should probe learners' errors in order to guide learners to correct conceptualisations.
- **Making sense of mathematics:** In this unit, learners are making sense of mathematics as they are able to explain their reasons for solving problems in a particular way, rather than simply relying on memory or rote learning.

## Lesson 17: Mental maths – addition

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Mental maths with single-digit numbers – making a ten.

Lesson Vocabulary: add, build up, multiples of 10

Resources: Base ten kit (see *Printable Resources*), another ten frame (see *Printable Resources*)

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

Practice number bonds of 10.

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

This lesson involves addition of 2-digit numbers and single-digit numbers, with the answers being multiples of 10. Although the ideal is that learners calculate these problems mentally, some learners may still struggle with mental maths. Allow these learners to use their base ten kits to help them develop their understanding.

Today we are learning to add 2-digit numbers to single-digit numbers, with the answers being multiples of 10.

#### Activity 1: Whole class activity

- Write  $13 + 7 = \underline{\quad}$  on the board.
- Ask learners to solve the problem mentally.
- Let learners represent the addition by putting a printed 10 and 3 bottle tops in a ten frame, and 7 bottle tops in the other ten frame.
- Let learners move the counters.
- Ask learners: **How many tens do you have?** (There is 1 ten and 10 ones. There are 2 tens.)
- **So, what's the number?** (20).
- Repeat these steps with:
  - $34 + 6 = \underline{\quad}$
  - $58 + 2 = \underline{\quad}$

#### Activity 2: Learners work in pairs

- Ask the learners to work in pairs.
- One learner in the pair calls out any number from 11 to 20.

- The other learner then needs to think about how many more is needed to make 20.
- For example: The first learner calls out ‘16’, and the second learner responds by saying ‘4’ because:  
 $16 + \boxed{4} = 20$
- Let learners check the answer using a base ten kit if the answer they have is different.
- Encourage learners to work out the answers mentally.
- Once learners have had a chance to work through the number combinations of 20, repeat the above steps with a different number, for example. 12.

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

1 Fill in the missing numbers:

- a  $15 + (5) = 20$
- b  $13 + (7) = 20$
- c  $17 + (3) = 20$
- d  $19 + (1) = 20$
- e  $16 + (4) = 20$

2 Solve the following:

- a  $82 + 8 = (90)$
- b  $55 + 5 = (60)$
- c  $63 + 7 = (70)$
- d  $46 + 4 = (50)$
- e  $21 + 9 = (30)$
- f  $74 + 6 = (80)$
- g  $38 + 2 = (40)$
- h  $57 + 3 = (60)$

4 Homework activity (5 minutes)

Solve the following:

- a  $41 + 9 = (50)$
- b  $37 + 3 = (40)$
- c  $28 + 2 = (30)$
- d  $65 + 5 = (70)$
- e  $84 + 6 = (90)$

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

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

Today we have solved addition problems of 2-digit numbers and single-digit numbers.

- Learners may need assistance with solving problems mentally.
- Make sure learners have a solid understanding of place value.

## Lesson 18: Mental maths – addition with carrying

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Mental maths with 2-digit numbers – making a ten – with carrying.

Lesson Vocabulary: add, multiples of 10 and 100

Resources: Base ten kit (see *Printable Resources*), another ten frame (see *Printable Resources*)

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

Practise the number bonds of 20.

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

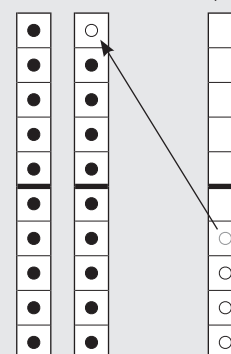
This lesson involves the addition of 2-digit numbers and single-digit numbers, with carrying. Learners will also add 2-digit numbers to multiples of ten. In this lesson, the numbers used will not exceed 100. Learners will need to be shown how to make-a-ten to help them understand the idea of carrying. Although the ideal is that learners calculate these problems mentally, some learners may still struggle with mental maths. Allow these learners to use their base ten kits to help them develop their understanding.

Today we are learning to add 2-digit numbers to single-digit numbers (with carrying), as well as adding 2-digit numbers to multiples of ten.

#### Activity 1: Whole class activity

- Write  $19 + 4 = \underline{\quad}$  on the board.
- Let learners represent the 19 with 1 printed ten and 9 bottle tops in a ten frame and the 4 with 4 bottle tops in the other ten frame.
- Ask learners how they think they could solve this problem.
- Some learners may suggest counting on from 19. Try to encourage learners to move beyond counting.
- Let learners present their methodologies.
- There are three types of solutions; 1) counting all, 2) counting on and 3) make-a-ten by moving a bottle top to the other ten frame to make a ten as shown on the right.  
From the diagram,  $19 + 4 = 20 + 3 = 23$
- Let learners be aware that the printed ten was not affected by the manipulation.
- Write on the board:

Move a bottle top





$$19 + 4$$

- Ask learners: **How many more do we need to add to 19 to get to 20?** (1)
- Write 1 in the first block underneath the 4.

$$19 + 4$$

- Ask learners: **How many more do I need to make 4?** (3)
- Write a 3 in the second block underneath the 4.

$$19 + 4$$

- Show learners that they can add 1 to 19 to make 20, and then add 3 to 20 to make 23.
- This is an efficient strategy to use when addition problems require learners to make a ten.
- Repeat with:
  - $37 + 5 = \underline{\quad}$   
(Break up 5 into 3 and 2. Add 3 to 37 to make 40. Then add 2 to make 42)
  - $63 + 8 = \underline{\quad}$   
(Break up 8 into 7 and 1. Add 7 to 63 to make 70. Then add 1 to make 71)

### Activity 2: Whole class activity

- Write  $14 + 20 = \underline{\quad}$  on the board.
- Let learners copy it and answer it mentally.
- Use a base ten kit to solve the question. (1 printed ten and 4 bottle tops in a ten frame plus 2 more printed tens.)
- Ask learners how they think they could solve this problem.
- Ask some learners to share their strategies with the class, and discuss the strategies suggested by the learners.
- Particularly emphasise the idea that the ones are not affected by adding a multiple of 10.
- **So  $14 + 20 = 34$**
- Repeat with:
  - $37 + 40 = \underline{\quad}$
  - $59 + 20 = \underline{\quad}$

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

- 1 Break up the number, and solve the problem in the block:

a  $27 + 5 = \underline{\quad}$

**b**  $68 + 5 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (2) \quad (3) \end{array}$	$(68 + 2 = 70)$ $70 + 3 = 73)$
--	-----------------------------------

**c**  $55 + 7 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (5) \quad (2) \end{array}$	$(55 + 5 = 60)$ $60 + 2 = 62)$
--	-----------------------------------

**d**  $83 + 9 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (7) \quad (2) \end{array}$	$(83 + 7 = 90)$ $90 + 2 = 92)$
--	-----------------------------------

**e**  $18 + 4 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (2) \quad (2) \end{array}$	$(18 + 2 = 20)$ $20 + 2 = 22)$
--	-----------------------------------

**2** Solve the problems:

**a**  $48 + 3 = (51)$

**b**  $19 + 7 = (26)$

**c**  $65 + 6 = (71)$

**d**  $75 + 8 = (83)$

**e**  $13 + 9 = (22)$

**3** What do we get if we add:

**a**  $13 + 80 = (93)$

**b**  $51 + 20 = (71)$

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Break up the number, and solve the problem in the block:

**a**  $54 + 7$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (6) \quad (1) \end{array}$	$(54 + 6 = 60)$ $60 + 1 = 61)$
--	-----------------------------------

**b**  $29 + 5$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (1) \quad (4) \end{array}$	$(29 + 1 = 30)$ $30 + 4 = 34)$
--	-----------------------------------

**c**  $63 + 9$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (7) \quad (2) \end{array}$	$(63 + 7 = 70)$ $70 + 2 = 72)$
--	-----------------------------------

**d**  $42 + 9$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (8) \quad (1) \end{array}$	$(42 + 8 = 50)$ $50 + 1 = 51)$
--	-----------------------------------

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

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

Today we have solved addition problems involving carrying and using multiples of 10.

- Learners may need assistance with solving problems mentally.
- Make sure learners have a solid understanding of place value.

## Lesson 19: Mental maths – subtraction

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Mental maths with 2-digit numbers – making a ten – with carrying.

Lesson Vocabulary: subtract, take away, multiples of 10

Resources: Base ten kit (see *Printable Resources*)

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

Practise number bonds of 20 by saying numbers 10 to 19 randomly and learners answer what you need to add to make 20.

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

This lesson involves the subtraction of single-digit numbers from multiples of 10. Learners need to know how to break down numbers to do these calculations. Although the ideal is that learners calculate these problems mentally, some learners may still struggle with mental maths. Allow these learners to use their base ten kits to help them develop their understanding.

Today we are learning to subtract single-digit numbers from multiples of ten. Then, we will look at how to find the answer for subtraction with borrowing.

#### Activity 1: Whole class activity

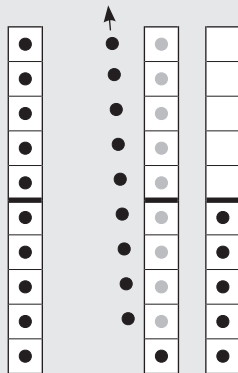
- Write  $30 - 3 = \underline{\quad}$  on the board.
- Ask learners to solve the problem.
- Encourage them to solve the problem mentally, but allow them to use base ten kits if they need to.
- Ask some learners to share their strategies with the class.
- Discuss the strategies suggested by the learners.
- Particularly emphasise the idea of tens and ones, helping learners to see how we have to break down a ten into 10 ones in order to solve the problem.
- Draw the place value table on the board.
- On the table, show 30 using simplified pictorials.
- Then show how one ten gets traded for 10 ones (dots). **This leaves us with 2 tens and 10 ones.**
- Then show how you can take away 3 ones, leaving 2 tens and 7 ones behind.
- This means that  $30 - 3 = 27$ .

- Clearly show the link between the simplified pictorials and the numerical representations of the number.
- Repeat these steps with:
  - $60 - 7 = \underline{\quad}$
  - $80 - 9 = \underline{\quad}$

### Activity 2: Whole class activity

- Write  $25 - 9 = \underline{\quad}$  on the board.
- Let learners represent the 25 with 2 printed ten and 5 bottle tops in a ten frame.
- Ask learners how they think they could solve this problem.
- Some learners may suggest counting backwards from 25. Try to encourage learners to move beyond counting.
- Let learners present their methodologies.
- Let learners use the make-a-ten method, i.e. replace a printed ten by 10 bottle tops. Then, remove 9 bottle tops from the ten as follows.

remove 9 nine bottle tops



From the diagram,  $25 - 9 = 10 + 10 - 9 + 5 = 16$

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

1 Fill in the missing numbers:

- 20 is 13 and (7)
- 20 is 19 and (1)
- 20 is 12 and (8)
- 20 is 16 and (4)
- 20 is 15 and (5)

2 Solve the following:

- $20 - 7 = (13)$
- $70 - 5 = (65)$
- $40 - 1 = (39)$
- $30 - 8 = (22)$
- $60 - 6 = (54)$
- $80 - 9 = (71)$

**g**  $50 - 3 = (47)$

**h**  $90 - 2 = (88)$

**4 HOMEWORK ACTIVITY (5 MINUTES)**

**1** Solve the following:

**a**  $30 - 1 = (29)$

**b**  $70 - 8 = (62)$

**c**  $20 - 5 = (15)$

**d**  $90 - 3 = (87)$

**e**  $60 - 4 = (56)$

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

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

Today we have solved subtraction problems involving multiples of 10 single-digit numbers.

- Learners may need assistance with solving problems mentally.
- Make sure learners have a solid understanding of place value and are able to work with tens and units.

## Lesson 20: Consolidation: Mental maths

### 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, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Mental maths with 2-digit numbers – making a ten – with and without carrying

Lesson Vocabulary: add, carry, trade, subtract, take away, multiples of 10

Resources: Base ten kit (see *Printable Resources*)

Date:	Week	Day
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### 1 NOTES FOR THE TEACHER RELATING TO THIS WEEK'S WORK

This week's lessons have focused on addition and subtraction. Learners have been encouraged to solve the problems mentally, but may find this difficult. Learners may still need to use base ten kits, and should be given many opportunities to verbalise their solutions. Learners have also been exposed to carrying, and need to be supported as they learn to make a ten.

### 2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The notion of carrying (or trading) is confusing for learners, and learners need to be guided in the process of making a ten. Allow learners to use resources as needed, but encourage them to begin working mentally.

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

Today we are going over what we learned this week. We are learning more about addition and subtraction.

### 4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 Solve the problems:

a  $57 + 5 = (62)$

b  $39 + 3 = (42)$

c  $65 + 8 = (73)$

d  $46 + 7 = (53)$

e  $57 + 4 = (61)$

f  $79 + 4 = (83)$

g  $32 + 9 = (41)$

h  $83 + 8 = (91)$

**2** Fill in the missing numbers:

**a**  $55 + (5) = 60$

**b**  $37 + (3) = 40$

**c**  $41 + (9) = 50$

**3** Solve the following:

**a**  $53 + (7) = 60$

**b**  $42 + 8 = (50)$

**c**  $27 + (3) = 30$

**d**  $88 + 2 = (90)$

**4** Fill in the missing numbers:

**a** 20 is 14 and (6)

**b** 30 is 29 and (1)

**c** 40 is 32 and (8)

**5** Solve the following:

**a**  $40 - 6 = (34)$

**b**  $80 - 5 = (75)$

**c**  $20 - 9 = (11)$

**d**  $60 - 7 = (53)$

## **5 REFLECTION AND SUMMARY OF LESSON**

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

Today we have solved a variety of addition and subtraction problems.

- Learners may need assistance with solving problems mentally.
- Make sure learners have a solid understanding of place value.

# Week 5

## Lesson 21: Mental maths – subtraction with borrowing

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Mental maths with 2-digit numbers – making a ten – with borrowing.

Lesson Vocabulary: subtract, take away, borrow, trade, multiples of 10

Resources: Base ten kit (see *Printable Resources*)

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

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	30 – 3	27	<b>6</b>	50 – 9	41
<b>2</b>	30 – 5	25	<b>7</b>	60 – 8	52
<b>3</b>	40 – 2	38	<b>8</b>	70 – 5	65
<b>4</b>	40 – 1	39	<b>9</b>	80 – 4	76
<b>5</b>	50 – 6	44	<b>10</b>	90 – 7	83

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

This lesson involves the subtraction of single-digit numbers from 2-digit numbers (with borrowing), as well as multiples of 10 from 2-digit numbers. Learners will need to be shown how to make-a-ten to help them understand the idea of borrowing. Although the ideal is that learners calculate these problems mentally, some learners may still struggle with mental maths. Allow these learners to use their base ten kits to help them develop their understanding.

Today we are learning to subtract single-digit numbers from 2-digit numbers (with borrowing), and multiples of ten from 2-digit numbers.

#### Activity 1: Whole class activity

- Write  $17 - 9 = \underline{\quad}$  on the board.
- Ask learners how they think they could solve this problem.
- Some learners may suggest counting backwards from 17. Try to encourage learners to move beyond counting, and to implement strategies that use their knowledge of tens and ones.



- Write on the board:

$$17 - 9$$

- Ask learners: **How can we break down 17 into tens and ones?** (There is 1 ten and 7 ones)
- Write 10 and 7 in the blocks underneath the 17.

$$17 - 9$$

- Ask learners: **What is 10 – 9?** (1)
- Now add on the 7 that was left after we broke down 17 into tens and ones.
- $1 + 7 = 8$
- So that means that  $17 - 9 = 8$
- This is an efficient strategy to use when subtraction problems require learners to ‘bridge’ a ten.
- Repeat with:
  - $23 - 6 = \underline{\quad}$   
(Break down 23 into 20 and 3. Subtract 6 from 20 to get 14. Then add 3 to make 17)
  - $32 - 5 = \underline{\quad}$   
(Break down 32 into 30 and 2. Subtract 5 from 30 to get 25. Then add 2 to make 27)
  - $56 - 9 = \underline{\quad}$   
(Break down 56 into 50 and 6. Subtract 9 from 50 to get 41. Then add 6 to make 47)

### Activity 2: Whole class activity

- Write  $43 - 20$  on the board.
- Ask learners how they think they could solve this problem.
- Let learners use their base ten kits to solve this.
- Ask some learners to share their strategies with the class, and discuss the strategies suggested by the learners.
- Particularly emphasise the idea that there is no change in the ones if they subtract a multiple of 10.
- **So,  $43 - 20 = 23$**
- Repeat with:
  - $58 - 30 = \underline{\quad}$
  - $72 - 50 = \underline{\quad}$

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

**1** Break down the number into tens and ones to find the solution:

**a**  $24 - 9 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (20) \quad (4) \end{array}$	$(20 - 9 = 11)$ $11 + 4 = 15)$
---	-----------------------------------

**b**  $57 - 8 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (50) \quad (7) \end{array}$	$(50 - 8 = 42)$ $42 + 7 = 49)$
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**c**  $26 - 8 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (20) \quad (6) \end{array}$	$(20 - 8 = 12)$ $12 + 6 = 18)$
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**d**  $85 - 8 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (80) \quad (5) \end{array}$	$(80 - 8 = 72)$ $72 + 5 = 77)$
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**e**  $92 - 7 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (90) \quad (2) \end{array}$	$(90 - 7 = 83)$ $83 + 2 = 85)$
---	-----------------------------------

**2** Solve the problems:

- a**  $22 - 8 = (14)$
- b**  $52 - 9 = (43)$
- c**  $77 - 9 = (68)$
- d**  $26 - 7 = (19)$
- e**  $81 - 4 = (77)$

**3** What do we get if we subtract:

- a**  $63 - 10 = (53)$
- b**  $93 - 50 = (43)$

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Break down the number into tens and ones to find the solution:

**a**  $63 - 9 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (60) \quad (3) \end{array}$	$(60 - 9 = 51)$ $51 + 3 = 54)$
---	-----------------------------------

**b**  $57 - 8 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (50) \quad (7) \end{array}$	$(50 - 8 = 42)$ $42 + 7 = 49)$
---	-----------------------------------

**c**  $45 - 7 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (40) \quad (5) \end{array}$	$(40 - 7 = 33)$ $33 + 5 = 38)$
---	-----------------------------------

**d**  $32 - 6 = \underline{\quad}$

$\begin{array}{|c|} \hline \square \\ \hline \end{array}$   $\begin{array}{|c|} \hline \square \\ \hline \end{array}$

(30) (2)

$(30 - 6 = 24)$   
 $24 + 2 = 26)$

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

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

Today we have solved subtraction problems involving borrowing and multiples.

- Learners may need assistance with solving problems mentally.
- Make sure learners have a solid understanding of place value.

## Lesson 22: Assessment – Mental maths with 2-digit numbers

### 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 (18 MARKS)

#### WRITTEN

1 Solve the following: (4 marks)

a  $65 + (5) = 70$

b  $34 + 6 = (40)$

c  $71 + (9) = 80$

d  $46 + 4 = (50)$

1 Break up the number to find the solution: (2 marks)

a  $43 + 9 = \underline{\quad}$



(7) (2)

$(43 + 7 = 50)$

$50 + 2 = 52$

b  $29 + 5 = \underline{\quad}$



(1) (4)

$(29 + 1 = 30)$

$30 + 4 = 34$

2 Break up the number into tens and ones to find the solution: (2 marks)

**a**  $82 - 6 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (80) \quad (2) \end{array}$	<table border="1"><tr><td><math>(80 - 6 = 74)</math> <math>74 + 2 = 76)</math></td></tr></table>	$(80 - 6 = 74)$ $74 + 2 = 76)$
$(80 - 6 = 74)$ $74 + 2 = 76)$		

**b**  $66 - 9 = \underline{\quad}$

$\begin{array}{c} \diagup \quad \diagdown \\ \square \quad \square \\ (60) \quad (6) \end{array}$	<table border="1"><tr><td><math>(60 - 9 = 51)</math> <math>51 + 6 = 57)</math></td></tr></table>	$(60 - 9 = 51)$ $51 + 6 = 57)$
$(60 - 9 = 51)$ $51 + 6 = 57)$		

4 Solve the problems: (6 marks)

**a**  $41 - 7 = (34)$

**b**  $53 + 9 = (62)$

**c**  $63 - 9 = (54)$

**d**  $27 + 6 = (33)$

**e**  $84 - 5 = (79)$

**f**  $37 + 5 = (42)$

5 What do we get if we add: (2 marks)

**a**  $13 + 80 = (93)$

**b**  $51 + 40 = (91)$

6 What do we get if we subtract: (2 marks)

**a**  $84 - 20 = (64)$

**b**  $39 - 10 = (29)$

## Lesson 23: Addition using the column method

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum  
 CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction  
 Lesson Objective: Solving addition of 2-digit numbers using the column method.  
 Lesson Vocabulary: hundreds, tens, ones, add, column  
 Resources: Base ten kit (see *Printable Resources*)

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

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	9 + 5	14	<b>6</b>	4 + 7	11
<b>2</b>	8 + 7	15	<b>7</b>	6 + 8	14
<b>3</b>	8 + 3	11	<b>8</b>	5 + 8	13
<b>4</b>	7 + 5	12	<b>9</b>	2 + 9	11
<b>5</b>	7 + 7	14	<b>10</b>	3 + 9	12

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

This lesson focuses on the addition of 2-digit numbers using the column method. The learners will begin the lesson by revising the addition of numbers using simplified pictorials. Learners will then practise adding 2-digit numbers using the column method.

Today we are going to add 2-digit numbers using the column method.

#### Activity 1: Whole class activity

- Write the following number sentence on the board  $86 + 43 = \underline{\quad}$
- Let learners solve this with base ten kits, then let them draw simplified pictorials to show how they work with the tens and ones.
- You will need to guide them in this discussion. Ensure that they make use of the terms hundreds, tens, ones, add, altogether.
- *When crossing out hundreds, tens or ones, use double lines. This is to avoid learners any confusion later on with tally marks which they will learn in data handling. Also, make sure to write arrows to show carrying movement.*

**Step 1. Draw 86 and 43 vertically.**

T	O
	○○○○○
	○
	○○○

**Step 2.  $6 + 3 = 9$  in ones place. (Nothing to write or draw.)**

**Step 3. Since  $8 + 4$  in tens place exceeds 10, exchange 10 tens to 1 hundred (carrying).**

H	T	O
□ ←	##### ##	○○○○○ ○ ○○○

**Step 4. Write the answer.**

H	T	O
□ ←	##### ##	○○○○○ ○ ○○○
1	2	9

The answer is 129.

### Activity 2: Whole class activity

- Write  $86 + 43 = \underline{\quad}$  on the board.
- Note that this is the same addition problem that was used in Activity 1. This is a purposeful choice, so that learners can see the link between the simplified pictorials and the column method.
- Explain to the learners that we will now be solving this problem using the column method.
- Draw the diagram below writing H as hundreds place, T as tens place and O as ones place and discuss the steps with the learners.

H	T	O	
	8	6	
+	4	3	
		9	O: $6 + 3 = 9$
1	2	0	T: $80 + 40 = 120$
1	2	9	

- You must discuss each step. Ensure that you use the correct language – ones, tens, hundreds, add, carry.

- The first step is to line up the numbers vertically in tens and ones.
- Add up the ones place:  $6 + 3 = 9$ . Write the 9 in the ones place, underneath the line.
- Add up the tens place:  $80 + 40 = 120$ . Write the 120 in the second row underneath the line, considering the places.
- Finally add the hundreds, tens and ones together.
- So, what's the answer for  $86 + 43$ ? ( $86 + 43 = 129$ ).
- Now we want to have only one row underneath the line. How can we write it?

	H	T	O
		8	6
+		4	3
	1	2	9

- Add up the ones place:  $6 + 3 = 9$ . Write the 9 in the ones place, underneath the line.
- Add up the tens place:  $80 + 40 = 120$ .
- What does the zero tell us in the number 120? (That there are zero ones).
- $9 + 0 = 9$ , so you don't need to write 0.
- What does the 2 tell us in the number 120? (That there are 2 tens).
- Where do you think we must write the 2? (In the tens place, underneath the line).
- Must we also write the 1 there? (No, because the 1 in the number 120 means 100 so the 1 must go in the hundreds column).
- So, what's the answer for  $86 + 43$ ? ( $86 + 43 = 129$ ).

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

Solve the following using base ten kits, then using the column method:

**a**  $71 + 64 = (135)$

	H	T	O
		7	1
+		6	4
	1	3	5

**b**  $53 + 65 = (118)$

	H	T	O
		5	3
+		6	5
	1	1	8

**c**  $41 + 88 = (129)$

	H	T	O
		4	1
+		8	8
	1	2	9

**d**  $85 + 92 = (177)$

	H	T	O
		8	5
+		9	2
	1	7	7

**e**  $67 + 81 = (148)$

	H	T	O
		6	7
+		8	1
	1	4	8



**4 HOMEWORK ACTIVITY (5 MINUTES)**

Solve the following:

**a**  $82 + 57 = (139)$

	H	T	O
		8	2
+		5	7
	1	3	9

**b**  $31 + 95 = (126)$

	H	T	O
		3	1
+		9	5
	1	2	6

**c**  $73 + 84 = (157)$

	H	T	O
		7	3
+		8	4
	1	5	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 solved addition problems.

Firstly, we used simplified drawings and then we moved onto learning how to use the column method.

## Lesson 24: Addition using the column method and a number line

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Solving addition of 2-digit numbers using the column method.

Lesson Vocabulary: hundreds, tens, ones, add, column, number line

Resources: n/a

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

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	$9 + 6 =$	15	<b>6</b>	$2 + 9 =$	11
<b>2</b>	$8 + 8 =$	16	<b>7</b>	$3 + 9 =$	12
<b>3</b>	$9 + 2 =$	11	<b>8</b>	$6 + 7 =$	13
<b>4</b>	$7 + 6 =$	13	<b>9</b>	$6 + 6 =$	12
<b>5</b>	$7 + 8 =$	15	<b>10</b>	$9 + 9 =$	18

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

This lesson focuses on the addition of 2-digit numbers using the column method. The learners will begin the lesson by revising the addition of numbers using simplified pictorials. Learners will then practice adding 2-digit numbers using the column method. Learners will also use a number line as they solve the addition problems.

Today we are going to add 2-digit numbers using the column method and a number line.

#### Activity 1: Whole class activity

- Write  $78 + 56 = \underline{\quad}$  on the board.
- Allow learners time to solve the problem using simplified pictorials, encouraging them to verbalise what they are doing.

**Step 1. Draw 78 and 56 vertically.**

T	O
	○○○○○
	○○○
	○○○○○
	○

**Step 2. Since 8 + 6 in ones place exceeds 10, exchange 10 ones to 1 ten (carrying).**

T	O
	⊖⊖⊖⊖⊖⊖
←	⊖⊖⊖
	⊖⊖○○○
	○

**Step 3. Since 7 + 6 in tens place exceeds 10, exchange 10 tens to 1 hundred (carrying).**

H	T	O
□ ←	#####	⊖⊖⊖⊖⊖⊖
	#####   ←	⊖⊖⊖
		⊖⊖○○○
		○

**Step 4. Write the answer.**

H	T	O
□ ←	#####	⊖⊖⊖⊖⊖⊖
	#####   ←	⊖⊖⊖
		⊖⊖○○○
		○
1	3	4

The answer is 134.

- Explain to the learners that we will now be solving this problem using the column method.
- Draw the diagram below with HTO and discuss the steps with the learners.

	H	T	O	
		7	8	
+		5	6	
	1	4		O: 6 + 8 = 14
	1	2	0	T: 70 + 50 = 120
	1	3	4	

- You must discuss each step. Ensure that you use the correct language- ones, tens, hundreds, add, carry.
- The first step is to line up the numbers vertically in tens and ones.**
- Add up the ones place:  $8 + 6 = 14$ . Write the 14 underneath the line considering the places.**
- Add up the tens place:  $80 + 40 = 120$ . Write the 120 in the second row underneath the line, considering the places.**
- Finally add the hundreds, tens and ones together.**
- So, what's the answer for  $78 + 56$ ? ( $78 + 56 = 134$ ).**
- Now we want to have only one row underneath the line. How we can write this?**

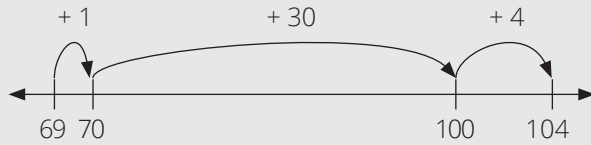
	H	T	O
		1	
		7	8
+		5	6
	1	3	4

- Add up the ones place:  $8 + 6 = 14$ .**
- Write 14 on the board (in a different place, away from your column method).
- What does the 4 tell us in the number 14?** (That there are 4 ones).
- What does the 1 tell us in the number 14?** (That there is 1 ten).
- Where do you think we must write the 4?** (In the ones place, underneath the line).
- Where do you think we must write the 1? Must we write in in the tens place below the line?** (No because we haven't added the other tens yet and we must write the answer in one row.)
- We write this extra ten in the tens place, but just above the top number (above the 7).**
- Add up the tens place:  $10 + 70 + 50 = 130$ .**
- Write 130 on the board (in a different place, away from your column method).
- What does the zero tell us in the number 130?** (That there are zero ones. We don't write this 0.)
- What does the 3 tell us in the number 130?** (That there are 3 tens.)
- Where do you think we must write the 3?** (In the tens place, underneath the line).
- Must we also write the 1 there?** (No, because the 1 in the number 130 means 100 so the 1 must go in the hundreds column).
- So, what's the answer for  $78 + 56$ ? ( $78 + 56 = 134$ ).**

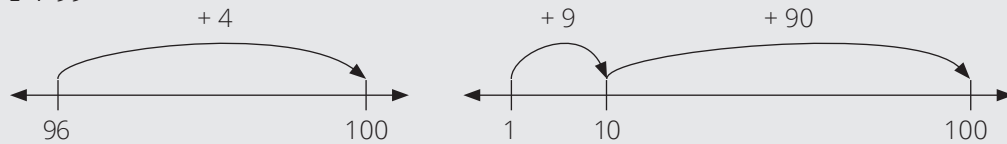
### Activity 2: Whole class activity

- In this activity we will be solving the problem  $69 + 35 = \underline{\quad}$  using a number line.
- Draw a number line with the start being 69.
- Ask the learners in **which direction are we moving?** (Right, because we are doing addition, the answer must be bigger/the number must increase)
- What number is the nearest multiple of 10 on the right?** (70)
- How many do we need to move to reach 70?** (1)
- Break down 35 to 1 and 34. Then, draw a jump to land at 100 (move 30).

- Draw a small jump of 4 to land on 104.



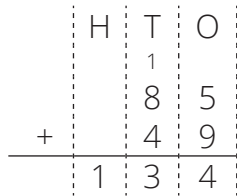
- Ask the learners: **What is difference between the column method that we used in Activity 1 and the number line method that we used now?** (Learners will share their thoughts)
- **Which method/way of adding do you find easier? Why?** (Discuss)
- Repeat the steps in Activity 2 with the learners, using the following:
  - $96 + 4$
  - $1 + 99$



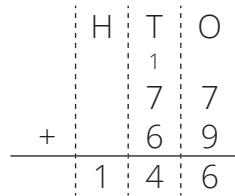
### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

1 Solve the following using the column method:

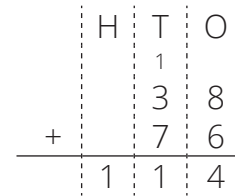
a  $85 + 49 = (134)$



b  $77 + 69 = (146)$

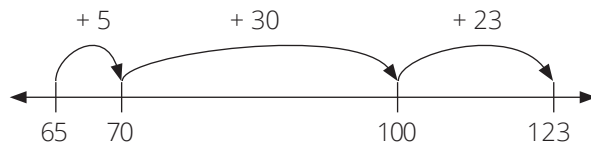


c  $38 + 76 = (114)$

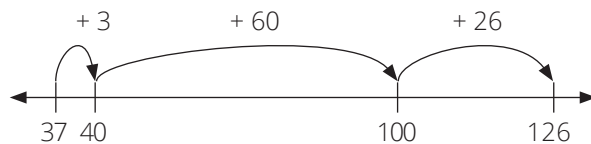


2 Solve the following using a number line:

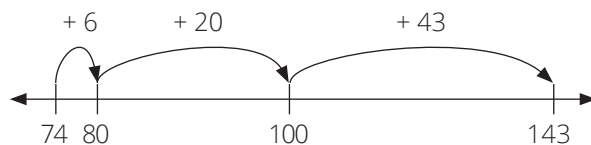
a  $65 + 58 = (123)$



b  $74 + 69 = (143)$



c  $37 + 89 = (126)$



**4 HOMEWORK ACTIVITY (5 MINUTES)**

**1** Solve the following using the column method:

**a**  $79 + 64 = (143)$

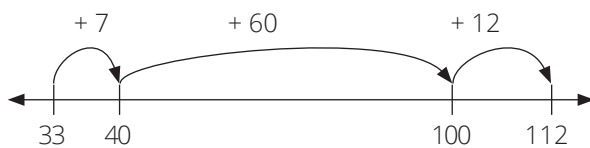
	H	T	O
		1	
		7	9
+		7	4
	1	4	3

**b**  $48 + 84 = (132)$

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

**2** Solve the following using a number line:

$33 + 79 = (112)$



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

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

Today we have solved addition problems.

Firstly, we used simplified drawings and the column method, then we learnt to add using a number line.

## Lesson 25: Consolidation: Addition

### 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, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Solving addition of 2-digit numbers using the column method

Lesson Vocabulary: hundreds, tens, ones, add, column

Resources: Base ten kit (see *Printable Resources*)

Date:

Week

Day

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

This week we have focused on adding 2-digit numbers using the column method. In order for learners to understand the column method it is necessary for them to see the progression from the use of simplified pictorials to the column method. You can see that the layout of the simplified pictorials is similar to the layout of the column method in that the pictures are laid out vertically. In the use of simplified pictorials there is also carrying or trading of tens and hundreds, which learners will recognise in the column method. Learners also have to be encouraged to try to solve problems on a number line. Allow learners opportunities to discuss their strategies as there are different ways of thinking and it is important for learners to learn from each other.

### 2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The idea of carrying is quite confusing for some learners. It is essential that learners have a good understanding of place value before learning the column method. Make sure that you encourage learners to verbalise their understanding, using the correct mathematical vocabulary.

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

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

### 4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 Solve the following using the column method:

**a**  $29 + 78 = (107)$

	H	T	O
		1	
		2	9
+		7	8
	1	0	7

**b**  $43 + 99 = (142)$

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

**c**  $65 + 89 = (154)$

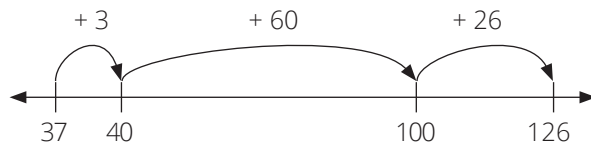
	H	T	O
		1	
		6	5
+		8	9
	1	5	4

**d**  $59 + 74 = (133)$

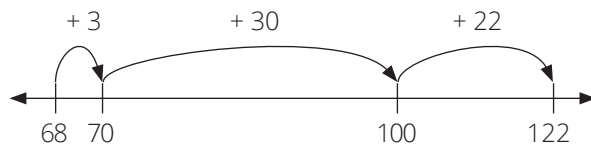
	H	T	O
		1	
		5	9
+		7	4
	1	3	3

**2** Solve the following by a number line:

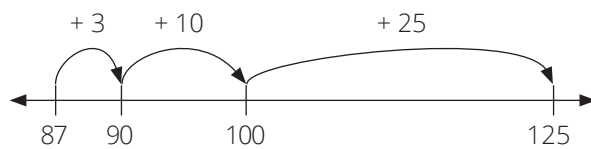
**a**  $37 + 89 = (126)$



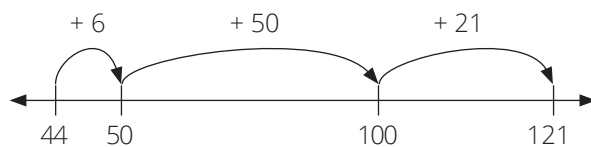
**b**  $68 + 54 = (122)$



**c**  $87 + 38 = (125)$



**d**  $44 + 77 = (121)$



**5 REFLECTION AND SUMMARY OF LESSON**

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

Today we have solved addition problems.

We used the column method and a number line.

We discussed which method we found easier to use, and gave reasons why.



# Week 6

## Lesson 26: Addition using various strategies

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Solving addition of 2-digit numbers using the column method.

Lesson Vocabulary: hundreds, tens, ones, add, column, carry

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Find the missing number	Answer		Find the missing number	Answer
<b>1</b>	$8 + \square = 10$	2	<b>6</b>	$75 + \square = 80$	5
<b>2</b>	$37 + \square = 40$	3	<b>7</b>	$16 + \square = 20$	4
<b>3</b>	$84 + \square = 90$	6	<b>8</b>	$42 + \square = 50$	8
<b>4</b>	$23 + \square = 30$	7	<b>9</b>	$69 + \square = 70$	1
<b>3</b>	$51 + \square = 60$	9	<b>10</b>	$95 + \square = 100$	5

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

This lesson focuses on consolidating learners' understanding of the addition of 2-digit numbers. Learners are encouraged to solve the problems using the strategy that they prefer, either the column method or the number line.

Today we are going to consolidate the addition of 2-digit numbers.

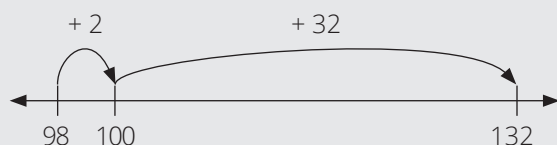
#### Activity 1: Whole class activity

- Write  $98 + 34 = \underline{\quad}$  on the board.
- Tell learners: **We will solve this problem using base ten kits, simplified pictorials and the column method.**
- Let learners solve the question in each strategy. *Learners can start from any one of the strategies that they prefer.*
- Ask a learner to come and solve the problem on the board.

- Encourage the rest of the class to solve the problem in their classwork book. This will help them to focus on the steps of the column method.

	H	T	O		H	T	O
		1					
		9	8		□		○○○○○
+		6	4				○○○
							○○○
	1	3	2		1	3	2

- You must discuss each step. Ensure that you use the correct language- ones, tens, hundreds, add, carry.
- Next, we will solve the same problem (98 + 34) using a number line.
- Let learners draw a number line to solve the problem in their classwork book.
- Ask a learner to come and write on the board to show the class how they would use a number line to solve the problem.



- The learner demonstrating may not be able to verbalise all the steps clearly, so model the verbalisation as they draw the number line on the board.
- The learner may choose to do their jumps differently from what is demonstrated here. Allow learners to discuss the different ways of jumping along the number line, getting learners to think about which is easier. Encourage them to think about how we break down numbers, and how we use pivot numbers of 5, 10 or 100 to make it easier to calculate quickly.
- Ask the learners: **What is different between the column method that we used first and the number line method that we used now?** (Learners will share their thoughts)
- **Which method/way of adding do you find easier? Why?** (Discuss) *There is no correct answer here. Just let them say how they feel about each method. It may be an opportunity to find out where learners are struggling.*

### Activity 2: Learners work in pairs

- Learners work with the person sitting next to them.
- Write a number sentence of the board, for example:  $56 + 75 =$
- Each learner in the pair must solve the problem using the method that they prefer (column format or number line).
- If the learners use different methods, then they can explain their method to their partner.
- If both learners use the same method, then they can discuss why they think their chosen method is the better option.
- Let learners try all the method appeared here.

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

Solve the following using the column method, simplified pictorials and a number line:

**a**  $39 + 84 = (123)$

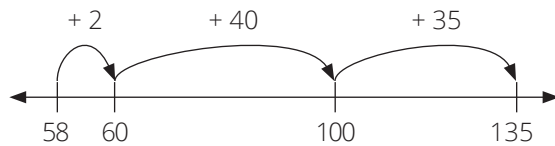
	H	T	O	
		1		
		3	9	
+		8	4	
	1	2	3	

H	T	O
□	#	⊖⊖⊖⊖⊖⊖
	#####	⊖⊖⊖⊖
1	2	3

**b**  $58 + 77 = (135)$

	H	T	O	
		1		
		5	8	
+		7	7	
	1	3	5	

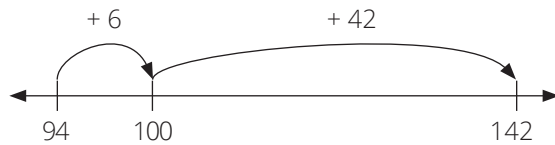
H	T	O
□	#	⊖⊖⊖⊖⊖⊖
	#####	⊖⊖⊖
1	3	5



**c**  $94 + 48 = (142)$

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

H	T	O
□	#####	⊖⊖⊖⊖
	#	⊖⊖⊖⊖⊖⊖
1	4	2



WEEK 6

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Solve the following using the column method, simplified pictorials and a number line:

**a**  $86 + 65 = (151)$

H	T	O
	1	
	8	6
+	6	5
	1	5
	1	1

H	T	O
□		
1	5	1

**b**  $67 + 96 = (163)$

H	T	O
	1	
	6	7
+	9	6
	1	6
	1	3

H	T	O
□		
1	6	3

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

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

Today we have solved addition problems.

We used the column method and a number line.

We discussed which method we found easier to use, and gave reasons why.

## Lesson 27: Assessment – Addition

### 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.

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

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

Take in the learners' work when they are done.

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

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

### 3 ASSESSMENT (20 MARKS)

#### WRITTEN

1 Solve the following using simplified pictorials: ( $4 \times 2 = 8$  marks)


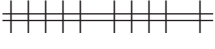
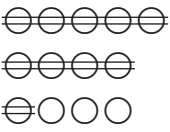
a  $65 + 52 = (117)$

H	T	O
□ ←	##### #####	○○○○○ ○○
1	1	7


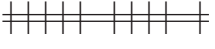
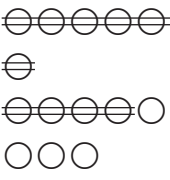
b  $54 + 85 = (139)$

H	T	O
□ ←	#### #####	○○○○ ○○○○○
1	3	9

**c**  $39 + 94 = (133)$

H	T	O
□ ←	 	
1	3	3

**d**  $86 + 98 = (184)$

H	T	O
□ ←	 	
1	8	4

**2** Solve the following by using the column method: ( $4 \times 2 = 8$  marks)

**a**  $53 + 64 = (117)$

	H	T	O
		5	3
+		6	4
	1	1	7

**b**  $81 + 73 = (154)$

	H	T	O
		8	1
+		7	3
	1	5	4

**c**  $85 + 89 = (174)$

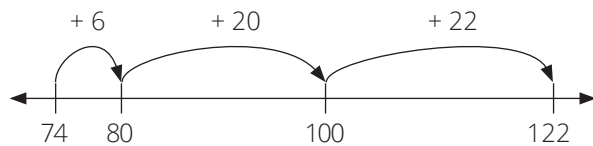
	H	T	O
		8	5
+		8	9
	1	7	4

**d**  $57 + 86 = (143)$

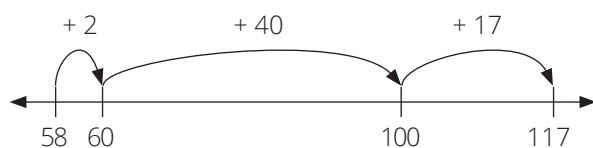
	H	T	O
		5	7
+		8	6
	1	4	3

**3** Solve the following by using a number line: ( $2 \times 2 = 4$  marks)

**a**  $74 + 48 = (122)$



**b**  $58 + 59 = (117)$



## ORAL AND PRACTICAL

<b>CAPS: Number, operations and relationships: Addition</b>		<b>Mark: /7</b>
<b>Activity: Add numbers. Observe learners doing addition this week in the number range 0 to 999.</b>		
<b>Mark</b>	<b>Criteria - rubric</b>	
<b>1</b>	Unable to add correctly	
<b>2</b>	Able to add in the number range 0 to 20 by counting all	
<b>3</b>	Able to add by in the number range 0–50 by counting on from the first number	
<b>4</b>	Able to add 2-digit and 3-digit numbers using the column method using a base ten kit	
<b>5</b>	Able to add 2-digit and 3-digit numbers using the column method using a base ten kit and can record numeric working	
<b>6</b>	Able to add 2-digit and 3-digit numbers using the column method and a number line	
<b>7</b>	Able to add 2-digit and 3-digit numbers competently and can choose from a variety of methods	

## Lesson 28: Subtraction using the column method

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Solving subtraction of 2-digit numbers from 3-digit numbers using the column method.

Lesson Vocabulary: hundreds, tens, ones, subtract, column, borrow, exchange

Resources: Base ten kit (see *Printable Resources*)

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

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	13 – 5	8	<b>6</b>	12 – 7	5
<b>2</b>	16 – 9	7	<b>7</b>	16 – 7	9
<b>3</b>	15 – 9	6	<b>8</b>	12 – 9	3
<b>4</b>	11 – 6	5	<b>9</b>	12 – 6	6
<b>5</b>	12 – 8	4	<b>10</b>	11 – 9	2

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

This lesson focuses on the subtraction of 2-digit numbers from 3-digit numbers using the column method. The learners will begin the lesson by revising the subtraction of numbers using simplified pictorials. Learners will then practice subtracting 2-digit numbers from 3-digit numbers using the column method.

Today we are going to subtract 2-digit numbers from 3-digit numbers using the column method.

#### Activity 1: Whole class activity

- Write the following number sentence on the board  $138 - 53 = \underline{\quad}$
- Let learners solve the question using a base ten kit, then let them draw simplified pictorials to show the moves.
- You will need to guide them in this discussion. Ensure that they make use of the terms hundreds, tens, ones, subtract, borrow, exchange.
- *When crossing out hundreds, tens or ones, use double lines. This is to avoid learners confuse with tally marks which they will learn in data handling. Also, make sure to write arrows to show borrowing. Learners may confuse if they borrowed or subtracted. It is better to delete from the 10 borrowed from upper places.*



**Step 1. Draw 138.**

H	T	O
□		○○○○○ ○○○

**Step 2.  $8 - 3 = 5$  in ones place.**

H	T	O
□		<del>○○○○○</del> ○○○

**Step 3. Since we can't subtract 5 from 3 in tens place, exchange 1 hundred to 10 tens (borrowing).**

H	T	O
<del>□</del>		<del>○○○○○</del> ○○○

**Step 4.  $13 - 5 = 8$  in tens place.**

H	T	O
<del>□</del>		<del>○○○○○</del> ○○○
	<del>     </del>	

**Step 5. Write the answer.**

H	T	O
<del>□</del>		<del>○○○○○</del> ○○○
	<del>     </del>	
0	8	5

The answer is 85. We don't need to write 0 for the hundreds place.

**Activity 2: Whole class activity**

- Write  $138 - 53 = \underline{\quad}$  on the board.
- Note that this is the same subtraction problem that was used in Activity 1. This is a purposeful choice, so that learners can see the link between the simplified pictorials and the column method.
- Explain to the learners that we will now be solving this problem using the column method.
- Draw the diagram below and discuss the steps with the learners.

	H	T	O
	1	3	8
-		5	3
			5
		8	0
	8	5	

O:  $8 - 3 = 5$

T:  $130 - 50 = 80$

- You must discuss each step. Ensure that you use the correct language- ones, tens, hundreds, subtract, borrow, exchange.
- **The first step is to line up the numbers vertically in hundreds, tens and ones.**
- **Subtract the ones place:  $8 - 3 = 5$ . Write the 5 in the ones place.**
- **We can't take 5 away from 3, so what can we do now?** (Discuss with learners. This is very important as it is common for learners to simply say "We can't take 5 away from 3, so we will take 3 away from 5").
- Make sure learners realise the need to borrow from the hundreds column. This is done by making an exchange – one hundred is exchanged for 10 tens. The 10 tens then get added to the tens place, and the hundred is crossed out.
- Subtract the tens place:  **$130 - 50 = 80$ . Write 80 in the second row underneath the line, considering the places.**
- **Finally add the tens and ones together.**
- **So, what's the answer for  $138 - 53$ ? ( $138 - 53 = 85$ ).**

	H	T	O
	1	3	8
-		5	3
		8	5

- **Now we want to have only one row underneath the line. How we can write?**
- **Subtract the ones place:  $8 - 3 = 5$ . Write the 5 in the ones place.**
- **We can't take 5 away from 3, so what can we do now?**
- Make sure learners realise the need to borrow from the hundreds column. This is done by making an exchange – one hundred is exchanged for 10 tens. The 10 tens then gets added to the tens place, and the hundred is crossed out.
- Subtract the tens place:  **$130 - 50 = 80$ .**
- **What does the zero tell us in the number 80?** (That there are zero ones).
- **What does the 8 tell us in the number 80?** (That there are 8 tens).
- **Where do you think we must write the 8?** (In the tens place, underneath the line).
- **Do we have any hundreds left?** (No because we exchanged them for 10 tens and put them in the tens place)
- **So, what's the answer for  $138 - 53$ ? ( $138 - 53 = 85$ ).**

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

Solve the following using the column method:

**a**  $159 - 64 = (95)$

	H	T	O
	1	5	9
-		6	4
<hr/>			
		9	5

**b**  $128 - 41 = (87)$

	H	T	O
	1	2	8
-		4	1
<hr/>			
		8	7

**c**  $136 - 82 = (54)$

	H	T	O
	1	3	6
-		8	2
<hr/>			
		5	4

**d**  $167 - 73 = (94)$

	H	T	O
	1	6	7
-		7	3
<hr/>			
		9	4

**e**  $119 - 36 = (83)$

	H	T	O
	1	1	9
-		3	6
<hr/>			
		8	3

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Solve the following:

**a**  $155 - 92 = (63)$

	H	T	O
	1	5	5
-		9	2
<hr/>			
		6	3

**b**  $139 - 45 = (94)$

	H	T	O
	1	3	9
-		4	5
<hr/>			
		9	4

**c**  $147 - 74 = (73)$

	H	T	O
	1	4	7
-		7	4
<hr/>			
		7	3

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

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

Today we have solved subtraction problems.

Firstly, we used simplified drawings and then we moved onto learning the column method.

## Lesson 29: Subtraction using the column method

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Solving subtraction of 2-digit numbers from 3-digit numbers using the column method.

Lesson Vocabulary: hundreds, tens, ones, subtract, column, borrow, exchange

Resources: Base ten kit (see *Printable Resources*)

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	13 – 8	5	<b>6</b>	16 – 8	8
<b>2</b>	16 – 7	9	<b>7</b>	15 – 7	8
<b>3</b>	15 – 6	9	<b>8</b>	12 – 3	9
<b>4</b>	18 – 9	9	<b>9</b>	14 – 7	7
<b>5</b>	17 – 9	8	<b>10</b>	11 – 4	7

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

This lesson focuses on the subtraction of 2-digit numbers from 3-digit numbers using the column method. The learners will begin the lesson by revising the subtraction of numbers using simplified pictorials. Learners will then practice subtracting 2-digit numbers from 3-digit numbers using the column method.

Today we are going to subtract 2-digit numbers from 3-digit numbers using the column method.

#### Activity 1: Whole class activity

- Write  $136 - 49 = \underline{\quad}$  on the board.
- Allow learners to solve the problem using simplified pictorials so that learners can see the link between the simplified pictorials and the column method.
- Draw the diagram below and discuss the steps with the learners.

**Step 1. Draw 136.**

H	T	O
□		○○○○○ ○

**Step 2. Since we can't subtract 9 from 6 in the ones place, exchange 1 ten to 10 ones (borrowing).**

H	T	O
□	≠	○○○○○ ○ ○○○○○ ○○○○○

**Step 3.  $16 - 9 = 7$  in ones place.**

H	T	O
□	≠	<del>○○○○○</del> <del>○</del> <del>○○○○○</del> ○○○○○

**Step 4. Since we can't subtract 4 from 2 in tens place, exchange 1 hundred to 10 tens (borrowing).**

H	T	O
<del>□</del>	≠	<del>○○○○○</del> <del>○</del> <del>○○○○○</del> ○○○○○

**Step 5.  $12 - 4 = 8$  in tens place.**

H	T	O
<del>□</del>	<del>  ≠</del>	<del>○○○○○</del> <del>○</del> <del>○○○○○</del> ○○○○○

**Step 6. Write the answer.**

H	T	O
☐	###	⊖⊖⊖⊖⊖⊖
	##	⊖
		⊖⊖⊖⊖⊖
		⊖⊖⊖⊖
0	8	7

The answer is 87. We don't need to write 0 for the hundreds place.

**Activity 2: Whole class activity**

- Let learners solve the same problem using column method.
- Explain to the learners that we will now be solving this problem using the column method.

H	T	O	
	2	1	
1	<del>3</del>	6	
-	4	9	
	7	7	O: 16 - 9 = 7
	8	0	T: 120 - 40 = 80
	8	7	

- You must discuss each step. Encourage learners to explain their solutions themselves. Ensure that you use the correct language – ones, tens, hundreds, subtract, borrow, exchange.
- **The first step is to line up the numbers vertically in hundreds, tens and ones.**
- **We can't take 9 away from 6, so what should we do?** (We borrow or exchange 1 ten for 10 ones so that we end up with 16 ones).
- Make sure you discuss this with learners. This is very important as it is common for learners to simply say “We can't take 9 away from 6, so we will take 6 away from 9”).
- Make sure learners realise the need to borrow from the tens place. The 10 ones get added to the ones place, and the 3 in the tens place is crossed out. Learners need to write the new ten (2) at the top of the tens place.
- **So, now we can subtract the ones place: 16 - 9 = 7. Write the 7 in the ones place.**
- **Look at the tens place.**
- **We can't take 2 away from 4, so what should we do?** (We borrow or exchange the hundred for 10 tens so that we end up with 12 tens).
- Discuss the borrowing process with the learners again. Remember to talk about crossing out the hundred and writing the ten at the top of the tens place.
- Subtract in tens place: **120 - 40 = 80. Write 80 in the second row underneath the line considering the places.**
- **Finally add the tens and ones together.**

- So, what's the answer for  $136 - 49$ ? ( $136 - 49 = 87$ ).

	H	T	O
		2	1
	1	<del>3</del>	6
-		4	9
		8	7

- Now we want to have only one row underneath the line. **How we can write it?**
- **We can't take 9 away from 6, so what should we do?** (We borrow or exchange 1 ten for 10 ones so that we end up with 16 ones).
- Make sure learners realise the need to borrow from the tens place. The 10 ones get added to the ones place, and the 3 in the tens place is crossed out. Learners need to write the new ten (2) at the top of the tens place.
- **So, now we can subtract the ones place:  $16 - 9 = 7$ . Write the 7 in the ones place.**
- **Look at the tens place.**
- **We can't take 2 away from 4, so what should we do?** (We borrow or exchange the hundred for 10 tens so that we end up with 12 tens).
- Discuss the borrowing process with the learners again. Remember to talk about crossing out the hundred and writing the ten at the top of the tens place.  
Subtract in tens place:  $120 - 40 = 80$ .
- **What does the zero tell us in the number 80?** (That there are zero ones).
- **What does the 8 tell us in the number 80?** (That there are 8 tens).
- **Where do you think we must write the 8?** (In the tens place, underneath the line).
- **Do we have any hundreds left?** (No because we exchanged them for 10 tens and put them in the tens place)
- **So, what's the answer for  $136 - 49$ ?** ( $136 - 49 = 87$ ).

WEEK 6

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

Solve the following using the column method and simplified pictorials:

**a**  $114 - 28 = (86)$

	H	T	O	H	T	O
		0	1	☐	≠	○○○○○
	1	<del>1</del>	4	☐	≠	○○○○○ ○○○○○
-		2	8			
		8	6	0	8	6

**b**  $144 - 67 = (77)$

	H	T	O	H	T	O
		3	1	☐	≠	○○○○○
	1	<del>4</del>	4	☐	≠	○○○○○ ○○○○○
-		6	7			
		7	7	0	7	7

**c**  $123 - 98 = (25)$

H	T	O	H	T	O
1	2	3	☐☐☐	#	○○○○
-	9	8			○○○○○
—	2	5	0	2	5

**d**  $167 - 79 = (88)$

H	T	O	H	T	O
1	6	7	☐☐☐	#	○○○○○
-	7	9			○○○○○
—	8	8	0	8	8

**e**  $131 - 64 = (67)$

H	T	O	H	T	O
1	3	1	☐☐☐	#	⊖
-	6	4			○○○○○
—	6	7	0	6	7

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Solve the following using the column method and simplified pictorials:

**a**  $112 - 38 = (74)$

H	T	O	H	T	O
1	1	2	☐☐☐	#	○○
-	3	8			○○○○○
—	7	4	0	7	4

**b**  $131 - 95 = (36)$

H	T	O	H	T	O
1	3	1	☐☐☐	#	⊖
-	9	5			○○○○○
—	3	6	0	3	6



**c**  $184 - 87 = (97)$

	H	T	O
	1	8	4
-		8	7
	9	7	

H	T	O
0	9	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 solved subtraction problems.

Firstly, we used simplified drawings and then we moved onto practicing the column method.

## Lesson 30: Consolidation: Addition and subtraction

### 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, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Solving addition and subtraction problems using a variety of strategies

Lesson Vocabulary: hundreds, tens, ones, add, subtract, column, borrow, carry, exchange

Resources: Base ten kit (see *Printable Resources*)

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

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

This week we have focused on adding and subtracting using the column method. Learners have also added using a number line. In order for learners to understand the column method it is necessary for them to see the progression from the use of simplified pictorials to the column method. You can see that the layout of the simplified pictorials is similar to the layout of the column method in that the pictures are laid out vertically. In the use of simplified pictorials there is also the exchange of tens and hundreds, which learners will recognise in the column method. Allow learners opportunities to discuss their strategies as there are different ways of thinking and it is important for learners to learn from each other.

### 2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

It is essential that learners have a good understanding of place value before learning the column method. Make sure that you encourage learners to verbalise their understanding, using the correct mathematical vocabulary. When presented with a subtraction problem such as  $134 - 45$ , learners may think (because they can't subtract 5 from 4 in the ones place) that they will swap the numbers around and subtract 4 from 5. It is important to emphasise that this cannot be done, but that learners must rather exchange 1 ten for 10 ones, so that they can subtract 5 from 14. Learners may also forget that they have borrowed a ten, which will influence their calculation of the tens place. Learners need to remember where to write the numbers showing their borrowing and carrying.

### 3 CLASSWORK/HOMEWORK - COMPLETE THIS WEEK'S CLASSWORK AS NEEDED

Today we are going over what we learned this week. We are learning more about addition and subtraction.

**4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES**

**1** Solve the following using simplified pictorials:

**a**  $81 + 76 = (157)$

H	T	O
□ ←		
1	5	7

**b**  $42 + 89 = (131)$

H	T	O
□ ←		
1	3	1

**c**  $175 - 82 = (93)$

H	T	O
0	9	3

**d**  $142 - 65 = (77)$

H	T	O
0	7	7

**2** Solve the following using the column method:

**a**  $56 + 75 = (131)$

	H	T	O
		5	6
+		7	5
	1	3	1

**b**  $99 + 99 = (198)$

	H	T	O
		9	9
+		9	9
	1	9	8

**c**  $113 - 48 = (65)$

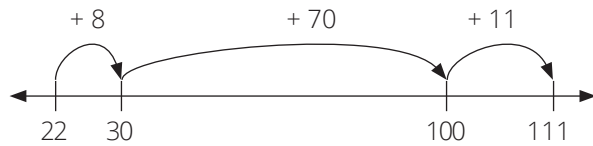
	H	T	O
		0	1
	1	3	3
-		5	8
		6	5

**d**  $162 - 88 = (74)$

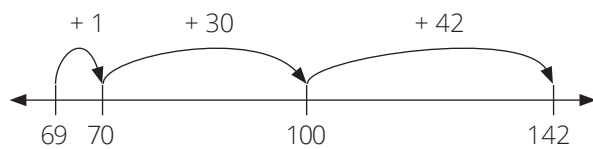
	H	T	O
		5	1
	1	6	2
-		8	8
		7	4

**3** Solve the following by using a number line:

**a**  $22 + 89 = (111)$



**b**  $69 + 73 = (142)$



### 5 REFLECTION AND SUMMARY OF LESSON

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

Today we have solved addition and subtraction problems.

We used simplified pictorials, the column method and a number line.

# Week 7

## Lesson 31: Subtraction using the column method

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Solving addition and subtraction problems using a variety of strategies.

Lesson Vocabulary: hundreds, tens, ones, subtract, column, borrow, exchange

Resources: Base ten kit (see *Printable Resources*)

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	$10 - 3 =$	7	<b>6</b>	$60 - 2 =$	58
<b>2</b>	$20 - 5 =$	15	<b>7</b>	$70 - 4 =$	66
<b>3</b>	$30 - 6 =$	24	<b>8</b>	$80 - 7 =$	73
<b>4</b>	$40 - 1 =$	39	<b>9</b>	$90 - 9 =$	81
<b>3</b>	$50 - 8 =$	42	<b>10</b>	$100 - 10 =$	90

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

This lesson focuses on the subtraction of 2-digit numbers from 3-digit numbers using the column method. Learners will practice subtracting 2-digit numbers from 3-digit numbers using the column method, as well as a number line. In this lesson, the difference between the two numbers can be either a 2-digit or single digit answer. Learners will also learn to check their solutions by adding their answer to the subtrahend.

Today we are going to subtract 2-digit numbers from 3-digit numbers using the column method.

#### Activity 1: Whole class activity

- Write  $105 - 46 = \underline{\quad}$  on the board.
- Let learners solve this by base ten kits or simplified pictorials. Then, let them solve in column method.

H	T	O
1	0	5
-	4	6
-	5	9

H	T	O
☐ →		⊖⊖⊖⊖⊖
0	5	9

- Ask a learner to come up to the board to show the class how they would solve the problem.
- Allow opportunities for discussion, as learners will have different ways of solving the problem and it is important for learners to have time to learn from each other.
- Be aware that learners may be a bit unsure of this problem as it looks a little different to the other problems they have worked on previously. The zero in the tens place of the larger number may make learners feel uncertain of how to solve the problem.
- Make sure you take the time to discuss the steps involved in solving the problem carefully so that learners feel comfortable when calculating numbers containing a zero.
- **The first step is to line up the numbers vertically in hundreds, tens and ones.**
- **We can't take 6 away from 5, so what should we do?** (We borrow or exchange from the tens place)
- **But the tens place has a zero. Can we borrow 1 ten from 0 tens?** (No because you can't take 1 away from zero).
- **So, where can we borrow from?** Make sure that learners know that they cannot swap the numbers around so that they can subtract zero from 1.
- **We will borrow from the hundreds column. So, we cross out the 1 in the hundreds column, and then where must we put the 10 tens we have borrowed? Can we put it in the ones place?** (No)
- **Why not?** (Because the 10 tens must go in the tens place / because they're tens).
- **Okay so we now have 10 tens in the tens place instead of zero, but we still haven't managed to borrow anything for the ones place. What must we do now?** (Now we can borrow a ten from the tens place to give to the ones)
- **So, we cross out the 10 tens – what are we left with?** (9 tens)
- **We give 10 ones to the ones place so that we end up with 15 ones.**
- **So, now we can subtract the ones place: 15 – 6 = 9. Write the 9 in the ones place underneath the line.**
- **Now go back to the tens place – how many tens were we left with?** (9)
- Subtract:  $90 - 40 = 50$ .
- **Where must we write the 5?** (In the tens place, underneath the line).
- **Do we have any hundreds left?** (No because we exchanged them for 10 tens and put them in the tens place)
- **So, what's the answer for 105 – 46?** ( $105 - 46 = 59$ ).
- Then write the problem  $102 - 9$  on the board.

	H	T	O
		9	1
	1	<del>0</del>	2
-			9
		9	3

- Follow the same process, but emphasise that this time we are subtracting a single digit number from a 3-digit number. Learners still need to be aware of what to do when there is a zero in the tens place.
- Also discuss with learners: **What happens to the 9 in the tens place because there is no number beneath it? We don't have anything to subtract from 9 so we just write the 9 in the answer line.**
- Then write the problem  $100 - 7$  on the board.

	H	T	O
		9	1
	1	<del>0</del>	0
-			7
		9	3

- This problem looks a bit different as there is a zero in both the tens and the ones place.
- Ask the same questions as before, for example: **Can we take 7 away from 0?** (No); **Where should we borrow from?** (The hundreds column)
- Finally write  $132 - 128 + \dots$  on the board

	H	T	O
		2	1
	1	<del>3</del>	2
-	1	2	8
			4

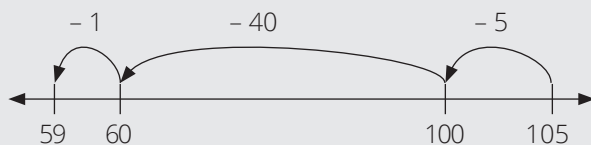
- This problem also looks a bit different as we are subtracting a 3-digit number from a 3-digit number.
- Ask questions as before, for example: **Can we take 8 away from 2?** (No); **Where should we borrow from?** (The tens place); **What is 2 take away 2?** (0) **And 1 take away 1?** (0) **Must we write the zeros in the answer line?** (No because 004 still means 4, so we just need to write 4).

WEEK 7

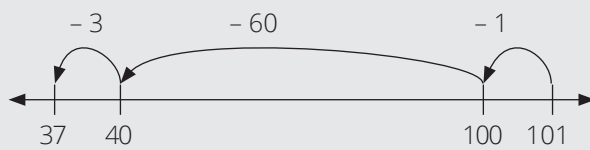
### Activity 2: Whole class activity

- Repeat Activity 1, using the same numbers again, but this time ask the learners to solve the problems using a number line instead of the column method.

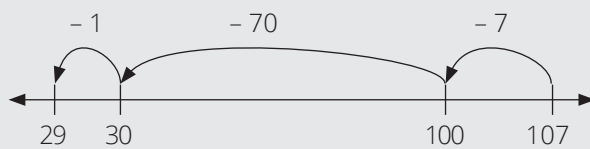
$105 - 46$



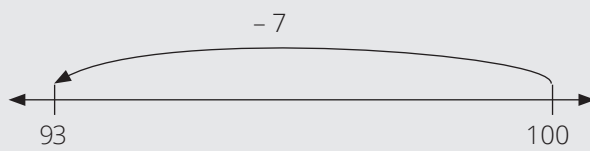
$$101 - 64$$



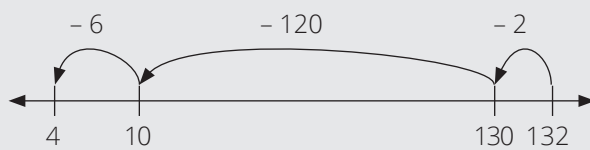
$$107 - 78$$



$$100 - 7$$



$$132 - 128$$



- Discuss the differences between the methods, getting learners to think about how they break down numbers to help them solve the problems.
- Ask learners: **Did you break down the numbers in the same way when you used the column method and the number line? Why / Why not?**

### Activity 3: Whole class activity

- **How do we know if we have answered our subtraction problem correctly?** (Learners may say that they will wait for the teacher to mark their work).
- Let learners discuss how to check if the number sentence  $8 - 5 = 3$  is correct or not. Let them rewrite it in addition ( $3 + 5 = 8$ ).
- In the same way, let learners discuss how to check  $105 - 46 = 59$  (in activity 1) is correct. Let learners check the solution by solving  $59 + 46$ .

	H	T	O
		1	
		5	9
+		4	6
	1	0	5

- Repeat with the other problems done in Activity 1 and 2.
- Each time, ask the learners which two numbers they need to add together. Make sure learners understand that they add the subtraction problem's answer to the smaller number.



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

Solve using the column method:

**a**  $105 - 56 = (49)$

	H	T	O
		9	1
	1	<del>0</del>	5
-		5	6
		4	9

**b**  $103 - 49 = (54)$

	H	T	O
		9	1
	1	<del>0</del>	3
-		4	9
		5	4

**c**  $106 - 9 = (97)$

	H	T	O
		9	1
	1	<del>0</del>	6
-			9
		9	7

**d**  $100 - 4 = (96)$

	H	T	O
		9	1
	1	<del>0</del>	0
-			4
		9	6

**e**  $142 - 138 = (4)$

	H	T	O
		3	1
	1	<del>4</del>	2
-	1	3	8
			4

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Solve using the column method:

**a**  $107 - 49 = (58)$

	H	T	O
		9	1
	1	<del>0</del>	7
-		4	9
		5	8

**b**  $108 - 9 = (99)$

	H	T	O
		9	1
	1	<del>0</del>	8
-			9
		9	9

**c**  $121 - 116 = (5)$

	H	T	O
		1	1
	1	<del>2</del>	1
-	1	1	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 solved subtraction problems, using the column method.

We looked at what happens when there is a zero in the tens or the ones place.

## Lesson 32: Subtraction using various strategies

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Solving addition and subtraction problems using a variety of strategies.

Lesson Vocabulary: hundreds, tens, ones, subtract, column, borrow, exchange, check, add

Resources: n/a

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

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	100 – 70	30	<b>6</b>	100 – 90	10
<b>2</b>	100 – 50	50	<b>7</b>	100 – 30	70
<b>3</b>	100 – 20	80	<b>8</b>	100 – 80	20
<b>4</b>	100 – 40	60	<b>9</b>	100 – 10	90
<b>5</b>	100 – 60	40	<b>10</b>	100 – 100	0

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

This lesson focuses on consolidating learners' understanding of subtraction of 2-digit numbers from 3-digit numbers. Learners are encouraged to solve the problems using the strategy that they prefer, either the column method or the number line. Learners also focus on checking their answers to subtraction problems by adding the answer to the subtrahend (the number that was being subtracted).

Today we are going to consolidate the subtraction of 2-digit numbers from 3-digit numbers.

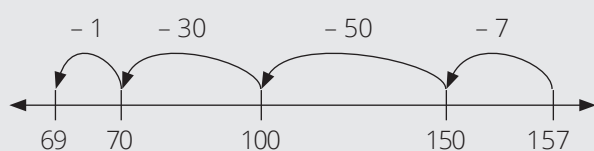
#### Activity 1: Whole class activity

- Write the problem  $157 - 88 = \underline{\quad}$  on the board.
- Ask learners to each solve the problem in their classwork books.
- Let the learners select their own strategy to use to solve the problem (simplified pictorials / column method / number line).
- Ask learners to tell the person sitting next to them which method they used, and to give reasons as to why they chose that strategy.
- Walk around the class listening to the conversations, and clearing up any misconceptions you may overhear.

- Ask one learner to demonstrate the simplified pictorial strategy on the board, one learner to show the column method and one learner to show the use of the number line.
- Encourage the learners to verbalise their strategies as they write on the board.

H	T	O
1	4	1
5	7	7
8	8	8
6	9	9

H	T	O
☐☐☐	≠	⊖⊖⊖⊖⊖
		⊖⊖
0	6	9



- Ask the learners: **Which strategy do you think is the best? Why?**
- Encourage learners to discuss the advantages and disadvantages of each strategy. *There is no correct answer for the question. Learners can choose whichever strategies.*
- Repeat with the following problems:

• 143 – 89

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

• 186 – 99

H	T	O
1	7	1
8	6	6
9	9	9
8	7	7

• 124 – 65

H	T	O
1	1	1
2	4	4
6	5	5
5	9	9

- Make sure you ask questions such as: **How did you break down the numbers in the column method? How did you break down the numbers for the number line? Which was easier?**
- Leave all the questions and answers on the board.

### Activity 2: Whole class activity

- Ask learners: **What can we do to check if I solved the problems correctly?** (You can add the answer to the smaller number).
- Let learners check the solutions for all the questions in the previous questions. *Learners can use any method that they like.*
- Ask learners to share their strategies with the class.

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

**1** Solve the problems using the column method:

**a**  $136 - 97 = (39)$

	H	T	O
		2	1
	1	3	6
-		9	7
<hr/>			
		3	9

**b**  $166 - 78 = (88)$

	H	T	O
		5	1
	1	6	6
-		7	8
<hr/>			
		8	8

**c**  $144 - 99 = (45)$

	H	T	O
		3	1
	1	4	4
-		9	9
<hr/>			
		4	5

**d**  $192 - 98 = (94)$

	H	T	O
		8	1
	1	9	2
-		9	8
<hr/>			
		9	4

**e**  $155 - 79 = (76)$

	H	T	O
		4	1
	1	5	5
-		7	9
<hr/>			
		7	6

**2** Check to see if these subtraction problems are correct by adding.

Put a tick or a cross to show if the subtraction problem is correct or incorrect.

**a**  $158 - 79 = 98$

	H	T	O
		1	
		(9	8)
+		(7	9)
<hr/>			
	(1	7	7)

Correct

Incorrect

**b**  $111 - 22 = 89$

	H	T	O
		1	
		(8	9)
+		(2	2)
<hr/>			
	(1	1	1)

(✓)

**c**  $143 - 86 = 57$

	H	T	O
		1	
		(5	7)
+		(8	6)
<hr/>			
	(1	4	3)

(✓)

**d**  $137 - 18 = 43$

	H	T	O
		1	
		(4	3)
+		(1	8)
<hr/>			
	(6	1)	

(✗)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Check to see if these subtraction problems are correct by adding.

Put a tick or a cross to show if the subtraction problem is correct or incorrect.

		Correct	Incorrect																								
<b>a</b>	$147 - 69 = 78$ <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td></td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td></td><td>1</td><td></td></tr> <tr><td></td><td></td><td>(7</td><td>8)</td></tr> <tr><td>+</td><td></td><td>(6</td><td>9)</td></tr> <tr><td colspan="4"><hr/></td></tr> <tr><td></td><td>(1</td><td>4</td><td>7)</td></tr> </table>		H	T	O			1				(7	8)	+		(6	9)	<hr/>					(1	4	7)	(✓)	
	H	T	O																								
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	(1	4	7)																								
<b>b</b>	$165 - 86 = 89$ <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td></td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td></td><td>1</td><td></td></tr> <tr><td></td><td></td><td>(8</td><td>9)</td></tr> <tr><td>+</td><td></td><td>(8</td><td>6)</td></tr> <tr><td colspan="4"><hr/></td></tr> <tr><td></td><td>(1</td><td>7</td><td>5)</td></tr> </table>		H	T	O			1				(8	9)	+		(8	6)	<hr/>					(1	7	5)		(✗)
	H	T	O																								
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		(8	9)																								
+		(8	6)																								
<hr/>																											
	(1	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 solved subtraction problems, using simplified drawings, the column method and number lines.

We have learnt how to check to see if our solution to a subtraction problem is correct by adding.

## Lesson 33: Assessment – Subtraction

### 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.

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

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

Take in the learners' work when they are done.

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



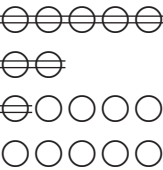
- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses.

### 3 ASSESSMENT (20 MARKS)



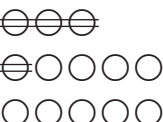
#### WRITTEN

Solve the following using simplified pictorials: ( $4 \times 2 = 8$  marks)






**a**  $117 - 68 = (49)$

H	T	O
		
0	4	9






**b**  $133 - 94 = (39)$

H	T	O
		
0	3	9

**c**  $171 - 99 = (72)$

H	T	O
		
		
0	7	2

**d**  $133 - 85 = (48)$

H	T	O
		
		
0	4	8

**4** Solve the following using the column method: ( $4 \times 2 = 8$  marks)

**a**  $103 - 64 = (39)$

	H	T	O
	1	0	3
-		6	4
<hr/>			
		3	9

**b**  $165 - 89 = (76)$

	H	T	O
	1	6	5
-		8	9
<hr/>			
		7	6

**c**  $178 - 89 = (89)$

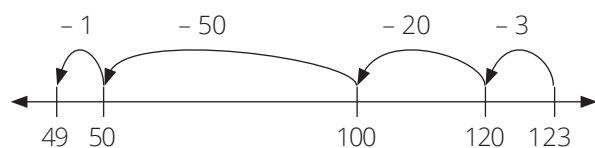
	H	T	O
	1	7	8
-		8	9
<hr/>			
		8	9

**d**  $143 - 86 = (57)$

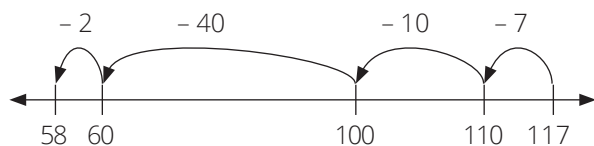
	H	T	O
	1	4	3
-		8	6
<hr/>			
		5	7

**5** Solve the following using a number line: ( $2 \times 2 = 4$  marks)

**a**  $123 - 74 = (49)$



**b**  $117 - 59 = (58)$



**ORAL AND PRACTICAL**

<b>CAPS: Number, operations and relationships: Subtraction</b>		<b>Mark: /7</b>
<b>Activity: Subtract numbers. Observe learners doing subtraction this week in the number range 0 to 999.</b>		
<b>Mark</b>	<b>Criteria - rubric</b>	
<b>1</b>	Unable to subtract correctly	
<b>2</b>	Able to subtract in the number range 0 to 20 by counting all	
<b>3</b>	Able to subtract by in the number range 0–50 by counting on from the first number	
<b>4</b>	Able to subtract 2-digit and 3-digit numbers using the column method using a base ten kit	
<b>5</b>	Able to subtract 2-digit and 3-digit numbers using the column method using a base ten kit and can record numeric working	
<b>6</b>	Able to subtract 2-digit and 3-digit numbers using the column method and a number line	
<b>7</b>	Able to subtract 2-digit and 3-digit numbers competently and can choose from a variety of methods	



## Lesson 34: Addition and subtraction using the column method

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Solving addition and subtraction problems using a variety of strategies.

Lesson Vocabulary: hundreds, tens, ones, add, subtract, column, borrow, carry, exchange

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	$100 + 45$	145	<b>6</b>	$245 - 45$	200
<b>2</b>	$300 + 53$	353	<b>7</b>	$464 - 64$	400
<b>3</b>	$500 + 67$	567	<b>8</b>	$628 - 28$	600
<b>4</b>	$700 + 82$	782	<b>9</b>	$853 - 53$	800
<b>5</b>	$900 + 5$	905	<b>10</b>	$709 - 9$	700

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

This lesson focuses on consolidating learners' understanding of addition and subtraction. The focus in this lesson is on simple problems, which means that the addition problems should not involve carrying to the hundreds, and that the subtraction problems should not involve borrowing from the hundreds.

Today we are going to consolidate addition and subtraction.

#### Activity 1: Whole class activity

- Write the problem  $12 + 35 = \underline{\quad}$  on the board.
- Ask learners to each solve the problem in their classwork books, using the column method.
- Ask learners to tell the person sitting next to them about how they solved the problem.
- Ask one learner to show the column method on the board.

$$\begin{array}{r|l}
 & \text{T} & \text{O} \\
 & 1 & 2 \\
 + & 3 & 5 \\
 \hline
 & 4 & 7
 \end{array}$$

- Encourage the learner to verbalise their strategy as s/he writes on the board.
- Ask learners: **Did you need to carry any numbers to the tens or hundreds column?** (No).
- **Why not?** (Because the numbers in the ones place added together were smaller than ten, and the numbers in the tens place added together were smaller than 100).
- **Now we will do the same thing again, but this time the first number will be a 3-digit number.**
- Write the problem  $512 + 35 = \underline{\quad}$  on the board.
- Ask learners to each solve the problem in their classwork books, using the simplified pictorials.
- Ask learners to tell the person sitting next to them about how they solved the problem using the column method.
- Walk around the class listening to the conversations, and clearing up any misconceptions you may overhear.
- Ask one learner to show the column method on the board.

H	T	O
□□□□□		○○
		○○○○○
5	4	7

$$\begin{array}{r|l}
 & \text{H} & \text{T} & \text{O} \\
 & 5 & 1 & 2 \\
 + & & 3 & 5 \\
 \hline
 & 5 & 4 & 7
 \end{array}$$

- Encourage the learners to verbalise their strategies as they write on the board.
- Ask learners: **In the column method, did you need to carry any numbers to the tens or hundreds column?** (No).
- **Why not?** (Because the numbers in the ones place added together were smaller than ten, and the numbers in the tens place added together were smaller than 100).
- **What happens with the 5 in the hundreds column? We don't have anything to add to it – must we just ignore it?** (No – we write the 5 in the answer line in the hundreds column)
- **The blank space is like having a zero there, so we can say 5 hundreds plus zero is still 5 hundreds, so we write the 5 in the answer line.**

### Activity 2: Whole class activity

- Write the problem  $38 - 25 = \underline{\quad}$  on the board.
- Ask learners to each solve the problem in their classwork books, using the column method.

- Ask learners to tell the person sitting next to them about how they solved the problem using the column method.
- Ask one learner to show the column method on the board.
- Encourage the learner to verbalise their strategy as s/he writes on the board.
- Ask learners: **Did you need to borrow any numbers from the tens place?** (No).
- **Why not?** (Because we can take 5 away from 8 without needing to borrow from the tens).
- **Now we will do the same thing again, but this time the first number will be a 3-digit number.**
- Write the problem  $438 - 25 = \underline{\quad}$  on the board.
- Ask learners to each solve the problem in their classwork books, using simplified pictorials.
- Ask learners to tell the person sitting next to them about how they solved the problem using the column method.
- Walk around the class listening to the conversations, and clearing up any misconceptions you may overhear.
- Ask one learner to show the column method on the board.

H	T	O
□□□□	##	⊖⊖⊖⊖⊖⊖ ○○○
4	1	3

H	T	O
4	3	8
-	2	5
4	1	3

- Encourage the learners to verbalise the strategies as the learner writes on the board.
- Ask learners: **In the column method, did you need to borrow any numbers from the tens or hundreds column?** (No).
- **Why not?** (Because we can take 5 ones away from 8 ones without needing to borrow from the tens, and we can take 2 tens away from 3 tens without needing to borrow from the hundreds).
- **What happens with the 4 in the hundreds column? We don't have anything to subtract from it – must we just ignore it?** (No – we write the 4 in the answer line in the hundreds column)
- **The blank space is like having a zero there, so we can say 4 hundreds subtract zero is still 4 hundreds, so we write the 4 in the answer line.**

### Activity 3: Learners work in pairs

- Let learners work on the following problems:

•  $314 + 73 = \underline{\quad}$

	H	T	O
	3	1	4
+		7	3
	3	8	7

•  $576 - 34 = \underline{\quad}$

	H	T	O
	5	7	6
-		3	4
	5	4	2

- Make sure that you ask questions about how learners used the column method.
- Ask questions such as: **Did you have to carry 10 tens or 10 ones? Did you have to borrow 10 tens or 10 ones? Why not? What do we do with the number in the hundreds column when we don't have anything to add to it / subtract from it?**

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

Solve the problems using the column method:

**a**  $352 + 44 = (396)$

	H	T	O
	3	5	2
+		4	4
	3	9	6

**b**  $463 + 24 = (487)$

	H	T	O
	4	6	3
+		2	4
	4	8	7

**c**  $327 + 51 = (378)$

	H	T	O
	3	2	7
+		5	1
	3	7	8

**d**  $546 + 23 = (569)$

	H	T	O
	5	4	6
+		2	3
	5	6	9

**e**  $713 + 55 = (768)$

	H	T	O
	7	1	3
+		5	5
	7	6	8

**f**  $295 - 31 = (264)$

	H	T	O
	2	9	5
-		3	1
	2	6	4

**g**  $479 - 46 = (433)$

	H	T	O
	4	7	9
-		4	6
	4	3	3

**h**  $589 - 54 = (535)$

	H	T	O
	5	8	9
-		5	4
	5	3	5

**i**  $672 - 62 = (610)$

	H	T	O
	6	7	2
-		6	2
	6	1	0

**j**  $899 - 98 = (801)$

	H	T	O
	8	9	9
-		9	8
	8	0	1

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Solve the problems using the column method:

**a**  $737 + 51 = (788)$

H	T	O
7	3	7
+		5 1
7	8	8

**b**  $327 + 22 = (349)$

H	T	O
3	2	7
+		2 2
3	4	9

**c**  $376 - 32 = (344)$

H	T	O
3	7	6
-		3 2
3	4	4

**d**  $654 - 42 = (612)$

H	T	O
6	5	4
-		4 2
6	1	2

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

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

Today we have learnt to calculate simple addition and subtraction problems.

- We consolidated learners' understanding of addition and subtraction.
- The focus in this lesson was on simple problems, so learners were not expected to carry or borrow in their calculations.

## Lesson 35: Consolidation: Addition and subtraction

### 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, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Solving addition and subtraction problems using a variety of strategies

Lesson Vocabulary: hundreds, tens, ones, subtract, column, borrow, exchange, check, add

Resources: Base ten kit (see *Printable Resources*)

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

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

This week we have focused on adding and subtracting using the column method. Learners have also subtracted using a number line, and have worked with numbers that have a zero in the tens or ones place. Allow learners opportunities to discuss their strategies as there are different ways of thinking and it is important for learners to learn from each other.

### 2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

It is essential that learners have a good understanding of place value before learning the column method. Make sure that you encourage learners to verbalise their understanding, using the correct mathematical vocabulary. Learners may struggle when subtracting with numbers that have a zero in the tens or ones place. Make sure that learners have a good understanding of 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 addition and subtraction.

### 4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 Solve the following using the column method:

a  $43 + 68 = (111)$

	H	T	O
		4	3
+		6	8
	1	1	1

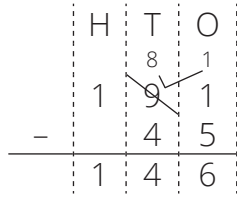
b  $88 + 74 = (162)$

	H	T	O
		8	8
+		7	4
	1	6	2

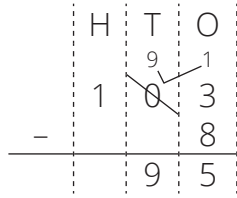
c  $146 - 77 = (69)$

	H	T	O
		3	1
		4	6
-	1	4	6
		6	9

**d**  $191 - 45 = (146)$

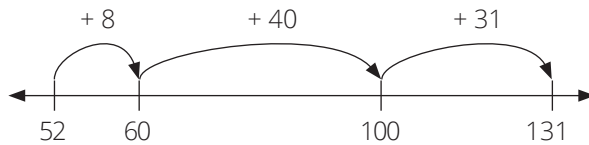


**e**  $103 - 8 = (95)$

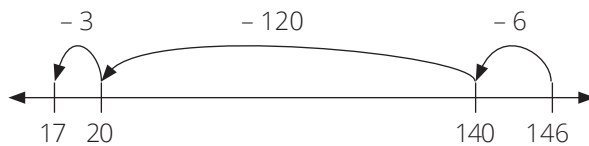


**2** Solve the following using a number line:

**a**  $52 + 79 = (131)$



**b**  $146 - 129 = (17)$



**3** Check to see if these subtraction problems are correct by adding.

Put a tick or a cross to show if the subtraction problem is correct or incorrect.

**a**  $542 - 19 = 523$

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

(✓)
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**b**  $381 - 49 = 323$

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	H	T	O															
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+		4	9															
	3	7	2															

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**5 REFLECTION AND SUMMARY OF LESSON**

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

Today we have solved addition and subtraction problems.

- We used the column method and a number line, and we checked our answers by using addition.



# Week 8

## Lesson 36: Word problems

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum  
 CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction  
 Lesson Objective: To solve addition and subtraction problems using bar diagrams.  
 Lesson Vocabulary: add, subtract, bar diagram  
 Resources: n/a

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

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	$1 + 15 = \underline{\quad}$	16	<b>6</b>	$3 + 35 = \underline{\quad}$	38
<b>2</b>	$2 + 25 = \underline{\quad}$	27	<b>7</b>	$1 + 42 = \underline{\quad}$	43
<b>3</b>	$3 + 19 = \underline{\quad}$	22	<b>8</b>	$2 + 55 = \underline{\quad}$	57
<b>4</b>	$4 + 45 = \underline{\quad}$	49	<b>9</b>	$4 + 65 = \underline{\quad}$	69
<b>5</b>	$5 + 78 = \underline{\quad}$	83	<b>10</b>	$4 + 78 = \underline{\quad}$	82

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

In this lesson learners will use a bar diagram to help them solve addition and subtraction problems. The bar diagrams will be used to represent information. We will solve word problems that involve change and combine. These will be explained during the lesson.

Today we are solving addition problems using bar diagrams.

#### Activity 1: Whole class activity

- Write the problem  $348 + 26 = \underline{\quad}$  on the board.
- Ask learners to each solve the problem in their classwork books, using simplified pictorials.



H	T	O
□□□	 	⊖⊖⊖⊖⊖⊖ ⊖⊖⊖⊖ ⊖⊖⊖⊖⊖ ○
3	7	4

- Ask learners to tell the person sitting next to them about how they solved the problem using the column method.
- Walk around the class listening to the conversations, and clearing up any misconceptions you may overhear.
- Ask a learner to show the column method on the board.
- Encourage the learner to verbalise their strategy as s/he writes on the board.
- Ask questions such as: **Did you have to carry 10 tens or 10 ones? Did you have to borrow 10 tens or 10 ones? Why not? What do we do with the number in the hundreds column when we don't have anything to add to it / subtract from it?**
- Repeat with the following problems:

•  $59 + 407 = \underline{\quad}$

H	T	O
□□□□		⊖⊖⊖⊖⊖ ⊖⊖⊖⊖ ⊖⊖⊖⊖⊖ ○○
4	6	6

•  $941 - 22 = \underline{\quad}$

H	T	O
□□□□□ □□□□	## ≠	⊖ ⊖○○○○ ○○○○○
9	1	9

•  $736 - 27 = \underline{\quad}$

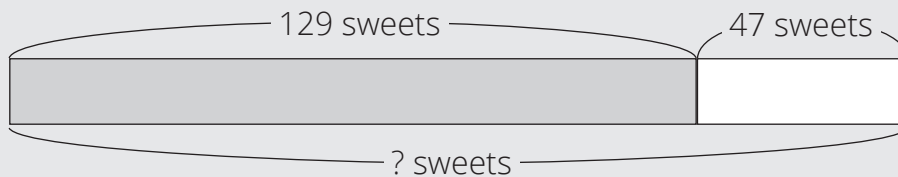
H	T	O
□□□□□ □□	##	⊖⊖⊖⊖⊖ ⊖ ⊖○○○○ ○○○○○
7	0	9

WEEK 8

- Ask questions such as: **Did you have to carry 10 tens or 10 ones? Did you have to borrow 10 tens or 10 ones? Why not? What do we do with the number in the hundreds column when we don't have anything to add to it / subtract from it? What happens when there is a zero?**

### Activity 2: Whole class activity

- Write the following word problem on the board.
- *There are 129 sweets in the jar. Zanele puts in another 47 sweets. How many sweets are in the jar now?*
- The first step is to understand the question properly.
- In step 1, we write the word problem on the board. Next, we read the problem. Then, we let the learners read the problem themselves in order to understand the problem.
- After that we underline the numbers. These are 129 and 47.
- Find the question and draw wavy line under the question. (How many sweets are in the jar now?)
- Draw the following diagram on the board:

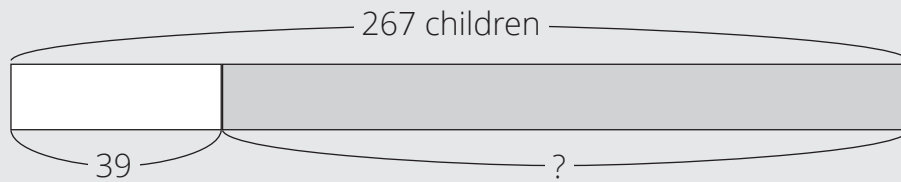


- Ask the learners what they think the number sentence should be. Let learners discuss with the person sitting next to them.
- Ask a learner to come up to the board to write the number sentence ( $129 + 47 = \underline{\quad}$ ). Ask the learner to explain how s/he worked out what the number sentence should be.
- Allow learners time to solve the problem.
- Discuss the answer with the learners (176 sweets). Ask learners to explain how they solved the problem.
- *There are 129 sweets in the jar. Zanele puts in another 47 sweets. That means the number of sweets increases/ there should be more sweets than the beginning. So I did addition/ I add 47 to 129. There are 176 sweets in the jar.*
- This is an example of an addition problem (change).

### Activity 3: Whole class activity

- Write the following word problem on the board.
- *There are 267 children on the field. 39 children go back to their classrooms. How many children are on the field now?*
- The first step is to understand the question properly.
- After that we underline the numbers. These are 267 and 39.
- Find the question and draw wavy line under the question. (How many children are on the field now?)

- Draw the following diagram on the board



- Ask the learners what they think the number sentence should be. Let learners discuss with the person sitting next to them.
- Ask a learner to come up to the board to write the number sentence ( $267 - 39 =$ ). Ask the learner to explain how s/he worked out what the number sentence should be.
- Allow learners time to solve the problem.
- Discuss the answer with the learners (228 children). Ask learners to explain how they solved the problem.
- *There are 267 children on the field. 39 children go back to their classrooms. 39 children disappear from the field. They are not on the field anymore. So I did subtraction/I take away 39 from 267. There are 228 children left on the field.*
- This is an example of a subtraction problem (change).

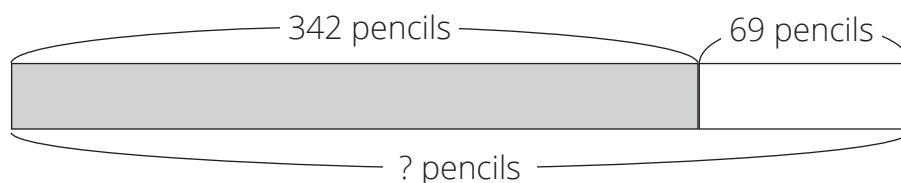
### 3 CLASSWORK ACTIVITY AND CORRECTION OF HOMEWORK (25 MINUTES)

Note: This classwork should be done as a class so that you and the learners can discuss and solve the problems together. You always follow the steps to solve word problems as to write the word problem on the board, to read the problem, to let the learners read the problem themselves in order to understand the problem. After that we underline the numbers and draw wavy line under the question.

You are going to draw the bar diagrams on the board to help the learners solve the problems. Make sure you ask learners to explain how they solved the number sentences. Learners need to be able to explain their strategies to the class or to the person sitting next to them.

Solve the word problems using a bar diagram:

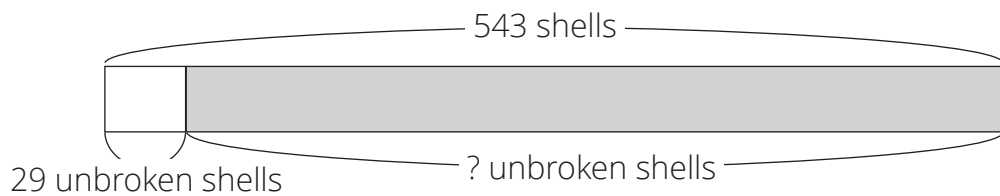
- a** The teacher has 342 pencils. The shop down the road gives her 69 more. How many pencils does she have now? (change)



$342 + 69 = 411$  (Learners may calculate with the strategy that they feel comfortable with).

(The teacher has 411 pencils)

- b** Thembi picks up 543 shells. 29 were broken. How many unbroken shells does Thembi have? (combine)



$543 - 29 = 514$  (Learners may calculate with the strategy that they feel comfortable.)  
 (Thembi has 514 unbroken shells.)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Draw a bar diagram to show the following addition problem.

Silo picks up 264 pieces of litter. He then picks up another 17 pieces of litter. How many pieces of litter did Silo pick up altogether?



$264 + 17 = 281$

(Silo picked up 281 pieces of litter)

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

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

Today we have solved word problems. We solved addition word problems using change, compare and combine.

## Lesson 37: Revision of addition and subtraction

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum  
CAPS topics: 1.6 Problem-solving techniques, 1.7 Addition and subtraction, 1.12 Techniques (methods or strategies) 1.13 Addition and subtraction

Lesson Objective: Solving addition and subtraction problems using a variety of strategies.

Lesson Vocabulary: hundreds, tens, ones, subtract, column, borrow, exchange, check, add

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	$8 + 4$	12	<b>6</b>	$14 - 5$	9
<b>2</b>	$3 + 9$	12	<b>7</b>	$15 - 6$	9
<b>3</b>	$7 + 5$	12	<b>8</b>	$16 - 7$	9
<b>4</b>	$4 + 8$	12	<b>9</b>	$17 - 8$	9
<b>5</b>	$6 + 6$	12	<b>10</b>	$18 - 9$	9

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

This lesson focuses on consolidating learners' understanding of subtraction of 2-digit numbers from 3-digit numbers. Learners are encouraged to solve the problems using the column method. Learners also focus on checking their answers to subtraction problems by adding the answer to the subtrahend (the number which is being subtracted).

Today we are going to consolidate the subtraction of 2-digit numbers from 3-digit numbers.

#### Activity 1: Whole class activity

- Write the problem  $351 - 35 = \underline{\quad}$  on the board.
- Ask learners to each solve the problem in their classwork books, using the column method.
- Ask one learner to show their use of the column method on the board.

$$\begin{array}{r}
 \begin{array}{c}
 \text{H} \quad \text{T} \quad \text{O} \\
 \begin{array}{r}
 351 \\
 - 35 \\
 \hline
 316
 \end{array}
 \end{array}
 \end{array}$$

- Encourage the learner to verbalise the strategy as s/he writes on the board.

- Make sure you ask questions such as: **Did you have to borrow 10 tens or 10 ones? Why / why not? What do we do with the number in the hundreds column when we don't have anything to subtract from it?**
- Leave the number sentence  $351 - 35 = 316$  on the board for Activity 2.
- Repeat with the following problems. Ask questions such as: **Did you have to borrow 10 tens or 10 ones? Why / why not? What do we do with the number in the hundreds column when we don't have anything to subtract from it? What do we do when there is a zero?**
- **Leave the number sentences on the board for Activity 2.**

$$673 - 47 = 626$$

	H	T	O
		6	1
	6	<del>7</del>	3
-		4	7
<hr/>			
	6	2	6

$$145 - 136 = 9$$

	H	T	O
		3	1
	1	<del>4</del>	5
-	1	3	6
<hr/>			
			9

$$107 - 28 = 79$$

	H	T	O
		9	1
	1	<del>0</del>	7
-		2	8
<hr/>			
		7	9

### Activity 2: Whole class activity

- Look at the first number sentence written on the board:  $351 - 35 = 316$
- Tell the learners that you need them to help you check if we solved the subtraction problem correctly.
- Ask learners: **What can we do to check if we solved this problem correctly?** (You can add the answer to the smaller number).
- Okay so let's do that now. Please solve the problem  $316 + 36$  in your classwork books for me. You can use the column method.
- Ask learners to share their strategies with the person sitting next to them.

	H	T	O
		1	
	3	1	6
+		3	5
<hr/>			
	3	5	1

- **The answer to your addition problem is 351. Did we get our subtraction problem correct?** (Yes)
- **How do you know?** (Because the answer to the addition problem is 351 which is the same as the bigger number in our subtraction problem).
- Repeat the steps above with the other numbers sentences from Activity 1 that are written on the board.

$$673 - 47 = 626$$

	H	T	O
		1	
	6	2	6
+		4	7
<hr/>			
	6	7	3

$$145 - 136 = 9$$

	H	T	O
		1	
	1	3	6
+			9
<hr/>			
	1	4	5

$$107 - 28 = 79$$

	H	T	O
	1	1	
		7	9
+		2	8
<hr/>			
	1	0	7

- Make sure you ask questions such as: **Did you have to carry a ten? Why / Why not? What do we do with the number in the hundreds column when we don't have anything to add to it or take from it? What do we do when there is a zero?**
- Learners are likely to say: We got it right! The answer to the addition problem is the same as the bigger number in the subtraction problem.

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

Solve the problems then check your answers.

	Solve the problems using the column method	Check to see if you solved it correctly																																										
<b>a</b> $142 - 74 = (68)$	<table border="1"> <tr><td></td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td></td><td>3</td><td>1</td></tr> <tr><td></td><td>(1</td><td><del>4</del></td><td>2)</td></tr> <tr><td>-</td><td></td><td>(7</td><td>4)</td></tr> <tr><td></td><td></td><td>(6</td><td>8)</td></tr> </table>		H	T	O			3	1		(1	<del>4</del>	2)	-		(7	4)			(6	8)	<table border="1"> <tr><td></td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td></td><td>1</td><td></td></tr> <tr><td></td><td></td><td>(6</td><td>8)</td></tr> <tr><td>+</td><td></td><td>(7</td><td>4)</td></tr> <tr><td></td><td>(1</td><td>4</td><td>2)</td></tr> </table>		H	T	O			1				(6	8)	+		(7	4)		(1	4	2)		
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**4 HOMEWORK ACTIVITY (5 MINUTES)**

Solve the problems then check your answers.

	Solve the problems using the column method	Check to see if you solved it correctly																																												
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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 solved subtraction problems, using the column method.

We have learnt how to check to see if our solution to a subtraction problem is correct by adding.

**Lesson 38: Assessment – Addition and subtraction**

**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 (16 MARKS)**

**WRITTEN**

**1** Solve the following using the column method: ( $5 \times 2 = 10$  marks)

**a**  $58 + 59 = (117)$

	H	T	O
		1	
		5	8
+		5	9
	1	1	7

**b**  $96 + 27 = (123)$

	H	T	O
		1	
		9	6
+		2	7
	1	2	3

**c**  $156 - 69 = (87)$

	H	T	O
		4	1
		5	6
-	1	6	9
		8	7

**d**  $882 - 65 = (817)$

	H	T	O
		7	1
	8	8	2
-		6	5
	8	1	7

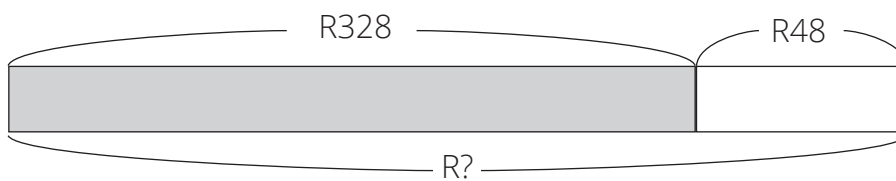
**e**  $106 - 9 = (97)$

	H	T	O
		9	1
	1	0	6
-			9
		9	7

- 2** Check to see if these subtraction problems are correct by adding. (2 marks)  
Put a tick or a cross to show if the subtraction problem is correct or incorrect.

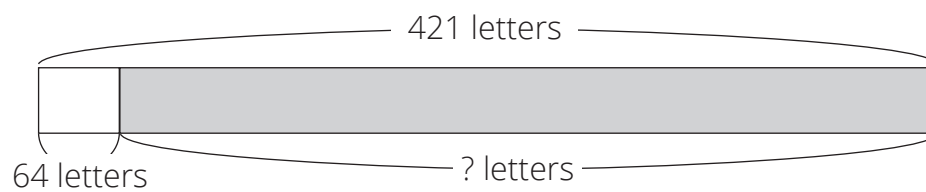
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<b>a</b> $487 - 28 = 437$	<table border="1"> <tr><td></td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td></td><td>1</td><td></td></tr> <tr><td></td><td>4</td><td>3</td><td>7</td></tr> <tr><td>+</td><td></td><td>2</td><td>8</td></tr> <tr><td colspan="4"><hr/></td></tr> <tr><td></td><td>4</td><td>6</td><td>5</td></tr> </table>		H	T	O			1			4	3	7	+		2	8	<hr/>					4	6	5		(x)
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<b>b</b> $262 - 48 = 214$	<table border="1"> <tr><td></td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td></td><td>1</td><td></td></tr> <tr><td></td><td>2</td><td>1</td><td>4</td></tr> <tr><td>+</td><td></td><td>4</td><td>8</td></tr> <tr><td colspan="4"><hr/></td></tr> <tr><td></td><td>2</td><td>6</td><td>2</td></tr> </table>		H	T	O			1			2	1	4	+		4	8	<hr/>					2	6	2	(✓)	
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- 3** Silo has R328. His mother gave him R48. How much does he have now? (2 marks)



$328 + 48 = 376$   
(Silo has R376)

- 4** There are 421 letters at the post office. 64 letters are delivered. How many letters are still at the post office? (2 marks)



$421 - 64 = 357$   
(There are 357 letters at the post office.)

## Unit 3 Introduction: What's the missing number?

In this unit you will be looking at the relationship between addition and subtraction by finding the missing numbers. Addition and subtraction are inverse operations. This means that they “undo” each other. Because of this we can use addition to check subtraction number sentences and vice versa. Learners will use the opposite operation to find the missing number during these activities. Finding the missing number assists us as an introduction to learning algebra (as the missing number leads into the idea of a variable, it could be represented by a variable or letter.)

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

- **Conceptual understanding:** Learners will develop an understanding of addition and subtraction as inverse operations in this unit.
- **Procedural fluency:** Learners will find that using the inverse operation will help them identify the missing number.
- **Strategies:** Learners will discover that using addition and subtraction as inverse operations may be a strategy that assists with problem solving.
- **Reasoning:** Learners need to verbalise their understanding, and they should be asked to demonstrate and explain the relationship between addition and subtraction.

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

- **Practising procedures:** Learners practise procedures through the repetitive nature of the lessons in this unit. This helps them to create connections between addition and subtraction as inverse operations.
- **Purposeful assessment:** In this unit, learners are purposefully assessed to ensure that they have a strong sense of the relationship between addition and subtraction.
- **Justifying answers:** Learners justify their answers by finding ways to show that they are true – this can be done by using the correct operation and inverse operation to find the missing number.

## Lesson 39: What's the missing number? Part 1

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.13 Addition and Subtraction

Lesson Objective: To find the missing number in a subtraction problem using addition.

Lesson Vocabulary: Missing number, subtraction, addition.

Resources: n/a

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

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	$3 + 8 =$	11	<b>6</b>	$7 + 4 =$	11
<b>2</b>	$4 + 9 =$	13	<b>7</b>	$8 + 8 =$	16
<b>3</b>	$5 + 7 =$	12	<b>8</b>	$8 + 5 =$	13
<b>4</b>	$6 + 8 =$	14	<b>9</b>	$9 + 7 =$	16
<b>5</b>	$7 + 6 =$	13	<b>10</b>	$9 + 8 =$	17

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

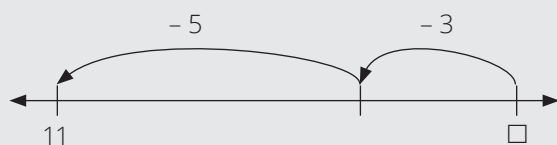
In the next 2 lessons you will work with finding the missing number. In order to find the missing number, the learners will use addition and subtraction. You will guide the learners to recognise that subtraction is the inverse operation of addition and vice versa. The inverse relationship between addition and subtraction can be used to check calculations and solve missing number problems.

Today we are learning using addition to solve a subtraction problem.

#### Activity 1: Whole class activity

- Ask the learners the following problem:
- I am thinking of a number. When I take 9 away from the number my answer is 10. What number am I thinking of? (19)
- Discuss with the learners how they got the answer. Encourage them to use the words addition and subtraction.
- Write the following problem on the board:  
There were some learners in a classroom. 3 learners went out, then 5 more learners went out and there are 11 learners left now. How many learners were there at the beginning?
- Write a number sentence representing the situation by explaining the word problem.   
 $- 3 - 5 = 11$

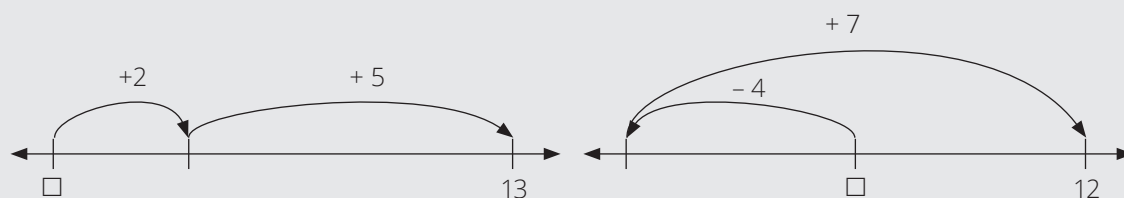
- Draw the following number line on the board explaining that we are subtracting 3 and 5.



- Ask the learners **from what number must you subtract 3 and 5 so as to leave 11?**
- Explain to the learners that our answer is 19. To find the missing number we need to go backward on the arrow shown above.
- Let learners write a number sentence to find  $\square$ . ( $11 + 5 + 3 = \square$ ):
- Ask: **What number did we start at?** (19)
- Discuss with the learners how we used addition to solve a subtraction problem.
- Let learners check the answer by substituting the number 19 to  $\square$ .

### Activity 2: Learners work in pairs

- Write the following problem on the board:  $\square + 2 + 5 = 13$ .  $\square - 4 + 7 = 12$ .
- Let learners draw a number line for each problem in their classwork book.



- Solve them with the learners as in activity 1 making use of a number line.
- The number sentences are  $13 - 5 - 2 = \square$  (6) and  $12 - 7 + 4 = \square$  (9)
- Let learners check the answer by substituting the numbers 6 and 9 to  $\square$ .

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

Complete the following. You may want to draw a number line to help you.

- 1  $\square - 5 - 4 = 2$  (11)
- 2  $\square + 7 + 1 = 12$  (4)
- 3  $\square - 6 + 3 = 7$  (10)
- 4  $\square + 9 - 1 = 11$  (3)
- 5  $\square - 8 - 8 = 4$  (20)
- 6  $\square + 5 + 7 = 20$  (8)
- 7  $\square - 4 + 6 = 15$  (13)
- 8  $\square + 3 - 7 = 13$  (17)
- 9 What number do we add to 2 and 8 to get 15? \_\_\_\_ (5)
- 10 What number do we add to 8 and 9 to get 20? \_\_\_\_ (3)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Complete the following:

**1**  $\square - 5 - 6 = 8$  (19)

**2**  $\square + 2 - 9 = 11$  (18)

**3**  $\square - 6 + 7 = 9$  (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 learnt that we can use addition to solve subtraction problems.

## Lesson 40: Consolidation: Missing Numbers

### Teacher's notes

This lesson allows for consolidation of the previous days' lesson content

CAPS topics: 1.13 Addition and Subtraction

Lesson Objective: To find the missing number using addition and subtraction as inverse operations.

Lesson Vocabulary: Missing number, subtraction, addition.

Resources:n/a

Date:

Week

Day

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

This week the focus has been on addition and subtraction as inverse operations. We have spent time finding missing numbers in number sentences. We have worked through a number of examples. In the previous lesson we solved an addition and subtraction number sentence using the same numbers. This illustrated the inverse relationship between addition and subtraction.

### 2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Learners may have experienced difficulties with understanding the inverse relationship between addition and subtraction. You can revisit examples from lesson 39. Ensure that the number range is below 20. We are focusing on the relationship between addition and subtraction in this unit and not on an increased number range.

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

Today we are going over what we learned this week. We are learning more about addition and subtraction and finding missing numbers.

### 4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION – SEE LEARNER RESOURCES

1 I am thinking of a number. When I take 7 away from the number my answer is 11.

What number am I thinking of? \_\_\_ (18)

2 Show the following number sentence on the number line:  $\square - 3 - 7 = 15$  (25)

3 Show the following number sentence on the number line:  $\square + 8 + 2 = 18$  (8)

4  $\square - 8 - 9 = 10$  (27)

5  $\square - 4 + 5 = 13$  (12)

6  $\square + 8 - 3 = 10$  (5)

7  $\square + 4 + 5 = 14$  (5)

### 5 REFLECTION AND SUMMARY OF LESSON

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

Today we have revised finding missing numbers using addition and subtraction.

# Week 9

## Lesson 41: What's the missing number? Part 2

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.13 Addition and Subtraction

Lesson Objective: To find the missing number using addition and subtraction as inverse operations.

Lesson Vocabulary: Missing number, subtraction, addition.

Resources: n/a

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

### 1 MENTAL MATHS (10 MINUTES)

	Calculate	Answer		Calculate	Answer
<b>1</b>	$13 - 4 =$	9	<b>6</b>	$16 - 7 =$	9
<b>2</b>	$14 - 5 =$	9	<b>7</b>	$16 - 8 =$	8
<b>3</b>	$14 - 6 =$	8	<b>8</b>	$17 - 8 =$	9
<b>4</b>	$15 - 6 =$	9	<b>9</b>	$17 - 9 =$	8
<b>5</b>	$15 - 7 =$	8	<b>10</b>	$18 - 9 =$	9

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

This is the second lesson around finding the missing number. In this lesson we solve addition problems using subtraction. By the end of the lesson the learners would have worked with both addition and subtraction as inverse operations.

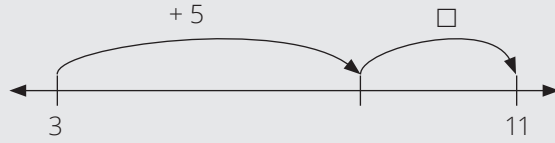
Today we are learning using subtraction to solve an addition problem.

#### Activity 1: Whole class activity

- Ask the learners the following problem:
- **4 and how many make 12?**
- Discuss with the learners how they got the answer. **Did you use addition or subtraction?** (subtraction)
- Write the following problem on the board:
- *There were 3 fish in a bucket. Silo put 5 fish in it, then Thoko put some more fish. There are now 11 fish in the bucket. How many fish did Thoko put?*
- Write a number sentence representing the situation by explaining the word problem. 3 + 5 +  $\square$  = 11



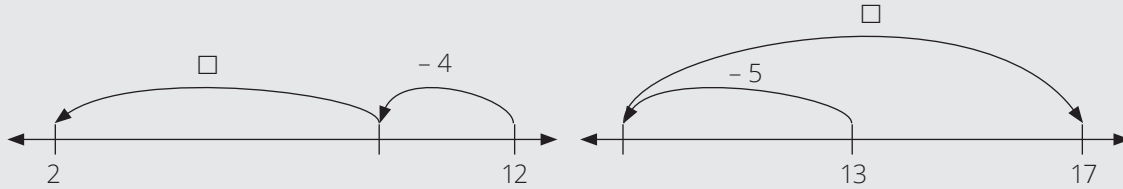
- Draw the following number line on the board explaining that we are subtracting 3 and 5.



- Ask: **What's the number if you add 5 to the 3?**
- Write 8 on the number line. Then, write the number sentence by  $8 + \square = 11$ .
- Let learners find how they can find the number in  $\square$ . Let them write a number sentence. ( $\square = 11 - 8$ )

### Activity 2: Whole class activity

- Write the following problem on the board:  $12 - 4 - \square = 2$  and  $13 - 5 + \square = 17$ .
- Let learners draw a number line for each problem in their classwork book.



- Let learners check the answer by substituting the numbers to  $\square$ .

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

Complete the following. You may want to draw a number line to help you.

- 1 11 and how many make 20? \_\_\_\_ (9)
- 2  $8 + 5 + \square = 14$ . (1)
- 3 If I have 9 sweets. How many more do I need to have 15 sweets? \_\_\_\_ (6)
- 4  $12 + 7 - \square = 16$  (3)
- 5  $3 + 10 + \square = 17$  (4)
- 6 17 and how many make 25? \_\_\_\_ (8)
- 7  $15 - 10 + \square = 12$  (7)
- 8  $5 + 11 + \square = 21$  (5)
- 9  $16 + 4 - \square = 13$  (7)
- 10  $17 - 4 - \square = 9$  (4)

### 4 HOMEWORK ACTIVITY (5 MINUTES)

Complete the following:

- 1  $5 + 6 + \square = 18$  (7)
- 2  $7 + 7 - \square = 8$  (6)
- 3  $11 - 5 + \square = 13$  (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 learnt that we can use subtraction to solve addition problems.

## Lesson 42: Assessment – What’s the missing number?

### Teacher’s notes

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

CAPS topics: 1.13 Addition and Subtraction

Resources: Printable assessment in teacher’s resources

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

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

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

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

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

Take in the learners’ work when they are done.

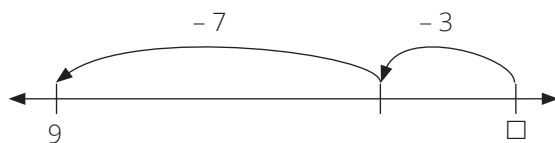
There should be time for you to discuss a few of the items with the class:

- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners’ responses. The learners may have experienced difficulties with using the inverse operations. Allow these learners to practise the number sentences and explain their reasoning.

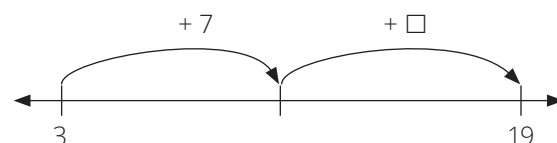
### 3 ASSESSMENT 15 MARKS

#### WRITTEN

- a** Show the following on the number line:  $\square - 3 - 7 = 9$  (19) (4 marks)



- b** Show the following on the number line:  $3 + 7 + \square = 19$  (9) (4 marks)



- c** What do you notice about the 2 number lines? \_\_\_\_\_ (1 mark)
- d** 13 and how many make 21? \_\_\_\_ (8) (1 mark)
- e**  $\square - 5 - 6 = 8$  (19) (1 mark)
- f**  $\square - 2 + 3 = 7$  (6) (1 mark)
- g**  $9 + 3 - \square = 5$  (7) (1 mark)
- h**  $4 + 7 + \square = 19$  (8) (1 mark)
- i** I am thinking of a number. When I take 8 away from the number my answer is 12. What number am I thinking of? \_\_\_\_ (20) (1 mark)

## Unit 4 Introduction: Number patterns

In this unit you will work with number patterns and you will also be looking at the relationship between these patterns. Number patterns are all about prediction. What will the next number of this pattern be? Recognising number patterns is also an important problem-solving skill. If you see the rule of a pattern you may be able to generalise it and use the pattern rule to find a solution to a problem.

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

- **Conceptual understanding:** Learners will develop an understanding of number patterns in this unit.
- **Procedural fluency:** Learners will find using number lines and number boards will help them to identify and extend number patterns.
- **Strategies:** Learners will discover that there are various types of number patterns and number patterns may assist with problem solving.
- **Reasoning:** Learners need to verbalise their understanding, and demonstrate the various types of number patterns.

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

- **Practising procedures:** Learners practice procedures through identifying and extending patterns in this unit. This helps them to generalise the rules for patterns in a problem solving setting.
- **Speaking mathematics:** Learners are encouraged to use the new vocabulary themselves, rather than just listening to the teacher using the language.
- **Explaining concepts and procedures:** Learners verbalise the concepts they are learning, and explain the procedures they will use to identify and extend number patterns.

## Lesson 43: Counting in 2s and 4s

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.2 Count forwards and backwards; 2.2 Number patterns

Lesson Objective: Counting forwards and backwards in 2s and 4s to identify number patterns.

Lesson Vocabulary: Forwards, backwards, number patterns, 2s, 4s

Resources: n/a

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

### 1 MENTAL MATHS (10 MINUTES)

Count forward in 2s from 2 to 40, in 3s from 3 to 30, in 4s from 4 to 40 and in 5s from 5 up to 100.

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

In these activities, learners will count forwards in 2s and 4s from 328 to 360. During these activities, learners will identify and explore patterns using 2s and 4s. While you work with the patterns, you must be sure to show learners how they can recognise the rule that generates each pattern. Learners need to be able to recognise the rule for a pattern because they need to use these rules to find missing terms in given sequences and to extend patterns, using the rule.

Today we are learning about number patterns using 2s and 4s.

#### Activity 1: Whole class activity

- Let learners draw a number line from 328–360 in 4s as shown below. Show the first 3 numbers before they draw.



- Let learners count forwards and backwards using the number line.
- Let learners draw a number line using the same number range in 2s as shown below. Show the first 3 numbers before they draw.

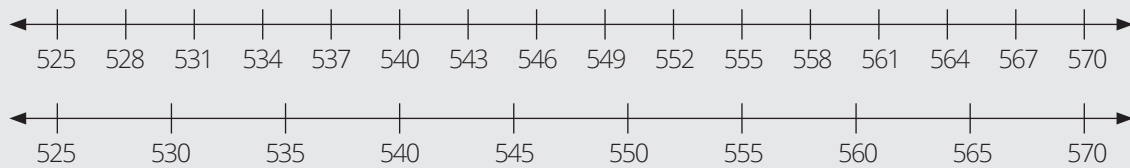


- Let the learners count with you as you move along the number lines.
- Ask a learner to come to the board and write down the 4s between 328 and 360. (328, 332, 336, 340, 344, 348, 352, 356, 360)
- Ask a learner to come to the board and write down the 2s between 328 and 360. (328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360)

- Let learners find all the numbers between 328 and 360 that belong to both patterns. Do this by looking at every number in the 2s pattern to see if there is a match with a number in the 4s pattern. (The following numbers are in both patterns: 332, 336, 340, 348, 352, 356, 360)
- Write the following numbers on the board: 332, 336, 340, 348, 352, 356, 358, 360. Ask: **Is there any number that does not belong in the pattern? (358) how do you know?** (All other numbers are in the 2s pattern and in the 4s pattern. 358 is only in the 2s pattern.)

### Activity 2: Whole class activity

- Do the same as activity 1 to the numbers from 525 to 570 in 3s and 5.



- Let learners find all the numbers between 525 and 570 that belong to both the patterns. (525, 540, 555, 570)
- Ask: **What's the pattern of these numbers?** (The numbers in this pattern increase by 15 each time.)

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

1 Extend the pattern:

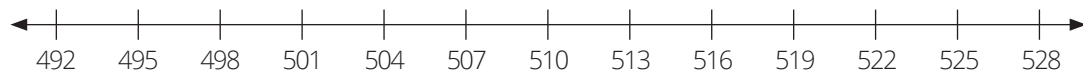
- a 112, 116, 120, , ,  (124, 128, 132)
- b 116, 112, 108, , ,  (104, 100, 96)
- c 164, 162, 160, , ,  (158, 156, 154)
- d 132, 129, 126, , ,  (123, 120, 117)

2 Draw the following number lines:

- a 4s from 492–528



- b 3s from 492–528



- c Which numbers are in both the 3s pattern and the 4s pattern? (492, 504, 516, 528)

### 4 HOMEWORK ACTIVITY (5 MINUTES)

Complete the pattern:

- 1 100, \_\_\_\_\_, 108, \_\_\_\_\_, 116, \_\_\_\_\_ (104, 112, 120)
- 2 100, \_\_\_\_\_, 104, \_\_\_\_\_, 108, \_\_\_\_\_, 112 (102, 106, 110)

**3** Which numbers are in both the 2s pattern and the 4s pattern? (104, 108, 112)

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

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

Today we counted forwards in 2s and 4s. We found number patterns and the relationship between 2s and 4s.

## Lesson 44: Counting in 20s, 25s, 50s and 100s

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.2 Count forwards and backwards; 2.2 Number patterns

Lesson Objective: Counting forwards and backwards in 20s, 25s, 50s and 100s to identify number patterns.

Lesson Vocabulary: Forwards, backwards, number patterns, 20s, 25s, 50s, 100s

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

Count forward from 20 in 20s, from 25 in 25s, from 50 in 50s up to 200.

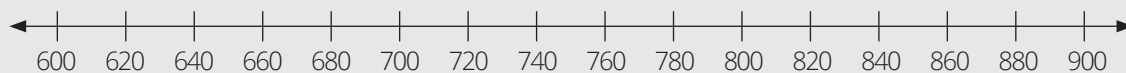
### 2 LESSON CONTENT - CONCEPT DEVELOPMENT (45 MINUTES)

In this lesson you will work with counting patterns (such as 20s, 25s, and 50s) on number lines. The learners need to be able to recognise the rule for a pattern and identify what is common between these patterns.

Today we are learning about number patterns between 300 and 500 using 20s, 25s, 50s and 100s.

#### Activity 1: Whole class activity.

- Let learners draw number lines from 600 to 900 in 20s and 25s in their classwork book. Write the number line with the first three numbers on the board.
- After each one, ask the learners **what are we counting in on this number line?**



- Count forwards and backwards on each number line in 20s and 25s with the learners.
- Ask: **Which number line can be used to count in 50s?**
- Use the number line to count in 50s.
- Ask: **Which number line can be used to count in 100s?**
- Use the number line to count in 100s.
- Count forwards and backwards on the number lines in 50s and 100s with the learners.

### Activity 2: Whole class activity

- Ask the learners to look at each of the number lines.
- Ask the learners **what's common if I count in 20s and 25s from 300 to 500?** (They should explain each pattern.)
- Ask the learners **what's common if I count in 20s and 50s from 300 to 500?** (They should explain each pattern)
- Allow different learners to come up and explain their answers to the class.
- Continue to discuss the patterns between the numbers, 50s and 100s from 600 to 800, etc..
- Conclude your discussion by asking the learners **what's common if I count in 20s, 25, 50s and 100s?** (The hundreds.)

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

1 Describe these patterns:

- a 200, 220, 240, 260, 280, 300, 320, 340, 360, 380, 400 (Counting forwards in 20s starting at 200.)
- b 200, 225, 250, 275, 300, 325, 350, 375, 400 (Counting forwards in 25s starting at 200.)
- c 200, 250, 300, 350, 400 (Counting forwards in 50s starting at 200.)
- d 200, 300, 400 (Counting forwards in 100s starting at 200.)
- e What's common if I count in 20s and 25s from 200 to 400? (300, 400)
- f What's common if I count in 25s and 50s from 200 to 400? (250, 300, 350, 400)
- g What's common if I count in 50s and 100s from 200 to 400? (300, 400)
- h What's common if I count in 20s and 100s from 200 to 400? (300, 400)
- i What's common if I count in 20s, 25s, 50s and 100s from 200 to 400? (300, 400)

2 Extend these patterns:

- a 499, 494, 489, \_\_\_\_, \_\_\_\_, \_\_\_\_ (484, 479, 474)
- b 380, 360, 340, \_\_\_\_, \_\_\_\_, \_\_\_\_ (320, 300, 280)
- c 500, 400, 300, \_\_\_\_, \_\_\_\_, \_\_\_\_ (200, 100, 0)
- d 236, 336, 436, \_\_\_\_, \_\_\_\_, \_\_\_\_ (536, 636, 736)

### 4 HOMEWORK ACTIVITY (5 MINUTES)

Extend these patterns:

- 1 300, 400, \_\_\_\_ (500)
- 2 300, 350, \_\_\_\_, 450, \_\_\_\_ (400, 500)
- 3 300, 325, 350, \_\_\_\_, 400, \_\_\_\_, 450, \_\_\_\_, 500 (375, 425, 475)
- 4 What is common between a) and b)? (400, 500)
- 5 What is common between b) and c)? (350, 400, 450, 500)
- 6 What is common between a) and c)? (400, 500)



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

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

Today we counted forwards and backwards in 20s, 25s, 50s and 100s. We found number patterns and the relationship between these numbers.

## Lesson 45: Consolidation: Number patterns

### Teacher's notes

This lesson allows for consolidation of the previous days' lesson content

CAPS topics: 1.2 Count forwards and backwards; 2.2 Number patterns

Lesson Objective: To revise number patterns.

Lesson Vocabulary: Forwards, backwards, number patterns, 2s, 3s, 4s, 5s, 20s, 25s, 50s, 100s

Resources: n/a

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

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

This week we have explored number patterns. We have counted forwards and backwards in patterns. The patterns we have covered are 2s, 3s, 4s, 5s, 20s, 25s, 50s and 100s. We have used number lines and a number board to help us identify patterns.

### 2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

Learners may have experienced difficulties with counting in the intervals using the larger numbers. It is important that the learners are confident when counting forwards and backwards using larger numbers. Use the 201- 1 000 number board to revisit the number patterns. Let the learners draw and discuss the patterns on the number board. You can work alongside the learners showing them how the patterns happen.

### 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 number patterns.

### 4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION - SEE LEARNER RESOURCES

1 Describe these patterns:

- a 100, 102, 104, 106, 108, (Counting forwards in 2s starting at 100.)
- b 360, 370, 380, 390, 400, (Counting forwards in 10s starting at 360.)
- c 414, 417, 420, 423, (Counting forwards in 3s starting at 414.)

2 Extend these patterns:

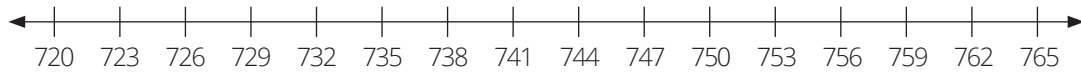
- a 199, 299, 399, \_\_\_\_, \_\_\_\_ (499, 599)
- b 580, 560, 540, \_\_\_\_, \_\_\_\_, \_\_\_\_ (520, 500, 480)
- c 450, 500, 550, \_\_\_\_, \_\_\_\_, \_\_\_\_ (600, 650, 700)

3 Draw the following number lines:

a 5s from 720–765

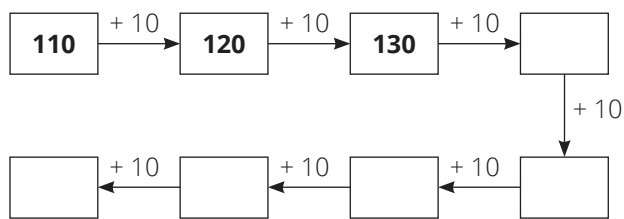


b 3s from 720–765



c Which numbers are in both the 5s pattern and the 3s pattern (735, 750, 765, 354, 358)

4 Complete the following:



5 Complete the patterns:

a 127, 130, 133, \_\_\_\_, \_\_\_\_, \_\_\_\_ (136, 139, 142)

b 108, 105, 102, \_\_\_\_, \_\_\_\_, \_\_\_\_ (99, 96, 93)

c \_\_\_\_, \_\_\_\_, \_\_\_\_, 198, 195, 192 (207, 204, 201)

d 38, 40, 42, \_\_\_\_, \_\_\_\_, \_\_\_\_ (44, 46, 48)

e 140, \_\_\_\_, 144, \_\_\_\_, 148, \_\_\_\_ (142, 146, 150)

### 5 REFLECTION AND SUMMARY OF LESSON

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

Today we have revised number patterns using 2s, 3s, 4s, 5s, 10s, 20s, 50s and 100s.

# Week 10

## Lesson 46: Counting in 2s, 3s, 4s, 5s, 20s, 25s, 50s and 100s

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.2 Count forwards and backwards; 2.2 Number patterns

Lesson Objective: Working with number patterns in 2s, 3s, 4s, 5s, 20s, 25s, 50s and 100s.

Lesson Vocabulary: Forwards, backwards, number patterns, 2s, 3s, 4s, 5s, 20s, 25s, 50s, 100s

Resources: 201–1 000 number board per learner (see *Printable Resources*)

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

Count forwards and backwards in 2s from any multiple of 2 in the number range 0 to 200.

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

In this lesson you will work with counting patterns (such as 2s, 3s, 4s, 5s, 20s, 25s, 50s and 100s) on a number board. The learners need to be able to recognise the rule for a pattern and identify what is common between these patterns.

Today we are learning about number patterns between 400 and 600.

### Activity 1: Learners work in pairs

- Give a 201–1000 number board to learners.
- Ask them to find patterns made by counting on in 2s on their number board, from 400 to 600. (400, 402, 404, 406, 408, 410, 412, ...) Ask the learners to draw a circle around each of these numbers. Count backwards from 600 to 400.
- Ask: **Can you see a pattern in the numbers?** (The numbers end in an even number each time, the numbers make own columns on the number board.)
- Ask: **How did this pattern grow?** (By adding 2 each time. The rule for this pattern is to add 2.)
- Ask them to draw triangles to show the patterns made by counting on in 3s, starting at 402 and counting to 600. (402, 405, 408, 411, 414, 417, ...) Count backwards from 600.
- Ask if they can see the pattern.
- Ask: **How did this pattern grow?** (By adding 3 each time. The rule for this pattern is to add 3.)

- Ask the learners to draw squares to show the patterns made by counting on in 4s, starting at 400 and counting to 600. (400, 404, 408, 412, 416, 420, 424, ...) Count backwards from 600.
- Ask if they can see the pattern.
- Ask: **How did this pattern grow?** (By adding 4 each time. The rule for this pattern is to add 4.)
- *Learners may mention the pattern from a geometric point of view. (straight, diagonal etc.)*
- Ask the learners to look at the patterns of 2, 3 and 4. Ask them to find the common numbers. (408, 420, 432, 444, 456, 468, 480, 492, 504, 516, 528, 540, 552, 564, 576, 588 and 600)

### Activity 2: Learners work in pairs

- Use the number board. Ask them to count forward in 5s from 600. (i.e. 600, 605, 610, 615, 620, and 625.)
- Ask learners to extend the pattern up to 1000. Ask them what they notice. Ask, **why was it easy to show the rest of the pattern?** (all the numbers are placed in two straight lines – the 5s line and the 10s line.) Count backwards from 1 000.
- Let learners draw circles on 20s, triangles on 25s, cross on 50s.
- Ask the learners to look at the patterns of 5s, 20s and 25s. Ask them to find the common numbers.
- Ask the learners to look at the patterns of 25s, 50s and 100s. Ask them to find the common numbers.
- Ask the learners to look at the patterns of 5s, 50s and 100s. Ask them to find the common numbers.

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

1 Complete the pattern:

- a** 400, 403, 406, \_\_, 412, \_\_, \_\_, 421. (409, 415, 418)  
The rule for this pattern is to add\_\_ (3)
- b** 402, 404, \_\_, 408, \_\_, 412, \_\_, \_\_, 418, 420 (406, 410, 414, 416)  
The rule for this pattern is to add\_\_ (2)
- c** 404, 408, \_\_, 416, \_\_ (412, 420)  
The rule for this pattern is to add\_\_ (4)
- d** 405, \_\_, 415, \_\_ (410, 420)  
The rule for this pattern is to add\_\_ (5)
- 2** Which numbers are in both a) and b)? (406, 412, 418)
- 3** Which numbers are in both c) and d)? (420)
- 4** Which numbers are in both a) and c)? (412)
- 5** Which numbers are in both b) and d)? (410, 420)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Copy and underline the numbers that do not belong to the patterns.

**1** 505, 510, 515, 520, 523, 530 (523)

**2** 500, 525, 550, 570, 575, 600 (570)

**3** 500, 510, 520, 530, 535, 540, 550 (535)

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

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

Today we counted forwards and backwards in 2s, 3s, 4s, 5s, 20s, 25s, 50s and 100s. We found number patterns and the relationship between these numbers.

## Lesson 47: Flow diagrams and tables

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.2 Count forwards and backwards; 2.2 Number patterns

Lesson Objective: To practise solving multiplication flow diagrams and tables.

Lesson Vocabulary: input, output, flow diagram, multiply, groups

Resources: n/a

Date:

Week

Day

### 1 MENTAL MATHS (10 MINUTES)

Count forwards and backwards in multiples of 5 between 5 and 200.

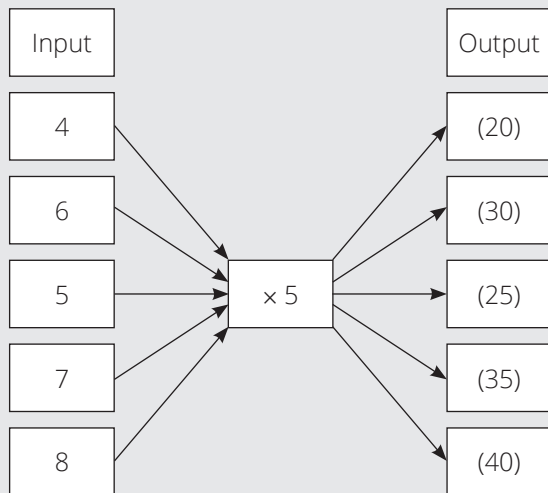
### 2 LESSON CONTENT – CONCEPT DEVELOPMENT (45 MINUTES)

In the next 2 lessons you will work with the multiplication of 2, 3, 4 and 5 using flow diagrams and tables. In Grade 2 learners were introduced to multiplication by 1, 2, 3, 4 and 5. They were also introduced to the multiplication sign. In these 2 lessons we continue to explore multiplication using flow diagrams and tables. A flow chart is a graphic organiser that teaches learners to follow a step-by-step process.

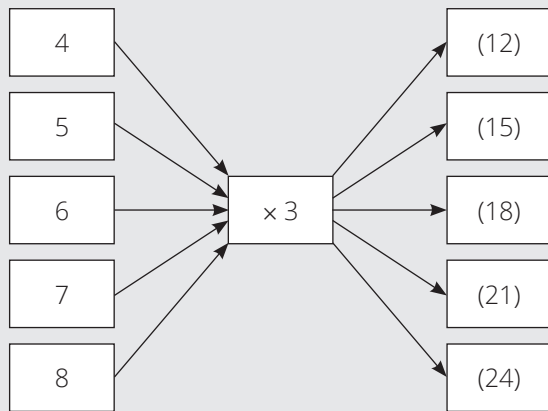
Today we are learning about multiplication using flow diagrams and tables.

### Activity 1: Whole class activity

- Draw the flow diagram below but do not include the numbers.
- Explain to the learners that the number in the blocks on the left are the numbers we will be working with.
- Write the numbers 4, 6, 5, 7, 8 in the rectangles as shown below.
- Discuss the arrows connecting to the square  $\times 5$ . (All of the numbers are going to be subjected to the same rule – multiply by 5.)
- Ask: **What is 4 groups of 5?** (20)
- Record this answer in the first output block.
- Continue to complete the follow diagram with the learners.
- Ask: **What pattern do you notice?** (the rule is to that the output numbers are found by multiplying the input numbers by 5. The output numbers are thus all multiples of 5)



- Repeat this exercise using the flow diagram below:
- Ask: **What is the rule in this flow diagram?** (multiply the input numbers by 3.)



### Activity 2: Whole class activity

- In this activity we will continue to work with multiplication using a table.
- Draw the table below on the board.

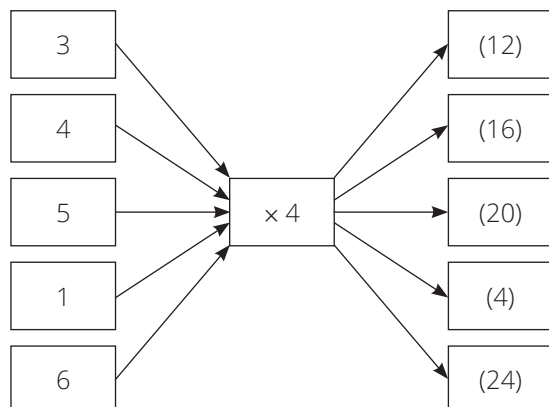
	5	6	7	8	9	10
$\times 3$	(15)	(18)	(21)	(24)	(27)	(30)

- Explain the table to the learners: We are multiplying each number by 3, for example  $5 \times 3$  is 15.
- Complete the table with the learners.
- Ask the learners what pattern do you notice? (the pattern that the output numbers are all multiples of 3)



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

1 Complete the following flow diagram:



The pattern is \_\_\_\_\_ (the pattern is to add 4/multiples of 4)

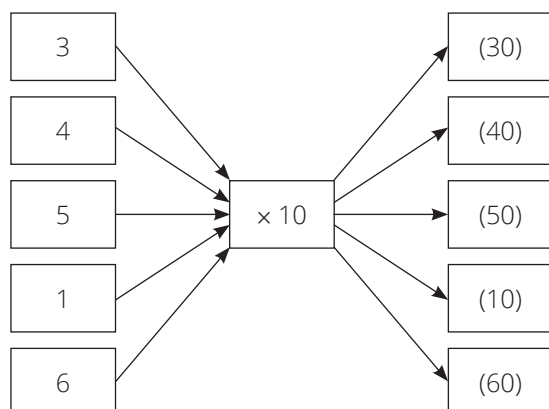
2 Complete the table below:

	5	6	7	8	9	10
$\times 2$	(10)	(12)	(14)	(16)	(18)	(20)

The pattern is \_\_\_\_\_ (the pattern is to add 2/ multiples of 2)

**4 HOMEWORK ACTIVITY (5 MINUTES)**

Complete the following flow diagram:

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

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

Today we worked with flow diagrams and tables to identify number patterns.

## Lesson 48: Number patterns, flow diagrams and tables

### Teacher's notes

This lesson is one of the fully planned lessons to be used to cover the Term 1 curriculum

CAPS topics: 1.2 Count forwards and backwards; 2.2 Number patterns

Lesson Objective: To solve word problems using tables and flow diagrams.

Lesson Vocabulary: input, output, flow diagram, multiply, groups

Resources: n/a

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

### 1 MENTAL MATHS (10 MINUTES)

Count forwards and backwards in 10s from any multiple of between 10 and 200.

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

This is the second lesson using flow diagrams and tables. In this lesson we continue to explore multiplication using flow diagrams and tables while solving word problems.

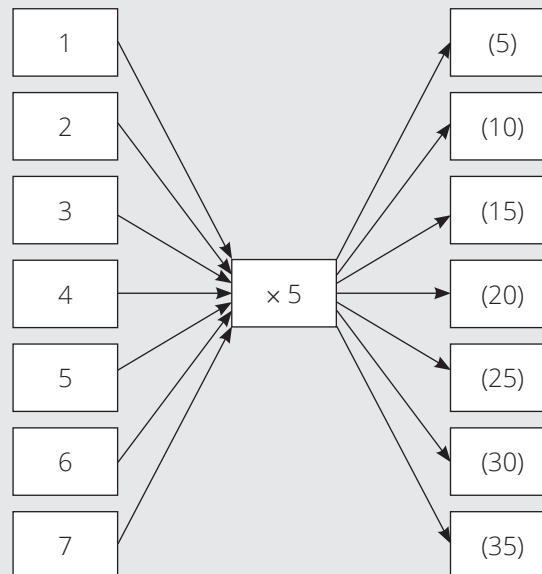
Today we are learning about using flow diagrams and tables to solve problems.

### Activity 1: Whole class activity

- Read the following problem to the learners: **Thoko gets R5 every week. How much will he have after 7 weeks?**
- Draw the following table on the board:

<b>R5 coins</b>	1	2	3	4	5	6	7
<b>Total money</b>	(R5)	(R10)	(R15)	(R20)	(R25)	(R30)	(R35)

- Complete the table with the learners. Ask different learners for the answer and to explain their answer.
- When the table is complete ask the learners: **What pattern can you see?** (the pattern is multiples of 5)
- Explain to the learners that we can also show the answers using a flow diagram.
- Discuss the relationship between the table and the flow diagram.



**Activity 2: Whole class activity**

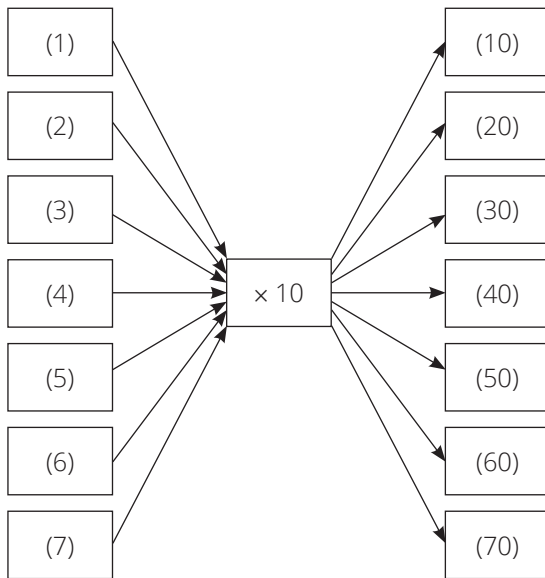
- In this activity you will work to solve the following problem with your learners. The answer should follow the same steps as in activity 1.
- Read the following problem to the learners: **Neo collects 4 stickers each week from Shoprite. How many stickers will she have after 6 weeks? (24)**
- Solve this problem with the learners recording the answers in a table and in a flow diagram.

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

Solve the following problem. Show your answers in the table and in the flow diagram.

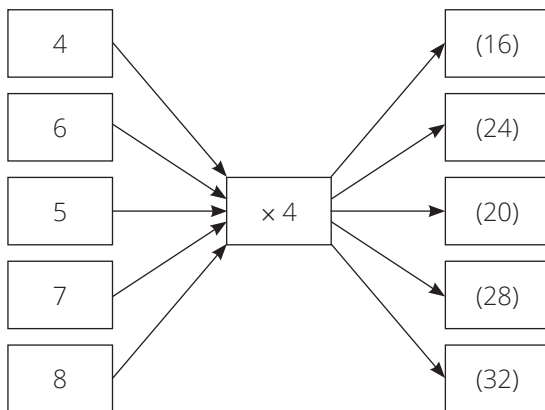
Mbali gets R10 each week. How much will she have after 7 weeks?

<b>R10 notes</b>	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Total money</b>	(R10)	(R20)	(R30)	(R40)	(R50)	(R60)	(R70)



**4 HOMEWORK ACTIVITY (5 MINUTES)**

Complete the following flow diagram:



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

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

Today we worked with flow diagrams and tables to solve word problems.

## Lesson 49: Assessment – Number patterns

### Teacher's notes

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

CAPS topics: 1.2 Count forwards and backwards; 2.2 Number patterns

Resources: Printable assessment in teacher's resources

Date:

Week

Day

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

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

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

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

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

Take in the learners' work when they are done.

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

- use this opportunity to reflect on different methods used by learners (allow some learners to write their solutions on the board).
- speak about misconceptions that may have arisen in learners' responses. The learners may experience difficulty with identifying the number patterns. You can assist the learners by letting them colour various patterns on number boards and discuss the patterns.

### 3 ASSESSMENT (16 MARKS)

#### WRITTEN

1 Complete the following number lines: (7 marks)

a 3s from 240 – 276 (2 marks – if all correct, 1 if partially correct)



b 4s from 240 – 276 (2 marks- if all correct, 1 if partially correct)



c Which numbers are in both the 3s pattern and the 4s pattern. \_\_\_\_\_ (252, 264, 276) (3 marks)

2 Which numbers between 300 and 400 belongs to both the 25s and the 50s pattern?  
\_\_\_\_\_ (350) (1mark)

**3** Extend the pattern: (2 marks each – if all correct, 1 if partially correct)

**a** 485, 490, 495, \_\_, \_\_, \_\_, \_\_ (500, 505, 510, 515)

**b** 300, 400, \_\_, \_\_, \_\_, \_\_, (500, 600, 700, 800)

**4** Complete the pattern: (4 marks)

**a** \_\_, \_\_, \_\_, 200, 195, 190 (215, 210, 205)

**b** \_\_, \_\_, \_\_, 560, 550, 540 (590, 580, 570)

**c** \_\_, \_\_, \_\_, 440, 438, 436 (446, 444, 442)

**d** 450, 400, 350, \_\_, \_\_, \_\_, \_\_ (300, 250, 200)

**ORAL**

<b>CAPS: Patterns and algebra: Number patterns</b>		<b>Mark: /7</b>
<b>Activity: Observe learners counting – forwards and backwards in 2s, 3s, 4s, 5s, 20s, 25s, 50s and 100s</b>		
<b>Mark</b>	<b>Criteria – Checklist: (1 mark for each criterion achieved)</b>	
<b>1</b>	Able to count in 2s in the number range	
<b>1</b>	Able to count in 3s in the number range	
<b>1</b>	Able to count in 4s in the number range	
<b>1</b>	Able to count in 5s in the number range	
<b>1</b>	Able to count in 20s in the number range	
<b>1</b>	Able to count in 25s in the number range	
<b>1</b>	Able to count in 50s and 100s in the number range	

## Lesson 50: Consolidation: Number patterns, flow diagrams and tables.

### Teacher's notes

This lesson allows for consolidation of the previous days' lesson content

CAPS topics: 1.2 Count forwards and backwards; 2.2 Number patterns

Lesson Objective: To revise number patterns, flow diagrams and patterns

Lesson Vocabulary: input, output, flow diagram, table, multiply, groups, patterns

Resources: n/a

Date:

Week

Day

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

During this week learners continued to identify and extend number patterns. They were introduced to flow diagrams and tables to represent number patterns and to solve word problems.

### 2 POSSIBLE MISCONCEPTIONS LINKED TO THE WEEK'S WORK

The learners may experience difficulty with identifying the number patterns. They may also be struggling to recognise the relationship between the flow diagram and tables as representing the same information in different formats. You can assist the learners by letting them do various examples and showing their findings in the 2 different forms.

### 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 number patterns, flow diagrams and tables.

### 4 ADDITIONAL ACTIVITIES FOR CONSOLIDATION - SEE LEARNER RESOURCES

1 Complete the pattern:

a 200, 300, 400, \_\_\_\_, \_\_\_\_, \_\_\_\_ (500, 600, 700)

b \_\_\_\_, \_\_\_\_, \_\_\_\_, 380, 400, 420 (320, 340, 360)

c 450, 500, 550, \_\_\_\_, \_\_\_\_, \_\_\_\_ (600, 650, 700)

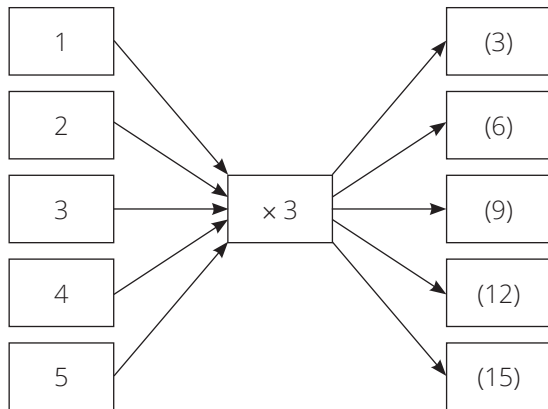
2 Extend the pattern

575, 580, 585, \_\_, \_\_, \_\_, \_\_ (590, 595, 600, 605)

300, 304, 308, \_\_, \_\_\_\_, \_\_\_\_ (312, 316, 320)

**3** Busi eats 3 apples a week. How many apples will she had eaten after 5 weeks?

Solve this word problem using the flow diagram and table below.



	1	2	3	4	5
$\times 3$	(3)	(6)	(9)	(12)	(15)

### 5 REFLECTION AND SUMMARY OF LESSON

Call the whole class to attention and summarise the key concepts of the lesson .Today we have revised number patterns, flow diagrams and tables to show information.